



Knowledge Management Practices applied in the EaD system of a federal educational institution in the South of Rio de Janeiro

Thiago Luís Lopes Calmeto¹
André Yves Cribb²

ABSTRACT

Currently, public and private organizations recognize the importance and apply Knowledge Management (KM) as a management tool to improve their performance and efficiency and obtain competitive advantages. In the distance education (distance education) segment, the growth of the modality causes many teaching organizations to seek to position themselves in the market and, with this, use KM practices to update themselves and remain competitive and innovative, based on the differentiation by how they apply this knowledge. In this sense, this article aimed to diagnose KM practices applied in the distance education system of a federal educational institution in the southern region of the state of Rio de Janeiro (Sul Fluminense). The research is characterized as qualitative / quantitative, exploratory-descriptive, through a case study. Data collection was performed through participant observation and the application of a semi-structured questionnaire to members of this system, to identify and verify the use of these practices in the daily routine of distance education. The results showed that few KM practices are applied, which indicates that the institution can explore other KM practices in distance education, in order to apply them in the segment and, thus, qualify teaching in this modality and guarantee its competitiveness in this market. . For that, recommendations were proposed for an effective implementation of KM in the DE system of the researched institution. to identify and verify the use of these practices in daily distance education. The results showed that few KM practices are applied, which indicates that the institution can explore other KM practices in distance education, in order to apply them in the segment and, thus, qualify teaching in this modality and guarantee its competitiveness in this market. . For that, recommendations were proposed for an effective implementation of KM in the DE system of the researched institution. to identify and verify the use of these practices in daily distance education. The results showed that few KM practices are applied, which indicates that the institution can explore other KM practices in distance education, in order to apply them in the segment and, thus, qualify teaching in this modality and guarantee its competitiveness in this market. . To this end, recommendations were proposed for an effective implementation of KM in the DE system of the researched institution.

Key words: Knowledge management; Knowledge Management Practices; Distance Education.

¹ Email: thiagovrd@gmail.com; Master in Management and Strategy from the Federal Rural University of Rio de Janeiro (UFRRJ) and Information Technology Analyst at the Federal Institute of Rio de Janeiro (IFRJ); ORCID: <https://orcid.org/0000-0002-1682-6160>

² Email: andre.cribb@embrapa.br; Researcher at Embrapa Food Agroindustry and Professor of the Postgraduate Program in Management and Strategy at the Federal Rural University of Rio de Janeiro (UFRRJ); ORCID: <http://orcid.org/0000-0003-4243-394X>

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1. INTRODUCTION

Today's organizations are undergoing transformations at all times, to adapt their business processes to new trends, obtain improvements in their products and services, and guarantee the satisfaction of their users and customers, as a way of guaranteeing their survival and perpetuity, in an environment marked by high competitiveness.

In view of this scenario, the importance of managing knowledge makes organizations pay attention to the administration of knowledge in a strategic way, so that this knowledge will offer them competitive advantages (Cribb, 2010; Nonaka & Takeuchi, 2008).

In this context, Knowledge Management (KM) arises, which consists of a collection of processes that enables and governs the creation, storage, dissemination and use of knowledge, aiming at improving organizational performance; therefore, it is an ally in terms of competitive differential and organizational strategies (Davenport & Prusak, 2012; Silva & Burger, 2018).

KM is characterized by being a management tool that stimulates and boosts the capacity for learning and innovation in processes, products and services both in private organizations (aimed at competitiveness, profit, growth and survival) as well as public ones (which focus on efficiency, performance and effectiveness in the provision of public services) (Batista, 2012; Bento et al., 2017).

In educational institutions, whether public or private, where knowledge is the business and purpose (Brito & Bolson, 2014), managing it with attention is essential, as a way to guarantee the continuity of organizational knowledge, with actions and practices that promote the preservation, review, search and updating of this knowledge.

In this sense, distance education (distance education), a teaching modality that has grown in Brazil in recent years, requires the use of specific knowledge, which must be updated and properly managed by these institutions, through the application of KM practices, to reflect on quality in teaching and improvement of educational and organizational processes, in order to become more competitive (Brasil, 2019; Cruz & Molina, 2019).

The main strategy of distance education institutions is the systematic updating of this knowledge, to promote changes and innovation in the educational and organizational context, since the performance and management in the modality is associated with the management of individual and organizational knowledge (Alarcon & Spanhol, 2015; Cruz & Molina, 2019; Hack, 2011).

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However, the knowledge applicable to distance education is not always managed in a way that allows it to be shared, retained and used in these institutions, due to the dynamics of the processes that involve working in distance education, the changes and the turnover of people, which can lead to the loss of relevant knowledge (Alarcon & Spanhol, 2015; Cruz & Molina, 2019). And in the universe of this research it is no different.

In view of the above, the present study focuses on the concern with the construction, retention, updating and continuity of knowledge applicable to distance education in the distance education system of a federal educational institution in the south of Rio de Janeiro.

In this sense, the objective of the study was to diagnose the Knowledge Management practices applied in the universe mentioned above. For that, a questionnaire was applied to the members of this universe, to identify the use of these practices in the daily routine of DE, in addition to the observation of how such practices are applied in the organizational environment. From this diagnosis, it was possible to assess how knowledge management has been practiced and to contribute with recommendations for a more effective KM.

In addition to the introduction, the article is subdivided into four more sections. The second section discusses KM in organizations, KM practices and the context of distance education. The third section talks about the methodology. The fourth section presents the results and discussions. Finally, the fifth section presents the final considerations.

2. REFERENTIAL THEORETICAL

2.1. KNOWLEDGE MANAGEMENT

The Information and Knowledge Society is characterized by dynamism and excess of information. In this context, information and knowledge are fundamental to the development of a society (Alarcon & Spanhol, 2015; Drucker, 1999).

Knowledge has become the biggest competitive advantage of modern organizations; an asset that drives its development and generates innovation, through the creation or acquisition of knowledge, with a view to maintaining competitiveness, innovation and survival in this dynamic and rapidly changing environment (Cribb, 2010; Davenport & Prusak, 2012; Nonaka & Takeuchi, 2008; Santos et al., 2019; Schreiber, 2015).

In this way, several organizations seek in Knowledge Management the differential to qualify processes and services, being the decisive knowledge to reach strategic objectives, implement new management practices, improve performance, good results and competitive advantage (Alarcon & Spanhol, 2015; Batista, 2012).

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Knowledge Management (KM) consists of creating value from the organization's intangible assets, giving knowledge “status” as an intangible asset. It stopped being a “fad” and became part of the organizations' strategy (Sveiby, 1998).

Nonaka and Takeuchi (2008) define KM as a process by which organizations seek new ways to create and expand knowledge. It is about the continuous creation of new knowledge, sharing it across the organization and incorporating it into new products, services and technologies, and which lead to changes in the organizational environment.

In order for knowledge to provide organizational advantages, it is recognized that people's tacit knowledge is the basis of an organization's knowledge, and that they must have favorable environments for the interaction between them, in order to make this knowledge explicit and disseminated, forming a set of knowledge that, if well managed, can bring several improvements (Cribb, 2010; Nonaka & Takeuchi, 2008).

With the understanding that knowledge is a strategic and intangible asset, KM in organizations encourages building relationships among its members, so that new knowledge is generated and shared and, thus, they create differentials to obtain competitive advantage and continuous improvement (Santos et al., 2019).

Therefore, KM is the capacity that allows organizations to develop, innovate and reinforce their competitiveness; a structured way of treating knowledge, through the use of practices that drive the creation, retention, sharing and application of knowledge (Batista, 2012; Jannuzzi, Falsarella & Sugahara, 2016; Schreiber, 2015).

2.2. KNOWLEDGE MANAGEMENT PRACTICES

KM initiatives in organizations must observe the search for suitable processes and technologies, and consider the cultural and behavioral influence of people, in order to be successful. Thus, the pillars of KM in organizations are: people, processes and technology (Neves et al., 2018).

The effectiveness of KM stems from the interaction between people and technology and, together with the processes developed, provide support for KM, with practices and actions that aim to retain, share and apply knowledge in organizations (Batista, 2012; Bento et al. , 2017).

This set of organizational management practices and actions can be categorized according to each of the KM pillars described above (Batista, 2012; Neves et al., 2018), as can be seen in the table below (Chart 1).

Frame 1

GC practice categories

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KM practice categories	Definition
Practices and actions focused on people	Facilitate the sharing and transfer of information and knowledge.
Practices and actions aimed at structuring organizational processes	They facilitate the generation, retention, organization and dissemination of organizational knowledge.
Practices and tools focused on the functional and technological base	They support KM (automation of information management, systems and IT tools for obtaining, disseminating and collaborating).

Source: Adapted from Batista (2012).

Each of the pillars of KM has associated practices, which can be incorporated by organizations, and which has the purpose of stimulating knowledge dynamics (Batista, 2012; Batista & Quandt, 2015; Hellmann, 2007; Leuch, 2006). Thus, organizations can apply KM practices in a combined manner between the categories of practices.

The literature presents numerous KM practices, according to the relationship of each one of them to the pillars of KM. However, he points out that some of them cover all of them, as they influence behavioral aspects and changes in organizational processes (Batista (2012), Batista & Quandt (2015), Hellmann (2007), Leuch (2006)). Such KM practices can be seen in the table below (Chart 2), along with their description.

Frame 2

Knowledge Management Practices - Description

No.	KM practice	Description of the practice
1	In-person and virtual forums and mailing lists	Spaces to discuss, homogenize and share information, ideas and experiences that will contribute to develop skills and improve the organization's processes and activities.
two	Communities of practice	They are informal and interdisciplinary groups of people united around a common interest. They are organized in order to allow the collaboration of people inside or outside the group; they enable the transfer of best practices and access to specialists, as well as the reuse of models, knowledge and lessons learned.
3	Narratives	Techniques used in KM environments to describe complicated subjects, expose situations, communicate lessons learned, or interpret cultural changes. They are retrospective reports of personnel involved in the events that occurred.
4	Mentoring	Performance management modality in which a mentor models the skills of an individual or group, observes and analyzes performance, and feeds back into the performance of activities.

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5	Coaching	Similar to the previous one, but the coach does not participate in the activities. It guides, dialogues and monitors, in line with strategic guidelines.
6	Organizational Learning	It consists of changes in the organization's knowledge base, the creation of collective reference structures and the growth of organizational competence to act and solve problems.
7	corporate education	Offer continuing education processes to update employees. It can be implemented in the form of corporate university, distance learning systems, etc.
8	Brainstorming	Activity that brings together groups of people to generate innovative ideas. The process is divided into 2 stages: divergent and convergent. In the first stage, there are no judgments about ideas; and in the second stage, the same ideas are analyzed with feasibility criteria.
9	Assistance from colleagues	Technique used by a group of projects that requests assistance from colleagues, external or internal to the group, to solve any problems that the group is facing. It is an informal consultancy, carried out by co-workers from the same group or from others, to solve a specific problem.
10	Socialization	Initiatives that favor socialization among individuals and the conversion of "tacit-tacit" knowledge.
11	Meetings	They are periodic meetings where work, administrative, research results, etc. are discussed.
12	Learning review	Technique that promotes individual and collective learning during the work process. It is usually conducted after meetings, projects or events.
13	Post-action review	Technique to evaluate and capture the lessons learned after the end of a project. It allows group members to know what happened, why it happened and how to maintain strengths and improve weaknesses.
14	Collaborative physical space	Physical space that allows interactions between members of the group and provides a favorable work environment for sharing and creating knowledge.
15	Collaborative virtual space	Virtual space that allows people to work together, regardless of where they are located. It involves the combination of tools for sharing documents, video conferencing, etc.
16	Video sharing	Ability to publish video content on the web, even if only for a specific audience or for the whole world.
17	Best Practices	Record the positive and negative points of a certain procedure or process and reuse them, when necessary. They are defined as a validated procedure to perform a task or solve a problem. It includes the context in which it can be applied. Documented in databases, manuals or guidelines.
18	Benchmarking	Systematic search for the best references to compare processes, products and services internally and externally.
19	Standardization and standardization	Develop and establish norms, standards, procedures and regulations that characterize an organization.

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20	Process mapping	Analyze organizational processes to promote or improve existing processes or to implement a new structure, focused on processes in the company.
21	Knowledge mapping	Find important knowledge about processes, products, services and customer relationships within companies and then publish and disseminate where to find them.
22	Competitive intelligence	Transformation of data into intelligence, with the objective of supporting decision making. They aim to extract intelligence from information, through the capture and conversion of information in various formats, and to extract knowledge from information. The knowledge obtained from internal or external sources, formal or informal, is formalized, documented and stored to facilitate its access.
23	Competency management system	Map the key processes, the core competencies associated with them, the assignments, the existing and necessary activities and skills and the records to overcome deficiencies.
24	Organizational memory / lessons learned	Registration of organizational knowledge about processes, products, services and customer relationships. The lessons learned are reports of experiences in which what has happened, the expectations created and what remains of learning is recorded. Create and maintain a system of knowledge and skills that preserves and stores perceptions and experiences, so that they can be retrieved and used later.
25	Individual skills bank	Repository of information about people's technical, scientific, artistic and cultural capacity. Contains profile, experience, area of expertise and specialties, skills, etc.
26	Organizational skills bank	Repository of information on the location of knowledge in the organization, with sources of consultation and people or teams with certain knowledge.
27	Taxonomy	Technique that makes it possible to structure and organize information, documents, virtual libraries and research topics and in general.
28	Knowledge bases	They are databases or knowledge accumulated on a given subject. They are structured to make knowledge explicit, through the collaborative construction of knowledge by group members. Knowledge bases are useful for maintaining explicit knowledge that is critical to a group (or organization).
29	Knowledge repositories	It is the externalization of knowledge considered "critical", due to its impact on organizational performance. Knowledge repositories serve to preserve, manage and leverage organizational memory.
30	Intellectual capital management	Resources available in the institutional environment, which are difficult to qualify and measure, but which contribute to its productive and social processes. Includes mapping and management of knowledge assets.
31	Collaboration tools	Computerized systems that capture and disseminate knowledge and experience among workers and sectors. They can constitute knowledge repositories for the organization, providing access to all information and applications, as well as a platform for communities of practice, best practices, etc.

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32	Voice over IP	Transmission of audio and video between computers, with high speed connection and other equipment (camera, headphones, etc.).
33	Social Networks and E-mails	Group of people who share a common area of interest. They serve as a support to interact socially on the Internet. It allows you to meet people, share content, facilitate communication, etc. E-mail is a form of electronic mail, for communication.
34	Advanced search tools	A mechanism that, when understood, improves the quality of searches for certain content on the Internet or internal portals.
35	Workflow systems	Use tools to automate the flow of documents and processes aimed at controlling the quality of information.
36	Content management	It deals with the representation of the processes of selection, capture, classification, indexing, registration and debugging of information.
37	Electronic document management (GED)	Computerized systems for emission control, editing and monitoring of the processing, distribution, archiving and disposal of documents.
38	Data Warehouse	Data tracking technology with hierarchical architecture arranged in relational bases, allowing versatility in the handling of large masses of data.
39	Data Mining	Data miners are instruments with a high capacity to associate terms, allowing them to "pan" specific subjects or themes.
40	BSC (Balanced ScoreCard)	Strategic management model that seeks to establish which are the most important performance indicators, how these qualitative or quantitative indicators are related to each other and which generate long-term value.
41	ERP (Enterprise Resource Planning)	They are systems that integrate all the data and processes of an organization in a single system. It is a platform that integrates several departments of an organization, and makes it possible to automate and store business information.
42	Decision Support System (DSS)	Information system specially developed to support the solution of unstructured problems, improving decision making. It uses data, has a friendly interface and allows decision makers to have their own perceptions.

Source: Adapted from Batista (2012), Batista & Quandt (2015), Hellmann (2007) and Leuch (2006).

Such practices help members of an organization to learn and disseminate knowledge to improve the quality of work, reduce costs and risks, and assist decisions. Thus, several organizations concentrate efforts and investments in developing KM actions and practices to increase competitiveness (Bento et al., 2017).

Therefore, KM is done with the application of these practices, and they must be worked on so that knowledge is shared and used in favor of the organization, and provides innovation, value, results and competitive differential (Batista, 2012; Silva & Burger, 2018).

2.3. DISTANCE EDUCATION (DE) AND KM IN DE

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Distance education (EaD) is a teaching modality that is based on the construction of knowledge, through the use of technological resources for studies, where communication is made through a specific language for interaction in EaD between students, teachers and tutors (Hack, 2011; Momo & Behr, 2015).

Distance education is present in several educational institutions in the country, due to its growth and expansion in the last years, of the information and communication technologies, and of the democratization policies of the education offer in the country, which demonstrates the inclusive and universal character of the EaD (Bicalho & Medeiros, 2018; Cruz & Molina, 2019).

To provide education in this modality, an EaD system depends on a support network at different levels (administrative, pedagogical, technological, etc.), and it must have an efficient management, in order to provide the institutions that work in the modality the best use. resources and knowledge (Hack, 2011; Momo & Behr, 2015).

In this sense, the performance and management of DE systems is also related to Knowledge Management, as it contemplates an organizational model based on knowledge sharing, through collective actions and constructions, and the union of efforts for its primary purpose (Alarcon & Spanhol, 2015; Hack, 2011; Novello & Laurino, 2012).

Distance education represents a model of sustainable education, but the application of KM in its context can contribute to being constantly renewed, together with the use of innovative teaching methodologies, collaborative work and digital technologies (Bento et al., 2017 ; Bicalho & Medeiros, 2018).

KM is made with people. For this reason, distance education has the essence of forming multidisciplinary teams, with talents from different areas who work cooperatively and in a network, and who seek new ways to create and expand knowledge and meet work goals (Alarcon & Spanhol, 2015; Novello & Laurino, 2012; Schuelter & Coelho, 2010).

Thus, KM can be considered an important tool for knowledge-intensive organizations, such as those that work in distance education, with practices that encourage knowledge flows between people, teams and organizations (Alarcon & Spanhol, 2015).

With the growth of distance education and increased competitiveness in the market, many institutions see the need to improve their organizational processes through the use of KM practices. For this reason, KM can bring a competitive advantage and contribute to the generation and exchange of information and knowledge, based on the interaction between distance education professionals in these institutions (Cruz & Molina, 2019).

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3. METHODOLOGY

The research has a qualitative approach, of an interpretative nature (Creswell, 2014). The case study strategy was used (Yin, 2015), when investigating the phenomenon within the reality of the researched universe. It also presents a quantitative approach, when contemplating data that can explain phenomena and characteristics, when applying some form of analysis and interpretation by statistical techniques, to describe and interpret such data (Malhotra, 2001).

To reach the final objective of the study, the research had an exploratory and descriptive nature (with a view to understanding the reality and describing the facts and characteristics of the studied reality) (Gil, 2008).

The research subjects were members of the EaD system of the researched institution, who acted in the activities of the referred system between the years 2017 and 2018. As this is a limited number of people, they made up the sample in its entirety.

For data collection, a semi-structured questionnaire was used as an instrument, with closed and open questions, adapted from the studies of Batista (2012), Batista and Quandt (2015), Hellmann (2007) and Leuch (2006), applied in several organizations, to identify KM practices in these entities.

This questionnaire was applied between July and September 2019, and sought to diagnose the KM practices applied in the institution's EaD system, and to verify the degree of knowledge and frequency of its use. To determine whether the practice was applied, its frequent use above 50% was considered, or if the sum between low and high frequency was equal to or greater than 50% of use.

The questionnaire also sought to obtain the respondents' perception of improvements that could be seen in distance education and in the organization, based on a possible implementation of KM, as well as the reasons and in what aspects these improvements would happen.

In this sense, all subjects also received a list of the 42 KM practices for consultation (according to Chart 2), in addition to instructions for completing the questionnaire.

The questionnaire was prepared with the help of the Google Forms tool, as it allows the intuitive construction of the questions, the sending by email to the recipients, in addition to the collection, extraction and organization of the data via spreadsheets in Google Sheets.

There was also the collection of data via participant observation (Gil, 2008; Creswell, 2014), with the recording of field notes about the organizational environment of Distance Education, in order to verify how these KM practices were applied and developed.

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As for the analysis of the data collected by the instruments used, the qualitative data were treated, organized, interpreted and presented in texts and tables, with information and reports that show the organizational reality found. Quantitative data were obtained using techniques of descriptive statistics, such as analysis of absolute and relative frequency distribution of the data.

4. RESULTS AND DISCUSSION

In this section, the results of the research are presented, obtained from the analysis of the data from the questionnaires and from the observation records, indicating the applied KM practices and how they develop in the EaD system researched.

Before that, a brief historical contextualization of the institution and the sector, which can help to understand the particularities and obstacles faced with regard to KM.

4.1. CHARACTERIZATION OF THE ORGANIZATION

The universe of research is the distance education system (EaD) (composed by the Distance Education Center and the distance learning centers) of a federal educational institution, located in the southern region of the state of Rio de Janeiro, and which with Law No. 11,892 / 2008, became part of federal institutes (Brasil, 2008; IFRJ, 2015).

The institution's mission is to promote professional, scientific and technological education, forming citizens who are agents of social transformation. To this end, it offers courses at various levels of education (high school, undergraduate, graduate, etc.) (IFRJ, 2015; IFRJ, 2018; IFRJ, 2019).

Distance education at the institution started in 2008, when the first distance courses were approved. In 2009, the Distance Education Center (NEaD) and the first classroom support centers were opened. Since then, the distance education system has monitored and organized the offer of these courses (IFRJ, 2015; IFRJ, 2018; IFRJ, 2019). Currently, the face-to-face centers are distributed in six different municipalities in the state, between the South Fluminense and the metropolitan region of Rio de Janeiro.

As guiding principles, distance education at the institution is based on collaborative learning and the democratization of access to public education for those who have difficulties in attending classroom teaching (IFRJ, 2015).

The activities carried out by the EaD system, in general, are: offering and monitoring of distance courses; monitoring of students, tutors and teachers; provision of environments for

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students and tutors; and support for the virtual learning environment for users of the EaD system.

The professionals that make up the multidisciplinary team of the EaD system are: general coordinator (leader of the EaD system); coordinators of courses, tutoring and classroom hubs; teachers; tutors and technical and administrative and pedagogical support teams.

In this sense, due to the fact that distance education is essentially the formation of multidisciplinary teams, with different functions and skills, different knowledge can be created and innovated, based on the interactions between all, where it is possible to take advantage of them in favor of the collective (Schuelter & Coelho, 2010).

In the case at hand, for the institution's EaD system to take advantage of this knowledge in the activities of the modality, it is necessary to pay attention to the management of this knowledge, since these form the basis for the system's work. This can bring several improvements, with the use of practices and tools aimed at the dynamics of knowledge internally.

The high turnover of professionals and the dynamics that involves working in distance education means that essential knowledge is not retained or used in the system's activities, so that they end up being lost, which generates several problems for the distance education system.

In general, there is a good interaction between employees. This can facilitate the exchange of experiences and the sharing of knowledge among all, so that this knowledge can be retained and used in the activities of the DE system.

4.2. KM PRACTICES APPLIED IN THE DEADLINE SYSTEM

In order to diagnose the KM practices applied in the researched universe, a semi-structured questionnaire was applied to the research subjects, in order to verify the degree of knowledge and frequency of use of these KM practices in the daily distance education.

At the end of the data collection via questionnaires, of the total of 80 individuals who made up the sample selected for the study in question, 32 responded to the questionnaire, which allowed a return rate of 40% to be achieved.

At the same time that the questionnaires were applied, data were collected via observation, so that a joint analysis could be made of which KM practices were applied and how they developed in the research universe.

In the table below (Table 3), the results obtained regarding the degree of knowledge and frequency of use of KM practices in the institution's DE system are presented.

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Frame 3

Degree of knowledge and frequency of use of KM practices in the DE system

KM practices	Knowledge and Frequency of Use			
	I don't know the practice	I know it, but it is not used	Used infrequently	Frequently used
In-person and virtual forums and mailing lists	6.50%	16.10%	16.10%	61.30%
Communities of Practice	31%	34.60%	17.20%	17.20%
Narratives	37.50%	28.10%	25%	9.40%
Mentoring	37.50%	46.90%	9.40%	6.30%
Coaching	28%	59.40%	6.30%	6.30%
Organizational Learning	25%	31.20%	21.90%	21.90%
Corporative education	12.50%	28.10%	43.80%	15.60%
Brainstorming	21.90%	43.70%	21.90%	12.50%
Assistance from colleagues	34.40%	25%	3.10%	37.50%
Socialization	3.10%	21.80%	31.30%	43.80%
Meetings	0%	3.10%	34.40%	62.50%
Learning review	40.70%	15.60%	15.60%	28.10%
Post-action review	43.80%	15.60%	15.60%	25%
Collaborative physical space	15.60%	15.60%	31.30%	37.50%
Collaborative virtual space	12.50%	9.40%	21.80%	56.30%
Video sharing	28.10%	25%	9.40%	37.50%
Best Practices	18.70%	37.50%	12.50%	31.30%
Benchmarking	34.30%	46.90%	12.50%	6.30%
Standardization and standardization	12.50%	31.30%	15.60%	40.60%
Process mapping	12.50%	50%	21.90%	15.60%
Knowledge mapping	21.90%	40.70%	18.70%	18.70%
Competitive intelligence	59.40%	18.70%	15.60%	6.30%
Competency management system	40.60%	31.30%	12.50%	15.60%
Organizational memory / lessons learned	28.10%	37.50%	3.10%	31.30%
Individual skills bank	25%	40.60%	25%	9.40%
Organizational skills bank	21.90%	40.60%	15.60%	21.90%
Taxonomy	56.30%	18.70%	15.60%	9.40%
Knowledge bases	37.50%	31.30%	12.50%	18.70%
Knowledge repositories	34.40%	34.40%	12.50%	18.70%
Intellectual capital management	59.40%	28%	6.30%	6.30%
Collaboration tools	9.40%	9.40%	18.70%	62.50%
Voice over IP	34.40%	18.70%	21.90%	25%
Social Networks and E-mails	3.20%	3.20%	12.90%	80.70%

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Advanced search tools	18.70%	6.30%	34.40%	40.60%
Workflow systems	65.60%	18.70%	6.30%	9.40%
Content management	43.80%	12.50%	15.60%	28.10%
Electronic document management (GED)	28.10%	21.90%	34.40%	15.60%
ERP (Enterprise Resource Planning)	53.10%	31.20%	6.30%	9.40%
Decision Support System (DSS)	68.80%	21.80%	3.10%	6.30%
Data Warehouse and Data Mining	78.20%	18.70%	0%	3.10%
BSC (Balanced ScoreCard)	68.80%	21.80%	6.30%	3.10%

Source: Research data (2019). Prepared by the author.

Based on the criteria to determine the application of KM practices in the DE system, a low number of applied practices was observed. Of the total of 42 practices listed, only 10 are used by distance education professionals, some more frequently and others more frequently in specific cases. Such practices are shown in the table below (Table 4).

Frame 4

KM practices applied in the EaD system researched

KM practices	Knowledge and Frequency of Use			
	I don't know the practice	I know it but it's not used	Used infrequently	Frequently used
In-person and virtual forums and mailing lists	6.50%	16.10%	16.10%	61.30%
Corporate education	12.50%	28.10%	43.80%	15.60%
Socialization	3.10%	21.80%	31.30%	43.80%
Collaborative physical space	15.60%	15.60%	31.30%	37.50%
Collaborative virtual space	12.50%	9.40%	21.80%	56.30%
Meetings	0%	3.10%	34.40%	62.50%
Standardization and standardization	12.50%	31.30%	15.60%	40.60%
Collaboration tools	9.40%	9.40%	18.70%	62.50%
Electronic document management (GED)	28.10%	21.90%	34.40%	15.60%
Social Networks and E-mails	3.20%	3.20%	12.90%	80.70%

Source: Research data (2019). Prepared by the author.

Among the applied practices, it is observed that the practices related to processes (GED and normalization / standardization) are less frequent, while the practices related to people and technology are more frequently used.

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Face-to-face and virtual forums and discussion lists are spaces for sharing information, ideas and experiences, and allow for the development of skills and perfecting the organization's processes and activities (Batista, 2012).

In distance education, it is a resource widely used by all actors involved in distance education, in addition to promoting the sharing and storage of knowledge between multidisciplinary teams, by allowing the creation of organizational memory (Alarcon & Spanhol, 2015).

In the distance education system, such practice is present in the routine of employees, especially students, tutors and teachers, with the provision of information and content, in person or virtually. This practice contributes to the generation and dissemination of knowledge in the institution's distance education.

Corporate Education comprises the continuing education of employees for updating, which allows the self-development of the institution as a whole, and can be done with internal training, distance learning, etc. (Batista, 2012; Bento et al., 2017).

In this sense, there are quarterly training initiatives, due to the turnover and renewal of employees, and they are geared towards setting them up regarding the use of the virtual platform and the development of work in distance education.

Socialization seeks to promote the encounter and the relationship between individuals, in events or activities, for the exchange of tacit knowledge (Leuch, 2006).

In this sense, the EaD system promotes specific initiatives, which aim to strengthen the relationship and encourage the exchange of knowledge between NEaD professionals and hubs, such as events for the reception of new employees, workshops, orientations, etc.

The collaborative Physical and Virtual Spaces represent the cooperative work between people and teams, with the creation of new products or work processes, sharing ideas, experiences, information and knowledge, in person or remotely (Alarcon & Spanhol, 2015; Hellmann, 2007 ; Leuch, 2006).

At NEaD, there is a space for collaboration. In the face-to-face centers, it is the pole's own space. But collaboration is more frequent via the virtual environment, through the exchange of knowledge between professionals, and the interaction of tutors and teachers with students.

The Meetings have members of multidisciplinary teams, and are held in general or by specific teams, at NEaD and at the poles, with the purpose of discussing about the work, proposing improvements, etc.

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Standardization and Standardization consists in the definition and elaboration of norms, procedures and unified documents, in addition to the establishment of standards for routines and activities, in order to be followed and used in the organizational context (Leuch, 2006).

This practice is being implemented only in NEaD, in order to standardize routines, tasks and activities in Distance Education, and is aimed at all multidisciplinary teams. It is not yet present at the poles.

Collaboration Tools consist of information systems that provide knowledge and experiences between employees and organizational sectors. Such systems serve as a repository of information and knowledge for the organization and its members (Batista, 2012).

In the distance education system, its use refers to the virtual environment itself, which serves as an information portal for employees and students of the modality. It contains relevant information on distance education, in addition to being a communication channel for the teaching and learning process.

Electronic Document Management (GED) consists of adopting computerized applications to control the emission, editing and monitoring of the document life cycle, by replacing paper with digital documents, with the information history of these and the organization, allowing the construction of organizational memory (Batista, 2012; Leuch, 2006).

This practice is in the initial phase of implementation in the EaD system and its application is already seen by employees, with the use of an information system that allows the processing of digitized documents, replacing paper documents.

Already Social Networks consist of the formation of groups of people with common interests in certain areas. They assist in interaction via the Internet, with the use of applications. It allows you to meet people, share content, facilitate communication, etc. (Batista, 2012).

E-mails also collaborate with the dissemination of knowledge within an organization, as well as being a facilitator in the process of formal communication between employees, mainly on an official basis (Batista, 2012).

In the distance education system, both social networks and e-mails are used frequently for communication between employees, with the sending of information, as well as for sharing knowledge and experiences in the modality.

Such practices facilitate the interaction between people and groups, and are of paramount importance for sharing knowledge and information among employees from all distance education, since they allow communication in a dynamic way.

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All of these 10 practices cited by the respondents as applied in the EaD system can be improved in their daily use, with a view to greater reach. In addition to these, other KM practices were mentioned by them and can be implemented in distance education over time, such as: Communities of Practice, Coaching, Brainstorming, Best Practices, Organizational Memory / Lessons Learned, Process and Knowledge Mapping.

Employees also answered whether the effective implementation of KM practices would bring improvements to the institution's distance education, and for what reasons and in what aspects. They believe that the implementation of KM practices more appropriate to distance education can bring several improvements to the benefits to distance education and the institution.

The responses obtained focus on cultural changes and breaking paradigms about the construction, retention, preservation, updating, transfer and application of knowledge applicable to distance education in the activities of the distance education system in several aspects.

Such aspects related to the improvements and benefits that KM could bring to the DE system are in line with the studies by Alarcon and Spanhol (2015) and Cruz and Molina (2019), when they point out that KM brings effectiveness to organizational actions, improves the performance, increases competitiveness and introduces a culture aimed at the adequate and effective management of knowledge applicable to the sport.

The low number of KM practices applied in the institution's distance education system may indicate that KM is not fully carried out in this universe, as there is no formal KM project. In this sense, there is scope for exploration and potential for the application of more KM practices in the DE system, from the implementation and formalization of other practices, appropriate to the context of DE, and the improvement of those that are already applied.

When considering the relationship between KM in DE and the benefits that KM can provide in terms of teaching quality and organizational performance, the formalization of such KM practices can contribute to better knowledge dynamics, as well as generate satisfactory results for the student. system and for the institution as a whole.

5. FINAL CONSIDERATIONS

The objective of this study was to diagnose the KM practices applied in the EaD system of a federal educational institution in the South of Rio de Janeiro. The results made it possible to identify the application of few KM practices, the frequency of their use and how they develop

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in this universe. It is concluded that KM in the DE system is still little explored and other KM practices can be applied, with a view to improving performance and increasing competitiveness.

Based on the results obtained, the following recommendations are proposed for an effective implementation of KM in the institution's DL system: to elaborate a KM implementation plan, consisting of the stages of diagnosis, planning, development and effective implementation; and create a KM program for distance learning, with actions that encourage the practice of KM in the educational and organizational context, with the involvement of employees in these actions.

The study's limitations were focused on data collection and analysis. Despite using an intentional sample, not all subjects invited to answer the questionnaire did so; and its results cannot be generalized, due to the delimitation to the researched universe. However, the description of the analysis method for the diagnosis of KM practices can be used in other studies related to the theme.

For future studies, it is suggested to carry out research related to KM in distance education in other educational institutions, to verify how knowledge is managed in these places, and to compare differences and similarities regarding the adopted KM practices and how they are developed in the context of distance education. .

Thus, it would be possible to identify the most appropriate KM practices to be applied in the EaD segment in general, the best tools and methodologies used to adapt and implement KM, the best way to stimulate the knowledge cycle, and also the benefits obtained after implementing and formalize KM in these institutions.

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