

Epistemic Matrices in the Construction of Knowledge on Learning in Organizations

Matrizes Epistêmicas na Construção do Conhecimento em Aprendizagem nas Organizações

Daniela Giareta Durante
Antonio Carlos Coelho

ABSTRACT

Our critical epistemic review examines how researchers deal with the creation of knowledge regarding learning in organizations from the standpoint of cognitive interests. We adopted the epistemic matrices' analytical model elaborated by Paes de Paula (2016), who handles the creation of knowledge based on cognitive interests and epistemic reconstruction, as an alternative to the paradigms of Burrell and Morgan (1979). The object of analysis were dissertations defended in Brazilian *stricto sensu* graduate programs in Administration. The identification of cognitive interests in the dissertations was based on sociological approaches classified by the circle of epistemic matrices, which encompasses pure sociological approaches and sets of overlapping closed curves, forming hybrid sociological approaches. The latent and clear content of sociological approaches were collected and analyzed using the qualitative data analysis software Atlas.ti 7. We conclude that the technical and practical interests guide the creation of knowledge regarding learning in organizations – putting aside the emancipatory interest in our discussions. We also conclude that, in order to make contributions for the advancement of knowledge, our study must go beyond the aggregation of cognitive interests; it is necessary to investigate the postulates of sociological approaches to which the interests are connected.

Keywords: Organizational learning. Epistemic matrices. Sociological approaches. Cognitive interests.

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Daniela Giareta Durante 
danielagiareta@gmail.com
Doctorate (under progress) in
Administration and Controllorship -
Universidade Federal do Ceará
*Doutoranda em Administração e
Controladoria - Universidade Federal
do Ceará*
Universidade Federal do Ceará
Fortaleza/CE - Brazil

Antonio Carlos Coelho 
accoelho47@gmail.com
PhD in Accounting Science -
Universidade de São Paulo
*Doutor em Ciências Contábeis -
Universidade de São Paulo*
Universidade Federal do Ceará
Fortaleza/CE - Brazil

RESUMO

Esta crítica epistemológica examina como pesquisadores trataram a construção do conhecimento sobre aprendizagem nas organizações, do ponto de vista de interesses cognitivos. Adota-se modelo analítico de matrizes epistêmicas proposto por Paes de Paula (2016), que trata da construção do conhecimento a partir de interesses cognitivos e reconstruções epistêmicas, em substituição ao modelo de paradigmas de Burrell e Morgan (1979). O objeto de análise foram as teses sobre

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aprendizagem nas organizações, defendidas nos programas brasileiros *stricto sensu* em Administração. A identificação dos interesses cognitivos presentes nas teses foi feita com base nas abordagens sociológicas classificadas pelo círculo de matrizes epistêmicas, que resume abordagens sociológicas puras e pela intercessão entre tais círculos, constituindo abordagens sociológicas híbridas. Os conteúdos manifesto e latente das abordagens sociológicas foram coletados e analisados com o auxílio do Atlas.ti 7. Concluiu-se que os interesses técnico e prático orientaram a construção do conhecimento sobre aprendizagem nas organizações, mantendo o interesse emancipatório à margem das discussões. Concluiu-se também que para o estudo gerar contribuições para o avanço do conhecimento, mais do que conjugar interesses cognitivos, é essencial realizar a investigação de modo coerente com os pressupostos das abordagens sociológicas a que os interesses estão filiados. **Palavras-chave:** Aprendizagem organizacional. Matrizes epistêmicas. Abordagens sociológicas. Interesses cognitivos.

Introduction

Epistemology, which is to be understood as the researchers' reflection on their own work, plays a critical supervisory role in research. For such, epistemology provides tools to question the principles of science and contributes to its transformation in an encompassing process of construction of knowledge. By reflecting on the cognitive research interests, the researcher uses as a starting point the notions about what is knowledge and how it is possible to produce it in order to contribute to scientific thinking. In this sense, attention has been paid to the matter in order to recover and deepen knowledge on epistemology in administration and in the field of organizational studies (FARIA, 2015; PAES DE PAULA, 2016; SERVA, 2017).

Research on organizational studies are usually carried out based on the model known as sociological paradigms, elaborated by Burrell and Morgan (1979) and handled by epistemologists as an extension of Kuhn's work (1962) – such model culminates in the definition of rigid frontiers to delineate the object of the research. These sociological paradigms classify the object of research considering some categories, such as: functionalism, interpretivism, radical structuralism, and radical humanism – the researcher must choose which epistemic structure will guide the study, which leads to studies focused on the object of investigation,

limited by the frontiers established by Burrell and Morgan (1979) according to each chosen paradigm.

This way, the conduction of the research is subject to sociological paradigms, which leads us to criticize such approach considering that in organizational studies it is not easy to define paradigms – in line with Kuhn (1962) – that isolate the focus on one single sociological approach, separated from other epistemic perspectives.

Therefore, there seems to be a lack of explanations that overcome such rigid paradigmatic limits. We acknowledge the existence of cognitive incompleteness, defined by Habermas (1982), when opting for a determined paradigmatic approach because there might be conceptual and theoretical overlaps in sets of methodological categories that are limited by such paradigm. The cognitive incompleteness entails unexplored sociological perspectives.

These gaps can be understood in a more complete way if they are filled or interspersed by sociological approaches that do not arise from rigid paradigms, as the ones proposed by Burrell and Morgan (1979), without running the risk of losing the content of the research object outlined by the researcher.

Paes de Paula (2016), based on Habermas (1982), developed a model of epistemic matrices, supported by the specific cognitive interest of the researcher, which proposes a treatment of sociological approaches in a more flexible way than the one suggested by paradigms. These matrices offer transit and intersection possibilities among the basic sociological approaches used in the paradigmatic system, which gives rise to pure and hybrid sociological approaches, according to Paes de Paula (2016). This arrangement stems from the epistemic purpose to meet the cognitive interests of researchers, who are not satisfied with the answers and methods provided by one single approach that tends to be incomplete when supported by an isolated sociological perspective. There is not much sense in applying such isolation considering the utter nonsense of its conceptualization in rigid paradigms in early-stage studies and developing methodologies. As pointed out by the author, epistemic matrices overcome the imperfections of knowledge stemming from paradigms because they allow the accomplishment of epistemic reconstructions instead of sticking to paradigmatic singularities – which are hard to measure – and adaptations in the approaches guided by the cognitive interests of researchers.

The epistemic matrices lead to pure or hybrid sociological approaches when conducting research in organizational studies. In pure approaches, the researcher focuses only on one matrix, defining his/her cognitive interest that bases such selection. In the case of hybrid matrices, the researcher, who has more diffuse cognitive interests, tries to create organizational knowledge with heterogeneous epistemological elements.

We understand the cognitive incompleteness of the paradigm approach (even considering pure cases) and we acknowledge that, in order to understand the organizational phenomenon, it is necessary to encompass cognitive interests that go beyond the frontiers of one single epistemological path. This way, it is possible to create more advanced epistemic reconstructions, combining pure epistemic matrices. In the studies based on pure sociological approaches, researchers – despite perceiving some cognitive limitations – can expand the scope of theories and methodologies – within the bounds of the approach, they can also contribute to incipient epistemic reconstructions. The search for cognitive completeness provides the creation of frontier theories and methodologies that allow the creation of knowledge (PAES DE PAULA, 2016), according to the basic cognitive interest of the researcher.

In this direction, our study investigates how researchers handle the construction of knowledge in the process of learning in organizations, using for such the epistemic matrices model proposed by Paes de Paula (2016). We took into consideration the revealed or underlying cognitive interests, which rejects the idea of sociological paradigms that have the capacity to classify and categorize studies in the organizational field.

More specifically, we intend to analyze if the studies on learning in organizations were developed within cognitive interests supported by pure sociological approaches or if they were produced based on epistemic reconstructions balancing plural cognitive interests through hybrid sociological approaches. For such, we used as research object the analysis of defended dissertations on this specific theme in *stricto sensu* graduation programs in Brazil.

The model developed by Paes de Paula (2016) has already been used in different analyses, e.g. in the studies of Scussel (2017) and Santos (2017). Scussel (2017) addressed issues related to power, paradigms, and marketing research in Brazil, based on conference papers presented during Anpad's Marketing Meeting (EMA,

in Portuguese). Santos (2017) used the model of epistemic matrices to analyze the trajectory of administration, emphasizing epistemological problems related to the lack of clearly defined objects of study.

Organizational learning was first brought up in literature by Cyert and March (1963) and consolidated in the scientific world in the 1990s (CROSSAN; GUATTO, 1996). Over the trajectory of learning in organizations in the scientific sphere, several reviews, evaluation and critical analyses were published, which indicates the development of the theme and provides directions for further research.

Regarding international publications, we mention the classic studies of Shrivastava (1983), Crossan and Guatto (1996), and Easterby-Smith (1997), as well as the more recent studies published by Popova-Nowak and Cseh (2015), Lee, Rittiner and Szulanski (2016), and Castaneda, Manrique and Cuellar (2018).

Research indicates that the emergence and development of the theme was initially based on more functional and instrumental perspectives, whose learning focus is the trigger for change and innovation, which are entrepreneurial strategies used to pursue better economic performances. At the same time, research indicated a processual and social aspect of learning, demonstrating the need for other epistemological perspectives in order to better explain and understand the process of learning in organizations.

Nationally, we identified some relevant studies, as the ones of Antonello (2002), Antonello and Godoy (2009), and Nogueira and Odelius (2015), which investigated the epistemological aspects of learning in organizations. Antonello (2002) carried out a study about constant epistemological methods in research on organizational learning based on 25 conference papers presented during EnANPAD¹ from 1997 to 2000. The author classified the scientific production based on Burrell and Morgan's (1979) model, indicating epistemological support in the functional (56%), interpretivist (40%), and radical humanist (4%) paradigms. This model, however, turned out to be limited according to the author due to the difficulty in identifying the pure sociological paradigms in the papers. Such affirmation is in line with Paes de Paula (2016), who affirms that, in organizational studies, it is more common to find the complementation of cognitive interests, which leads research to hybrid approaches. Therefore, it is difficult to identify pure paradigms.

1 National meeting of Graduation and Research in Administration.

Later, Antonello and Godoy (2009) explored organizational learning in journals and national events during 2001 and 2005 by evaluating the conceptual construction, methodological characteristics, and the paradigms that supported the studies. Regarding paradigms, in 74 empirical studies analyzed, the authors identified positivism/postpositivism in 44 publications; postpositivism/interpretivism in 13 publications; interpretivism in 15; in the other two, critical postmodernism. There are publications located precisely at the intersection of sociological approaches, as suggested later by Paes de Paula (2016). Considering that the studies of Antonello and Godoy (2009) analyzed publications up to 2005, we considered relevant to update such collection of data in order to identify the tendencies in the field research to the present day.

Nogueira and Odelius (2015), on the other hand, revised the theory on organizational learning and indicated five main challenges (with theoretical, conceptual, and methodological characteristics) to be overcome in order to pursue the evolution of knowledge. According to the authors, learning in organizations is multidimensional and multilevel and needs to be approached from a multidisciplinary and multi-paradigmatic perspective. For such, they suggest the triangulation among methods and the construction of broad theoretical and methodological models capable of integrating the different aspects of the phenomenon. Such assumption also leads to hybrid sociological approaches and indicates the relevance of epistemic matrices, as proposed by Paes de Paula (2016).

The epistemological debate is essential for the creation of knowledge and scientific development of any research field. The importance of our study is related to the possibility to complement knowledge on the trajectory of epistemological processes of learning in organizations – concerning the adopted sociological approaches –, including the identification and use of epistemic matrices, identifying the cognitive interests of researchers in Brazil. Such step can also guide future research while encouraging researchers to debate on research gaps and on the epistemological perspectives used in their research.

Our research is also relevant due to the use of an up-to-date epistemological model – Paes de Paula's (2016) epistemic matrices –, which enables the construction of knowledge in an epistemological structure that tends to overcome cognitive incompleteness before epistemic reconstructions. Considering that learning is

a research field that requires flexibility to approach problems, it is affected by the rigidity of paradigms and lack of a hybrid possibility to run across different sociological approaches. Therefore, the analysis based on epistemic matrices allows the broadening of epistemology in organizational studies – hitherto analyzed from the paradigm perspective – by overcoming the fragilities brought up by previous studies and contributing to the research field.

We highlight that our study presents originality traits as it considers the unexplored scientific production (dissertations) and carries out an original critical epistemological analysis of these dissertations. This analysis considers as epistemological unit the model that encompasses pure and hybrid sociological approaches, organized in epistemic matrices.

Epistemological analysis model

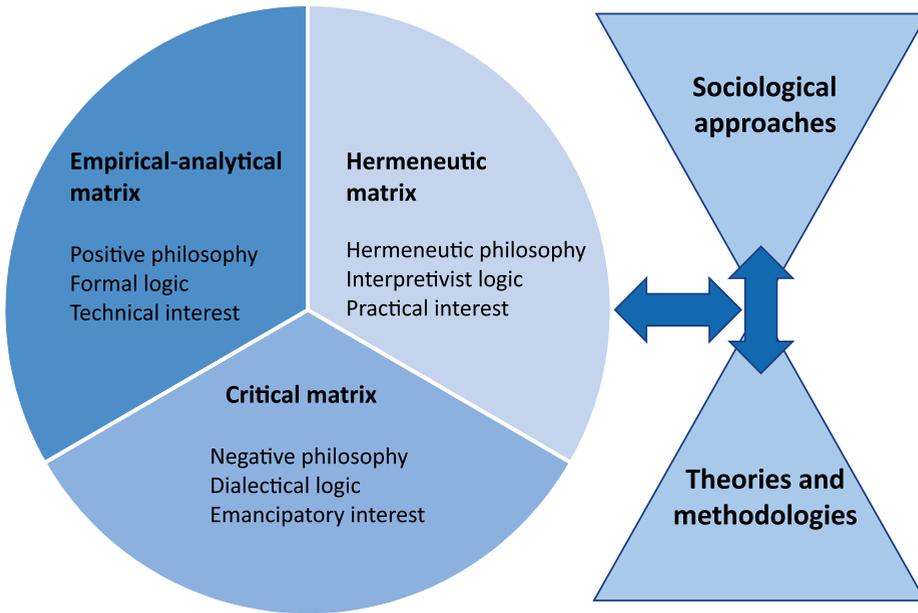
Efforts have been made to maintain the coherence in the construction of knowledge in organizational studies, considering the difficulty in creating the consensus required for the delimitation of methodological approaches (SCHERER, 2005).

Paes de Paula (2016) presents a proposal to guide organizational studies that relies on the flexibilization of cognitive interests of researchers in the area, permeating sociological approaches and their intersections. In line with Habermas (1982), the author emphasizes that the sociological and organizational knowledges develop according to epistemic reconstructions (Paes de Paula, 2016), either early-stage or advanced. This is not about paradigmatic ruptures or scientific revolutions, but about the creation of theories and frontier methodologies or hybrid sociological approaches, which seek to tackle cognitive incompleteness (Paes de Paula, 2016). Therefore, instead of sociological paradigms (BURRELL; MORGAN, 1979), the author's proposition takes into account the categorization of the researcher's cognitive interest that supports the creation of knowledge and guides the researcher through the sociological approach of the research object, which can be explained by the so-called Circle of Epistemic Matrices.

The Circle of Epistemic Matrices (Figure 1) works as a guide for organizational studies, based on Habermas (1982), and emphasizes the cognitive incom-

pleteness of each stratified sociological approach, suggesting that sociological and organizational knowledge is in progress and develops according to epistemic reconstructions.

Figure 1 Circle of Epistemic Matrices



Source: Adapted from Paes de Paula (2016, p. 35).

According to Figure 1, each matrix is guided by the cognitive interests brought up by Habermas (1982), which arise through the research design: technical interest, practical interest, and emancipatory interest. It is important to consider that the organizational knowledge develops on account of these cognitive interests; they are not subject to conceptual paradigms expressed in static and circumspect sociological approaches.

Paes de Paula (2016) explains that the technical interest, which arises from the natural sciences, became a point of reference for research practices in organizational studies. The hermeneutic approach stems from the practical interest – praxis –; it underpins interactions and allows the mutual understanding in activities and in organizational phenomena. In addition to these cognitive interests, researchers must

reflect on and criticize already produced knowledge about the organizational reality – the emancipatory interest arises from such process. The three cognitive interests – technical, practical, and emancipatory – constitute the organizational knowledge unit and are interdependent in understanding social phenomena associated with organizations; they cannot be adopted separately to understand the object of analysis.

Before the cognitive interests of each researcher, research requires and proposes the development of own attributes. When the researcher outlines the object of analysis with a technical interest, which characterizes empirical-analytical studies, in order to create knowledge to predict and know organizational facts based on mathematical propositions or rigorous theories, then the empirical-analytical matrix is created. This way, the empirical-analytical matrix is characterized by maintaining alignment with positive logics, with the use of formal logics; there is a preference for empiricism and formalism, with emphasis being placed on causal explanations and axiological neutrality, which meets the technical interests of the research while making room for instrumentality (PAES DE PAULA, 2016).

The functional approach is the pure example of an empirical-analytical epistemic matrix because it is placed within the limits of empirical observation and analysis. Its purpose is to understand the functioning of the organizational system's elements based on relations amongst the several parts of the system. There is a logic that every element of this system (economic, political, familiar, and educational) are "parts" that have a function "in the whole"; they need to function as an integrated system that structures organizational action. Therefore, the methodological logics moves toward the construction of models that explain such structure and determine functional relationships among the components of the organizational reality analyzed. Such approach prioritizes quantification, definition of variables, hypothesis testing, statistical treatment, and elaboration of deterministic models to create generalizations (PAES DE PAULA, 2016).

The delineation of study objects with practical interest demands a diverse epistemological basis – the hermeneutic approach – aiming at social understanding through communication, language, and interpretation of cultural and historical meanings. This way, the hermeneutic matrix, driven by the practical interest, is mediated by interpretivist logics. In this case, the organizational phenomenon is analyzed through social and historical constructions, emphasizing subjectivity, preserving

autobiography and collective traditions, as well as the mediation among individuals, groups and different civilizations (PAES DE PAULA, 2016).

The interpretivist approach is to be understood as a pure approach (PAES DE PAULA, 2016) because it lies within the limits of a matrix. Scherer (2005) clarifies that the explanation for social phenomena in this case would be equivalent to the interpretation of a text. “Such an approach accounts for the subjectivity of the research ‘object’ by trying to comprehend the meanings of the actions and communications from the perspective of particular actors” (SCHERER, 2005, p. 319). According to Paes de Paula (2016), some other methodological approaches belong to this matrix, such as the social constructionism, the symbolical interactionism, the anthropological perspective, the culture approach, and symbolism.

Studies that present an eminently emancipatory interest of the researcher make use of approaches related to the critical sciences and aim at social transformation. Therefore, the critical matrix is based on the negative philosophy and opposes positive philosophy; it is guided by dialectical logic and questions what is not in evidence while doubting positivist propositions (PAES DE PAULA, 2016). Scherer (2005) argues that such questioning is based on the perspective that research – despite its neutral characteristics – implicitly meets the needs of the most powerful groups, just as social reality represents hegemonic domination. “Other interests are only taken into account as long as they are functional for preserving the status quo of the current distribution of power in society” (SCHERER, 2005, p. 322). Therefore, according to this author, research shifts from understanding social orders to analyzing social operating conditions and survival conditions to legitimate such order. During this questioning, one seeks to emancipate the organizational subject, putting it in conditions to reflect on its own context.

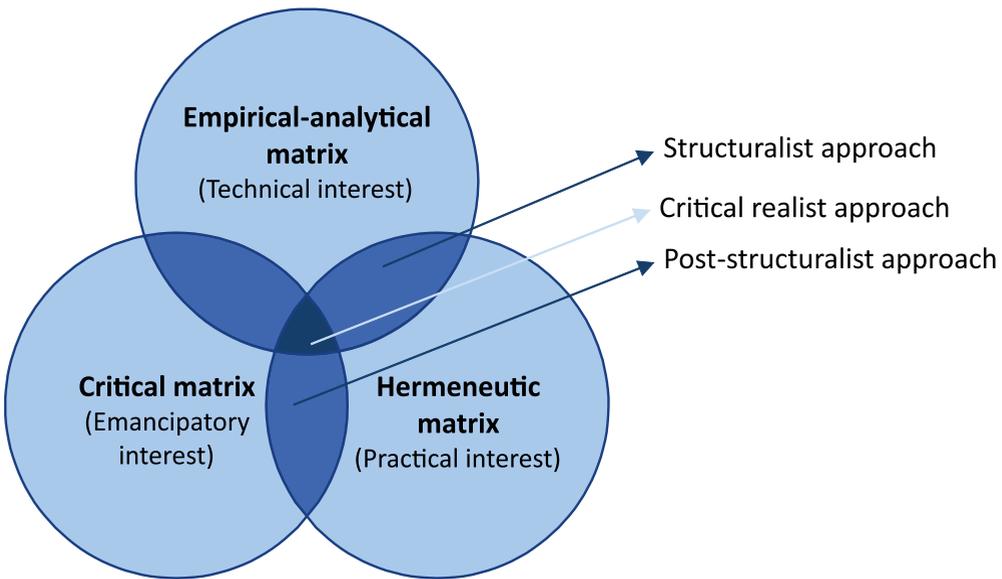
Besides, the emancipatory interest is related to practical and technical interests regarding the transcendence of the utopic characteristic of emancipation, going beyond theory and reconstructing its operation in public matters (PAES DE PAULA, 2016). The humanistic approach, according to Paes de Paula (2016), is the one that better represents the matrix in terms of convergence of assumptions.

It is not about choosing only one matrix to guide the studies, but to change the way to think about it because the key to advance research – from the social change perspective – is to conciliate cognitive interests (PAES DE PAULA, 2016),

unlike the idea of incommensurability of paradigms (BURRELL; MORGAN, 1979; KUHN, 1962). In addition to the practical interest, there are some approaches to be found within the critical matrix's limit, because they also present an emancipatory interest. This way, we clarify the idea of hybrid matrices whose cognitive interests circulate amongst pure matrices.

The arguments of Paes de Paula (2016) lead to the creation of knowledge that circulates amongst pure matrices, postulating hybrid sociological approaches that go beyond the limits of sociological approaches defined as paradigms, and allow more flexible answers to understand complex organizational phenomena, which must be considered together, constituting a hybrid knowledge matrix.

Figure 2 Hybrid Sociological Approach



Source: Adapted from Paes de Paula (2016, p. 42).

Figure 2 indicates the existence of the structuralist approach, which is to be found at the intersection of empirical-analytical and hermeneutic matrixes. On the one hand, the structuralist approach encompasses studies that aim at understanding phenomena with practical interest, investigating several possibilities of relational construction. On the other hand, this approach also aims at finding out structu-

res of the phenomenon while identifying its determinant connections (PAES DE PAULA, 2016). In this case, the technical interest becomes evident as research worries about offering a structural model that presents connections between explanatory factors, using methodologies that lead to the search for a cause-effect relationship and hypothesis testing.

The post-structuralist approach indicates the confluence of cognitive interest and is to be found at the intersection of hermeneutic and critical matrices. The purpose of this approach is to understand organizational phenomena from a practical interest's perspective in depth, getting to know meanings, relational constructions, and constituting a social and historical knowledge. At the same time, the emancipatory interest is inserted, which questions the hegemonic forces of society while revealing power relations (PAES DE PAULA, 2016).

The three pure matrices can also connect in one single research, which results in a critical-realist approach. This approach presents an epistemological relativism that entails a more open use of theories and methodologies (PAES DE PAULA, 2016). The researcher, in this case, must aim at understanding social phenomena (practical interest) and pointing out power relations critically (emancipatory interest), while feeling the need to propose the construction of tools (technical interest) or structural models (discursive, normative or of any other nature) that are capable of offering possibilities of emancipation of the subject (PAES DE PAULA, 2016).

Hence, we understand that the researchers' efforts are not motivated by epistemological oppositions and contrasts (paradigms), but by the opportunity to find answers to research problems acknowledging the limitations of each epistemic matrix. This search for completeness of knowledge provides the creation of hypotheses and assumptions and frontier methodologies that allow the construction of organizational knowledge.

This way, we believe that the epistemic matrix structure explains most suitably the construction of knowledge in the field of learning in organizations than the paradigm approach, as pointed out herein. Learning encompasses early-stage and developing study areas, which hinders the identification of a paradigm, as defined by Kuhn (1962). Besides, considering that learning is a multidimensional and multidisciplinary phenomenon (NOGUEIRA; ODELIUS, 2015), it requires flexibility to handle problems and to create broader models capable of encompassing different

aspects of the phenomenon, providing greater scientific understanding on the events to be approached.

Methodology

Our study is based on the analysis of defended dissertations about learning in organizations in Brazil in *stricto sensu* graduation programs in Administration. The dissertations were located through two digital platforms available in the country: the Brazilian Digital Library of Theses and Dissertations (BDTD, in Portuguese), supported by the Brazilian Institute of Information in Science and Technology (IBICT, in Portuguese), and the Catalog of Theses and Dissertations, supported by CAPES. These databases are supported by the educational institutions where the dissertations were defended; however, not all dissertations are available in both databases, therefore it was necessary to run a search in both.

The search engine of the platforms is different, which required different search strategies. We ran a few tests in order to locate the largest number of existing dissertations about the theme handled herein. We initiated our search on BDTD; in this case, we used the advanced search tool, which allowed the selection of “title” and “abstract” – the latter made the search more comprehensible. In the title, we used the terms “learning” and “learners”; in the abstract, we used the terms “organizational”, “organization” and “organizations”. No filter was used in the period in which the dissertation was defended considering that our purpose was to locate all defended dissertations on this specific subject. After making use of these search engines, we located 46 defended dissertations in the area of Administration.

The Catalog of Theses and Dissertations presents only one search field and the selected term is in any part of the document. In this case, we used the term “learning”; the results also encompassed similar words, such as “learning process”, “learner” and “learned”. We identified in this database 30 defended dissertations in the field of Administration – these dissertations were not found in the BDTD database. In total, 76 dissertations were selected, which corresponds to the basic population upon which we conducted our study. The data collection ended in January 2020; our search encompasses dissertations defended during 1999 and 2019.

The platforms usually provide the full text or a link to download the PDF file. When these options were not available, we searched for the dissertation on Google in order to locate the repository of the university where the dissertation was defended. There was a restrict access to some of these documents. In this particular case, we had to request for the access. Despite several trials, it was not possible to access the full text of eight dissertations, which hindered their analysis. Therefore, we analyzed 68 dissertations (the list of the dissertations used herein can be requested to the authors).

The identification of the cognitive interests identified in the dissertations was accomplished through the classification of each dissertation according to the sociological approached identified in the research, which were classified according to the correspondent epistemic matrix, including pure and hybrid sociological approaches – the latter identified at the intersection of the sets that constitute sociological approaches according to the model proposed by Paes de Paula (2016) (Table 1).

Table 1 Identification of cognitive interests

Cognitive interest	Sociological approach	Epistemic matrix
Technical	Pure	Functionalist
Practical		Interpretivist
Emancipatory		Humanist
Technical/Practical	Hybrid	Structuralist
Practical/Emancipatory		Post-structuralist
Technical/Practical/Emancipatory		Critical realism

Source: Durante & Coelho (2020), adapted from Paes de Paula (2016).

The identification of the cognitive interest that guides the sociological approach adopted in each dissertation occurred through content analysis, encompassing not only abstracts, but also the conclusions of the works. Especially regar-

ding the items 'general objective' and 'specific objectives', the authors indicated the purpose of the dissertations and the cognitive interests of the researcher. The assumptions of the sociological approaches were observed in the texts and arguments provided by the dissertations in both manifest and latent (implicit) contents, according to Babbie (2019).

The latent and manifest contents were identified in each one of the 68 dissertations with the support of Atlas.ti 7, a tool used for performing qualitative data analysis through the grouping and differentiation of qualitative data. The data collection in each one of the dissertations was carried out as follows: 1) dissertation reading; 2) identification of cognitive interests and assumptions of sociological approaches; 3) registration (data entry) of the interest and/or assumption in Atlas.ti. These three procedures were carried out concomitantly; i.e. as the reading was made, we identified the interests and assumptions, which were promptly registered in the software. After reading and registering the dissertations, we analyzed the set of registries made regarding one specific dissertation; when necessary, we dived into reading in order to clear some doubts. After removing doubts, we identified the cognitive(s) interest(s), as well as the sociological approaches that guided the research, and entered the data in Atlas.ti and Excel, which served later on as basis to elaborate Table 2 and 3. On average, 12 entries were made for each dissertation, which indicates a total of 808 entries.

The data collection was carried out by two researchers. Researcher 1 was responsible for the accomplishment of the stages previously described. Researcher 2 doublechecked the data; by reading the dissertations, he checked the data entries in Atlas.ti and the decision made by researcher 1 regarding the drivers of the research. Most of the times, the researchers agreed on the decisions made. The divergent cases were separated and analyzed once more during a meeting between the two researchers. At this stage, the dissertations and entries were reread, and discussions were made in order to overcome every divergence; this way, the cognitive(s) interest(s) and the respective sociological approaches were decided collectively. The data collection records are available to those interested.

The assumptions that guided the identification and listing of the sociological approaches are in line with the epistemic structure demonstrated in Table 1, detailed as follows:

a. Functionalist

Preference for empiricism and formalism with emphasis being placed on causal explanations and axiological neutrality, which makes way for highlighting the technical interest and instrumentality as an object;

b. Interpretivist

It considers the social phenomenon as a process based on social and historical constructions and on the subjective interpretation of the collective construction of meaning through the analysis of communication, language, and interpretation of cultural and historical meanings;

c. Humanist

Emphasis is placed on questioning what is not in evidence and questioning positivist propositions. It also raises questions about the functioning and legitimation conditions of social orders; in the search for signs of emancipation of the social subject, the individual is stimulated to discuss about his/her own context;

d. Structuralist

Understanding social phenomena from the relational and processual perspectives, while offering solutions through structural models and generalizations;

e. Post-structuralist

Understanding social phenomena from the relational and processual perspectives, raising questions about society's hegemonic forces, and revealing power relations;

f. Critical realism

Understanding social phenomena from the relational and processual perspectives; raising questions about society's hegemonic forces, revealing power relations, and providing technical solutions for the emancipation of the subject.

Presentation of results and discussion

Learning in organizations started being studied in Brazil during the 1990s. The first dissertation defense found in our database dates to 1996; the full text is,

however, not available. Our epistemological review encompasses the period from 1999 to 2019. The 68 dissertations evaluated were grouped according to cognitive interests (Table 2), which stem from the sociological approach adopted by the author during the research. The analysis periods mirror the evolution of cognitive interests, which move around over the period, from technical to emancipatory interest – the latter was introduced in the Brazilian research scenario in a hybrid way, as occurred in other countries regarding learning in organizations.

Table 2 Cognitive Interests and learning in organizations

Cognitive Interest	Sociological Approach	1999/ 2006	2007/ 2012	2013/ 2019	Total
Technical	Functionalist	4	3	11	18
Practical	Interpretivist		9	8	17
Emancipatory	Humanist				
Technical and practical	Structuralist	5	5	15	25
Practical and emancipatory	Post-structuralist		1	5	6
Technical, practical, and emancipatory	Critical realism			2	2
	Total	9	18	41	68

Source: Durante & Coelho (2020)

In the first period, there is a predominance of the technical interest, used to discuss and describe procedures and methods; still during this period, it is possible to notice a hybrid approach with the practical interest, which broadens the search for pragmatic understanding on the theme. The combination between technical and practical interests is the most recurrent one amongst the dissertations analyzed, and its use has significantly increased over the past years. The practical interest, however, starts being a central pillar for studies from 2007 onwards, which indicates a change in the predominance of the cognitive interest in academic research. The emancipatory interest was located only during 2013-2019; still, in combination with

other cognitive interests. It is important to emphasize herein that no dissertation strictly humanistic was found in our study.

There was an increase in the learning research field over the past seven years; from 2013 to 2019, the increase was as high as 60%; such rise indicates that this specific theme is getting more attention from the academia. In the international scientific community, the theme was more strongly established during the 1990s (CROSSAN; GUATTO, 1996). In Brazil, the year 2016 is highlighted, considering that 11 dissertations about the theme were defended in that year.

The studies classified as pure approaches account for 51% of the total; in other words, the knowledge on the theme was created not only based on frontier theories and methodologies at the limit of the epistemic matrix's origin, but also based on the interconnection between epistemic matrices, as suggested by Paes de Paula (2016); it is important to emphasize that the production of knowledge occurred through embryonic epistemic reconstructions and advanced epistemic reconstructions.

Paes de Paula (2016) still clarifies that, despite the effectiveness of advanced reconstructions in the development of knowledge, their emergence is only possible when there is a previous basic knowledge provided by pure approaches. Besides, the fact that half of the dissertations were guided by hybrid approaches indicates the conciliation among cognitive interests; therefore, the cognitive incompleteness is present in the analyzed field. Unlike dissertations with pure approaches, in the hybrid case, researchers expressed the epistemological approach they intended to investigate. The retrieval of assumptions and review of critical interpretivist authors were the most evident features in these dissertations.

We confirm, therefore, the complementation of cognitive interests in studies about learning in organizations. It is possible to infer, therefore, that the gaps pointed out by Antonello (2002), Antonello and Godoy (2009), and Nogueira and Odelius (2015) – considering their critical evaluations of studies in the area – are overcome due to the classification of sociological approaches of learning in organizations from an epistemic matrix perspective.

Pioneer studies were guided by functionalist and structuralist approaches, which indicates the predominance of technical interest in the knowledge created. The functionalist approach was identified in 26% of the dissertations in our sam-

ple and was present along the time lag (Table 2). In this approach, the dissertation focused exclusively on the technical interest, based on determinist objectives and cause-effect analysis, and developed models to the methodologically structured analysis based on the elaboration and validation of hypotheses. Some of these studies cared to define scenarios of empirical analysis with validity criteria surrounded by arguments and justifications, which turned variable testing and statistical analysis into essential features in the design of well-articulated theoretical models. These dissertations showed strength in the sense of reinforcing the limits of pure functionalist approaches. On the other hand, they did not describe the epistemological assumptions of the functionalist approach, maybe because this is the most traditional and accepted way of validating scientific knowledge.

In functionalist studies, learning is considered a mean; usually a strategy to develop distinct competencies that aim at achieving better organizational performance, innovation, and maintaining market competitiveness. The behavioral and cognitive approaches were evidenced in these dissertations; learning equates to changes in response probability through a stimulus. The technical interest is a pioneer in learning studies; it was identified right in the first publications, as pointed out by Shrivastava (1983), Easterby-Smith (1997), Antonello and Godoy (2009), among others.

The structuralist analysis – i.e. the confluence between the technical and practical interests – guided the creation of knowledge in 37% of the dissertations analyzed in our study, which is the highest incidence. In these dissertations, we identified two situations that define the congruence of cognitive interests. Part of the studies demonstrated practical interest when referring to the importance of the social context in organizational studies, especially in theoretical assumptions that encompass history, the relational context, the subject, and the discourse used to understand the social phenomenon as a process of creation and transformation of reality. At the same time, these dissertations intended to contribute to the creation of tools, models or interventional ways in the organizational daily life, emphasizing the technical interest and clarifying the complementation between technical and practical interests.

Another part of the studies, identified as structuralist, based fundamentally on the proposition of cause-effect solutions, with research design, theoretical appoa-

ch, methodological design, and presentation of results that confirm the functionalist bias and technical interest. However, the authors claimed to follow the hermeneutic philosophy, even though they only did it in order to rescue a few social elements for strategic purposes; the practical interest was not clear.

Structuralist studies explain, evaluate or measure how learning in organizations influences better performance or how learning in organizations was influenced by determined internal or external factors to the organization. The conception of learning was cognitive or behavioral, the same way as functionalist studies. However, the practical interest complemented the investigation as of the inclusion of elements of the process and/or social context. The relation between learning and competence, strategy, competitiveness, and efficiency were recurrent in these studies. The same way, the qualitative approach was also recurrent (only five dissertations used quantitative methods, only in a complementary way), and case study was the research method used in 15 dissertations (out of 25). In structuralist studies, we observed the emergence of the proposition 'framework' and the accomplishment of 'grounded theory'.

The first dissertation that addressed the interpretivist approach, which represents the hermeneutic matrix and the exclusively practical interest, was defended in 2007; the interpretivist approach still serves as basis for several studies carried out currently, and it represents 25% of the dissertations analyzed herein. These studies clarify the processual idea, more specifically when it comes to describing, analyzing or understanding how the learning process occurs in the individual, in groups or among organizations, aiming at figuring out the role played by learning in organizations. Emphasis was placed on the historical and social context in which the learning process occurred. Some factors were highlighted, such as the informal learning, experiential learning and social learning, through the experience from usual and new situations and through social interaction.

Most part of interpretivist studies also presented theories and assumptions that support the research object – some researchers defined them already in the abstract, others in the methodology, and others developed a specific chapter to address epistemology in a more precise way. Regarding the methodological procedures, these studies made use of qualitative approaches, especially the case study; ethnography was used in two dissertations and ethnomethodology in one

dissertation. The strategies used in the data collection were interview, observation, and documentary research; the intention was to interpret perceptions and meanings attributed by the subjects. Some studies also aimed at understanding meanings based on the subject's narrative, without necessarily adopting a theoretical-methodological position.

The emancipatory interest, which is to be found within the domains of humanist approach and critical matrix, was not identified in the dissertations about learning in organizations. With this regard, Paes de Paula (2016) had previously mentioned the difficulty in finding an exclusively emancipatory interest in organizational studies due to the restriction of environmental characteristics to finite social spaces, i.e. organizations – the technical and practical interests are the main guides used to explain social groups united by an organizational space. Besides, the humanist approach depends on the praxis and, with no technique to achieve it, the difficulty in carrying out pure humanist studies increases. According to the author, the emancipatory interest depends on the practical and technical interests to turn into actions (PAES DE PAULA, 2016).

The emancipatory interest was identified in eight hybrid studies (12% of the sample) and it is to be found in more recent research in the area. The post-structuralist studies are focused on characterizing the study epistemologically, showing a clear practical and emancipatory interest involved in understanding the study object. In these studies, we identified the development of social phenomena analysis, based on phenomenology and social constructivism, understanding that reality is socially built, and the locus of learning is found in social relations, which assumes interactions and negotiation among actors. Learning as a social progress became very clear. Like the in the interpretivist approach, the objective of emancipatory studies is to understand the process; in other words, what, how and why individuals learn. But these studies are different from interpretivists because they include the critical sensibility, pointing out and questioning power relations and conflicts throughout the process, suggesting the need for emancipation. One of the studies used critical theory, the other one is classified as post-modernist. The knowledge about learning in communities of practice were also deepened in these dissertations, which present essentially a qualitative approach, whose research method was mainly the case study.

Two dissertations were classified as critical realists because they manifested – jointly – technical, practical, and emancipatory interests; both dissertations were defended in 2015 (Table 2). These studies developed cause-effect analysis involving organizational learning (empirical-analytical matrix) and aimed at understanding the learning process and the role played by actors (hermeneutic matrix), integrating to the study object the critical bias. In one of the dissertations, the author proposed a societal transformation beyond the status quo, based on complexity theory. In the other, the critical sensibility was perceived through the several data collection and data analysis techniques – qualitative and quantitative – that supported arguments that aimed at revealing the intention of hegemonic groups.

Generally, the hybrid studies, which correspond to half of the dissertations analyzed herein, emphasized Paes de Paula's (2016) assumption that in the investigation of social phenomena there might be some cognitive incompleteness, and a more complete creation of knowledge depends on the interactions among epistemic matrices; the cognitive interests are still diffuse when establishing the sociological approach of the research. It was evident that hybrid studies about learning in organizations encompass different aspects of the phenomenon; their issues and research objectives are wider and pass through diverse sociological approaches in order to better understand phenomena.

If the creation of knowledge was classified based on Burrell and Morgan's (1979) sociological paradigms, only the dissertations identified as functionalist and interpretivist – i.e. half of the sample – would meet the assumptions of their model while the other half would not be considered for not identifying a specific paradigm. It is possible to infer, therefore, that epistemic matrices encompass the creation of knowledge in the process of learning in organizations in a more adequate way, while indicating an alternative structure of epistemological understanding regarding how scientific knowledge is created.

Table 3 lists the dissertations analyzed herein, together with the presentation of the cognitive interests identified and the educational institutions where the dissertations were defended – the institutions were classified according to the national registry of higher education institutions (e-MEC). The institutional origin of the studies does not seem to influence the cognitive interests that guided the dissertations; in other words, the researchers and their supervisors develop their own perspectives,

which is in line with the Brazilian environment of organizational learning studies. Profit-seeking educational institutions are not representative due to their recent emergence in the scientific environment of the country.

The only private institution we wish to highlight herein is the University Mackenzie, where 12 (18% of the sample) dissertations on the research theme were found. Most studies focus on practical interest and only two dissertations were guided exclusively by the technical interest.

Table 3 Cognitive interest and origin of the dissertations

Cognitive interest	Educational Institution		
	Public	Private	
		Non-profit	Profit-seeking
Technical	9	8	1
Practical	7	9	1
Emancipatory			
Technical/practical	13	11	1
Practical/emancipatory	2	4	
Technical/practical/emancipatory	2		
Total	33	32	3

Source: Durante & Coelho (2020)

Conclusion

Our study examined how researchers, in their dissertations on learning in organizations, handled the creation of knowledge from a cognitive interest perspective based on the model of epistemic matrices proposed by Paes de Paula (2016).

We identified that the technical and practical interests were determinant to guide the creation of knowledge in the process of learning in organizations, which is reflected on the dissertations analyzed herein, and the emancipatory interest remained outside these discussions. Besides, the technical interest prevailed in the dissertations defended in Brazil. The practical interest was already identified in the

first period and it complemented the technical interest – from the second period of the analysis onwards, the practical interest started to guide part of the academic productions. The emancipatory interest is timidly introduced in the second period, complementary to the practical interest; however, it is not highlighted throughout the academic production. The purpose of the emancipatory interest is to identify the power relations present in every sphere, rather political, social, economic, or scientific, and to promote the transformation of reality; this is why this interest is expected in the investigations related to knowledge creation over and above the technical and practical contexts. This field of research could be further explored in future research to increase field knowledge.

These outcomes suggest that the development of research on learning in organizations in Brazil occurred similar to the international context, however with a delay of two decades – the emergence and development of the theme occurred internationally based on the technical interest and, gradually, aggregated the practical and emancipatory interests. We understand that this is the movement occurring in the development of research in administration, taking the technical interest as a reference point, and searches for the efficiency of administrative and organizational processes and causal explanations.

Paes de Paula (2016) proposes the conjugation of the three cognitive interests, which constitutes a knowledge unit, to improve the creation of knowledge, possibly aiming at new and different contributions. With this regard, we observed that the dissertations that presented a single cognitive interest and were developed theoretically and methodologically in a coherent way with the assumptions of the pure approach, indicate knowledge improvement. On the other hand, the dissertations guided by plural cognitive interests, in which there was no coherence with the assumptions of hybrid approaches – as occurred with a part of the structuralist dissertations –, the contributions of the study were either not clear or considered fragile.

The dissertations with plural cognitive interests that were developed coherently with the assumptions of the respective hybrid approach, indicated diverse contributions because they encompass different scopes of the issue. This way, in order to create improvements that aim at contributing to the advancements of knowledge, the study must be elaborated in a coherent way and in accordance with the

assumptions of the sociological approach/epistemic matrix it relates to, either in a pure or in a hybrid approach.

Regarding epistemic matrices, knowledge was created not only based on studies located at the edge of the epistemological limits of pure sociological approaches (functionalist and interpretivist), but also on hybrid studies, boosted by the need to overcome cognitive incompleteness, accomplishing advanced epistemic reconstructions, especially in empirical-analytical and hermeneutic matrices (structuralist approach).

The structure of epistemic matrices, therefore, allowed the identification of the complementation of interests, which would otherwise not be possible based on the paradigm structure.

Other contribution of our research is the identification of some theoretical frameworks, especially regarding frontier theories, as suggested by Paes de Paula (2016). Even though these frameworks were not elaborated with the necessary magnitude to be characterized as innovative models, most of them focused only on identifying theoretical similarities and complementarities for empirical analysis purposes – the lack of epistemological interactions suggests a need to elaborate more robust theoretical studies.

We also identified organizational study's theories used in several different investigations. For instance, cultural studies, even the ones that aim at understanding symbolic meanings, could be observed in empirical-analytical, hermeneutic, structuralist, and post-structuralist studies. The same thing could be observed in studies related to networking, innovation, strategy, and organizational change.

Finally, our study indicates an effort to overcome the paradigmatic logics in organizational studies supported by Kuhn. It represents a step towards the adoption of epistemic matrices as an alternative method to knowledge creation. In this sense, we suggest the investigation of further themes based on epistemic matrices. Our study also presents a few limitations, considering that part of the dissertations did not mention the sociological approach, paradigm, or epistemology used in research. In these cases, the cognitive interests of the authors were identified through the content of the dissertations.

References

- ANTONELLO, C. S. Estudo dos métodos e posicionamento epistemológico na pesquisa de aprendizagem organizacional, competências e gestão do conhecimento. In: ENCONTRO NACIONAL DA ASSOCIAÇÃO NACIONAL DE PÓS-GRADUAÇÃO E PESQUISA EM ADMINISTRAÇÃO, 26., 2002, Salvador. *Anais...* Salvador: ANPAD, 2002.
- ANTONELLO, C. S.; GODOY, A. S. Uma agenda brasileira para os estudos em aprendizagem organizacional. *RAE-Revista de Administração de Empresas*, v. 49, n. 3, jul-set, p.266-281, 2009. DOI: <http://dx.doi.org/10.1590/S0034-75902009000300003>
- BABBIE, E. *The practice of social research*. 14 ed. Belmont, CA: Wadsworth Cengage Learning, 2019.
- BURRELL, G.; MORGAN, G. *Sociological paradigms and organizational analysis*. London: Heinemann, 1979.
- CASTANEDA, D. I., MANRIQUE, L. F., CUELLAR, S. Is organizational learning being absorbed by knowledge management? A systematic review, *Journal of Knowledge Management*, 2018. DOI: 10.1108/ JKM-01-2017-0041
- CROSSAN, M.; GUATTO, T. Organizational learning research profile. *Journal of Organizational Change Management*, v. 9, n. 1, p. 107-112, 1996. DOI: <https://doi.org/10.1108/09534819610107358>
- CYERT, R. M.; MARCH, J. G. *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice-Hall, 1963. v. 2.
- EASTERBY-SMITH, M. Disciplines of organizational learning: contributions and critiques. *Human Relations*, v. 50, n. 9, p. 1085-1113, 1997. DOI: 10.1023 / A: 1016957817718
- FARIA, J. H. de. Epistemologia Crítica do Concreto e Momentos da Pesquisa: uma proposição para os Estudos Organizacionais. *RAM. Revista de Administração Mackenzie (Online)*, v. 16, n. 5, p. 15-40, 2015. DOI: <https://doi.org/10.1590/1678-69712015/administracao.v16n5p15-40>
- HABERMAS, J. *Conhecimento e Interesse*. Com um Novo Posfácio. Rio de Janeiro: Zahar, 1982.
- KUHN, T. *A Estrutura das Revoluções Científicas*. 5. ed. São Paulo: Perspectiva, 1962.
- LEE, S.; RITTINER, F.; SZULANSKI, G. The past, present and future of organisational learning research: a conversation with Linda Argote. *Journal of Management Inquiry*, v. 25, n. 1, p. 85-92, 2016. DOI: <https://doi.org/10.1177/1056492615576974>
- NOGUEIRA, R. A.; ODELIUS, C. C. Desafios da Pesquisa em Aprendizagem Organizacional. *Cad.EBAPE.BR*, v. 13, n. 1, p. 83-102, Jan./Mar. 2015. DOI: <https://doi.org/10.1590/1679-395112602>.
- PAES DE PAULA, A. P. Para além dos paradigmas nos Estudos Organizacionais: o Círculo das Matrizes Epistêmicas. *Cad. EBAPE.BR*, v. 14, n. 1, p. 24-46, Jan./Mar. 2016. DOI: <http://dx.doi.org/10.1590/1679-395131419>
- POPOVA-NOWAK, I.; CSEH, M. The meaning of organisational learning: a meta-paradigm perspective. *Human Resource Development Review*, v.14, n.3, p. 299-331, 2015. DOI: 10.1177 / 1534484315596856
- SANTOS, E. L. O campo científico da administração: uma análise a partir do círculo das matrizes teóricas. *Cad.EBAPE.BR*, v. 15, n. 2, p. 209-228, 2017. DOI: <http://dx.doi.org/10.1590/1679-395152841>
- SCHERER, Andreas. The purpose of organizations theory and the multiplicity of explanations. In: TSOUKAS, H.; KNUDSEN, C. (Eds.). *The oxford handbook of organization theory*. Petrópolis: Oxford University Press, 2005, p. 310-344. DOI: 10.1093/oxfordhb/9780199275250.003.0012

SCUSSEL, F. B. C. Poder, paradigmas e domínio na pesquisa em marketing no Brasil: uma análise da produção nacional da disciplina a partir das matrizes epistêmicas. *Administração: Ensino e Pesquisa*, v. 18, n. 3, p. 518-557, 2017. DOI: <https://doi.org/10.13058/raep.2017.v18n3.702>

SERVA, M. Epistemologia da administração no Brasil: o estado da arte. *Cad.EBAPE.BR*, v. 15, p. 740-750, 2017. DOI: <http://dx.doi.org/10.1590/1679-395173209>

SHRIVASTAVA, P. A typology of organizational learning systems. *Journal of Management Studies*, v. 20, n. 1, p. 7-28, 1983. DOI: <https://doi.org/10.1111/j.1467-6486.1983.tb00195.x>