THE ROLE OF EXTERNALIZATION IN THE CREATION OF MANAGEMENT KNOWLEDGE

JANAYNNA FERRAZ
UNIVERSIDADE FEDERAL DE MINAS GERAIS (UFMG)
jannaferraz@me.com

DÉBORA ELEONORA PEREIRA DA SILVA
UNIVERSIDADE FEDERAL DE SERGIPE (UFS)
dsilva.ufs@gmail.com

JEFFERSON DAVID ARAUJO SALES
UNIVERSIDADE FEDERAL DA BAHIA (UFBA)
profsales@hotmail.com

RAFAEL LUCIAN
FACULDADE BOA VIAGEM (FBV)
lucian@terra.com.br

THE ROLE OF EXTERNALIZATION IN THE CREATION OF MANAGEMENT KNOWLEDGE

1 Introduction

The presence of information technology (IT) in people's lives – on both a personal and a professional level – reinforces the ongoing relevance of knowledge and offers wide access to information exchange among people in a globalized and virtually connected environment (Kumar, 2006; Lévy, 2003; Lunardi, Dolci, & Maçada, 2010; Menezes, Johann, Valentin, & Scott, 2017). In a context characterized by connectedness and focused on the exchange of information and knowledge, managers are challenged to evolve in the ways they manage processes and especially teams.

This new panorama in the knowledge economy requires making a break with the traditional management model, necessitating new methods, references and metrics for coordination (Carvalho, 2012). Within this context, the role of administrators is not limited to controlling knowledge creation; instead, they should support the promotion of knowledge (Ichijo, 2008; Muzzio, 2017) and this can be done through knowledge management (KM) (Cherman & Rocha-Pinto, 2013).

Although there is no unified concept of KM (Avelar, Vieira, & Santos, 2011; Carneiro, Zilinksi, & Costa, 2017; Rocha Neto, 2012; Shin, Holden, & Schmidt, 2001), it has been a central focus of interest for researchers involved in the investigation of related phenomena. The research studies conducted by these authors have helped to articulate the depth and breadth of this topic and have increased its popularity in various areas with different points of interest, including conceptions of KM, theories based on organizational knowledge and innovation, and organizational learning and KM strategy (Ma & Yu, 2010). According to Cherman and Rocha-Pinto (2013), research on KM in Brazil has concentrated on the fields of IT, organizational factors and organizational performance.

The creation of organizational knowledge can be understood as a process that disseminates knowledge created by the individual through the whole organization, consolidating it as part of the corporation's knowledge network (Nonaka & Takeuchi, 1995; Razmerita, Kirschner, & Nielsen, 2016). This study restricts itself to corporate knowledge, but it does not adopt a philosophical discussion of knowledge as its focus. For Nonaka and von Krogh (2009), as well as for Binotto, Nakayama and Siqueira (2011), the theory of knowledge creation is one of the most comprehensive KM models due to its coherence in uniting tacit and explicit knowledge.

Choo (2011) states that understanding the externalization of knowledge is indispensable for corporate development in terms of the knowledge economy. Therefore, when one considers that in knowledge-intensive business firms (KIBS) knowledge resides essentially within each person's subjective experience, externalization becomes imperative as turnover in human resources can interfere with the knowledge available to the organization (Bettiol, Di Maria, & Gradinetti, 2012).

The thesis on which this study is based is that externalization plays a central role in the creation of corporate knowledge; it is not simply a phase, but is the most important moment in the process of knowledge creation. Without transforming tacit knowledge into explicit knowledge, KM does not happen; rather, there is only information management (IM) and this is not enough to compete. Primarily, we argue that to work, Nonaka and Takeuchi's (1996) socialization, externalization, combination and internalization (SECI) model must be combined with the necessary conditions for knowledge creation.

However, although in general work on KM, or specifically knowledge theory, recognizes the importance of externalization within the process of knowledge creation, there are still few

studies that focus on this aspect. In Brazil, no study is to be found in this field and internationally few studies touch on the issue and only indirectly (Hayashi & Ohsawa, 2015; Moskaliuk, Bokhorst, & Cress, 2016; Razmerita *et al.*, 2016; Sorensen, 2015; Vick, Nagano, & Popadiuk, 2015; Zhao, Ha, & Widdows, 2016). We thus identify a gap in the role of outsourcing within the macro process of creating corporate knowledge.

Accordingly, the objective of this research is to understand the role of externalization in the creation of corporate knowledge. Specifically, we aim to describe the movement of the knowledge spiral and investigate the promotion of the five conditions necessary for the creation of corporate knowledge. It is should be noted that the focus of this research is on exploring the transformation of tacit knowledge into explicit knowledge based on the assertion that this is the fundamental route of KM (Bettiol *et al.*, 2012; Silva & Binotto, 2013).

A predominantly qualitative methodology was adopted through a single case study formed by six mini-cases of advertising agencies in Brazil. The qualitative data source was an online interview with a focal group of advertising leaders, identifying the perspectives of managers. This evidence was supplemented with data collected through an online questionnaire (quantitative method) administered to the teams of the advertising agencies and capturing the views of the employees. The data were examined through content analysis. As far as strategy was concerned, we chose to work with a case study as this is recommended when aiming to augment a theme that has been already worked on from a new perspective. With regard to validity and reliability, we chose to adopt two sources of evidence, a questionnaire and an e-focus group, linking these sources to demonstrate the validity of the findings and enhance reliability. We thus employed a case study protocol for the operationalization the study together with data triangulation.

This research contributes to theoretical and empirical understanding of the creation of corporate knowledge; in particular, without externalization, the cycle of knowledge creation is not complete. In terms of managerial practice, the results show that without a focus on the externalization process, it is not possible to raise the handling of information to the level of KM and therefore no new knowledge will be created. From the academic perspective, it is apparent that the knowledge spiral must be combined with all five conditions for the creation of knowledge for this to be successful.

In addition, from a methodological perspective, the adoption of the focus group mediated through Facebook® illustrates the possibility of exploiting the potential of this approach as a research technique. Employing a means of social networking, with its intense virtual interaction, confers advantages in terms of addressing time constraints and provides hyper-connectivity. Research techniques will advance with technology and social researchers need to keep pace with this movement.

2 Knowledge Management

Knowledge represents the most important asset in organizations (Araújo, Mottin, & Rezende, 2013; Choo, 2011; Lastres & Ferraz, 1999; Silva & Binotto, 2013; Sveiby, 1998). As there is no single, unified theory to explain KM, it is necessary to establish a guiding definition. Moving towards a practical perspective, the fundamentals of KM focus on guaranteeing that each staff member has access to knowledge at a suitable time and place, thereby helping to promote and share this knowledge, as well as ensuring mutual collaboration through facilitating its use. Therefore, it is asserted that any organization, regardless of size or branch of activity, can generate knowledge, but it is necessary for the managers to create an environment that promotes the possibility of transforming individual knowledge into collective knowledge (Braga & Gemino, 2017).

For Bettiol *et al.* (2012), research concerning KM has indicated that codification – transforming tacit knowledge into explicit knowledge – is a convenient strategy that can be

used to increase the efficiency of communication through support for knowledge conversion between the individual and the company. However, when one considers companies that are specialized in intensive knowledge services, it is clear that tacit knowledge has a significant place in the development of company activities, with an emphasis on a personalized strategy that consists of transforming tacit knowledge into new types of tacit knowledge (Hansen, Nohria, & Tierney, 1999; Marodin & Vargas, 2004).

Analysing the KM strategies adopted in advertising agencies, Bettiol *et al.* (2012) reveal that firms are surpassing the *trade-off* in a seemingly dichotomous choice between codification and personalization, rather adopting a hybrid strategy that essentially amounts to the codification of work processes and a personalized final product (service result).

With regard to knowledge, Nonaka and Takeuchi (2008) distinguish two types: tacit knowledge and explicit knowledge. These are terms that, according to Binotto *et al.* (2011), convey what knowledge represents, i.e. the meaning of knowledge, within organizations in the most efficient way. For Nonaka and Takeuchi (2008), these types of knowledge are complementary and both are present in the exchanges that take place between human beings.

3   The Creation of Organizational Knowledge

According to Nonaka (2008), for the creation of organizational knowledge to develop efficiently, a favourable context is required. Regardless of the KM strategy chosen – coding and/or personalization – this context can be structured through the following five conditions that encourage knowledge creation in companies: intention, autonomy, fluctuation and creative chaos, redundancy and the variety requirement (Nonaka & Takeuchi, 2008). These five conditions, when strategically articulated, prevent the knowledge generated by team members from being lost, thus increasing the company's competitiveness (Braga & Gemino, 2017).

Once these conditions are present, the environment inspires a dynamic spiral of knowledge creation from an epistemological perspective that oscillates between tacit and explicit knowledge and an ontological perspective arising from the individual, moving outward to the group and up through the organization and even into other firms. This spiral creates four possible forms of knowledge transformation and is equivalent to the SECI conversion model, as illustrated in Table 1.

Table 1
Origins and means of elements in the spiral of knowledge

	Conversion Modes			
	Socialization	**Externalization**	**Combination**	**Internalization**
From/to	Tacit/tacit	Tacit/explicit	Explicit/ explicit	Explicit/ tacit
Origin	Construction of the interaction field	Significant dialogue and collective reflection	Association of explicit knowledge	Learning through practice
Means of creation	Dialogue, observation, imitation and practice	Metaphor, analogy and modelling	Communication system and database	Training programmes, simulation, success stories
Participating entities	Individual/individual	Individual/group/ organization	Group/organization	Organization/individual

Note. Adapted from Nonaka and Takeuchi (2008); Carvalho (2012, p.21).

When epistemological and ontological dimensions intersect, it is possible to notice the correlation between different types of knowledge (tacit and explicit) and the links between entities (individual, group, organization). During the internalization phase, it is clear that individuals aim to synthesize knowledge gained through explicit knowledge with their subjective understanding. The socialization and externalization of knowledge phases requires group interaction as the sharing of knowledge tends to be substantial. The conversion modes combination and externalization (once again) conclude the cycle.

This model is criticized for the dichotomy between tacit and explicit knowledge, as well as the fact that it was created more than 15 years ago (Silva & Binotto, 2013). However, the theory remains one of the most referenced in the international literature (Ma & Yu, 2010), which suggests that its theoretical saturation has not yet been reached (Eisenhardt, 1989). Concerning the issue of distinguishing between tacit and explicit knowledge, Nonaka and von Krogh (2009) explain that this conceptual distinction can be resolved by considering the two forms as existing on a broad *continuum*; that is, knowledge is continuously moving from tacit to explicit, making the two inseparables. Thus, throughout the process of knowledge creation, knowledge can be presented in both forms.

4 The Role of Externalization

The externalization phase is the most complex precisely because it embodies the codification of knowledge (Bettiol *et al.*, 2012) and consists of revealing individuals' hidden information; this occurs through dialogue or collective reflection (Silva & Binotto, 2013).

KM practices – either codification or personalization – require externalization because it is necessary to transform tacit knowledge into explicit knowledge so that individual expertise can be shared with the entire organization. In this context, it has been confirmed that externalization happens through dialogue, transforming tacit knowledge into coded knowledge. For the most part, this process uses IT, as can be seen in the research of Zhao *et al.* (2016). The question that then arises is if knowledge is coded, does it cease to be knowledge? Does it instead become information?

The distinction between KM and IM is imperative at this point due to the objective of this research: to understand the role of externalization as a relevant component of the theory of knowledge creation in Brazilian advertising agencies. When it comes to externalization (as the movement from tacit towards explicit knowledge), one soon realizes that the consolidation of knowledge creation begins with human knowledge that is codified through technology, thus becoming explicit.

According to Choo (2011), IM entails a search, identification and analysis process that can help organizations make the right decisions. From this point of view, the concepts of IM and KM have equivalent profiles. However, KM includes an aspect that IM does not consider: the capacity to act (Nonaka & von Krogh, 2009). According to Terra and Gordon (2002), IM does not inflect tacit knowledge and learning issues; also, it does not possess the capacity to replace the crucial aspect of human relations and the role of intuition.

Above all, KM initiatives require a holistic orientation (Choo, 2011), one that is business-focused and moves beyond traditional IT projects. Through externalization, KM should allow firms' purposes to be transformed into actions and activities that are incorporated in the everyday routine of organizations in visible and manageable processes. Thus, it is clear that IM is limited to the coordination of IT tools aligned with the organization's goals, whereas KM goes beyond the investment in technology, essentially because of the inclusion of the human factor in the process (Terra, 2014). It is vital to highlight that KM is integrated in IT, although IT does not determine KM (Fell, Rodrigues Filho, & Oliveira, 2008; Figueiredo, 2007; Terra, 2014).

Therefore, according to Shin *et al.* (2001, "the task of knowledge management is one of identifying and facilitating the usage of valuable tacit knowledge that is potentially useful when it becomes explicit" (p.338). In this regard, KM makes use of IM through externalization as a tool for creating organizational knowledge.

5 Methodology

As there has as yet been little investigation concerning externalization, this research used an exploratory approach. The research adopted a deep probing analysis of complex and unknown data from an exploratory and critical perspective. The study employed a predominantly qualitative methodology aided by quantitative questions used in the data collection process, as recommended by Richardson (2014); this methodology contributes to increasing the visibility of the knowledge creation phenomenon in organizations.

This research can be considered a study of an intrinsic case (Stake, 2010) as it investigates a single case of advertising agencies in Brazil. The criterion for choice was that these agencies should be certified by the "*Conselho Executivo de Normas-Padrão*" (CENP, Executive Council of Pattern Norms) because this institution "certifies the technical quality of the advertising agency, guaranteeing that it contains the physical and human structure that is compatible with the market in which it evolves" (CENP, 2014).

5.1 Data collection

Six agencies agreed to participate in this study. In a first step, data were collected from six managers of advertising agencies, one from each organization, through an *e-focus group* to capture the perspectives of leaders. In a second step, an *online questionnaire* was sent to the employees of these six agencies, in which the managers encouraged their employees to respond. We also sent the questionnaire to six other agencies to increase employee participation in characterizing the segment. We obtained 82 valid responses to the questionnaire.

The unit of analysis was the phenomenon of the knowledge spiral itself. Pre-tests were performed for both the focus group interview script and the questionnaire. The research followed the case study protocol suggested by Yin (2010), in which the general view of the research, the field procedures and the case study report are presented in chart form.

The advertising sector acts as *staff* in the main areas of industrial activity, as well as in outsourcing services in Brazil, contributing to the development of these businesses through social network communication. Advertising agencies in Brazil are responsible for communication between the main executive state governmental institutions and are present in the activities of the most important construction corporations, schools and universities, health institutions, banks, the food industry, as well as the automotive and entertainment industries. A summary is presented in Table 2.

Table 2
Characterization of the agencies (mini-cases)

Agency	Time of activity	Field of activity of the agency's main clients	Staff members
Alpha	18 years	Government and education (high school and university levels)	24
Beta	4 years	Construction and entertainment	12
Gamma	5 years	Health, car sales and food industry	11
Delta	13 years	Industry in general, university and banks	16
Epsilon	5 years	Government and construction	20

Zeta	9 years	School (lower and middle) and construction	18

Note. Primary research details.

5.1.1 Focus group

A *focus group* involves an in-depth interview carried out in homogeneous groups, generally composed of six to twelve people. The goal is to grasp the participants' understanding of the research topic (Martins, 2008). An *e-focus group* is similar to a *focus group*, the only difference being that it is conducted in a virtual environment. For the e-focus group, a semi-structured interview guideline was developed.

A focus group enables the generation of hypotheses based on the perceptions of the informants, as well as facilitating the development of interview plans and questionnaires and the generation of additional information from larger-scale research (Schröeder & Klering, 2009). Among the advantages of this research technique is that it can be completed quickly, increasing the possibility of acceptance on the part of the participants, who can participate from their offices or elsewhere without having to move. In this regard, it is important to consider the difficulty of gathering managers from different companies to come together at the same time and in the same place to take part in a research process. Also, because it comprises communication encoded through writing, participants tend to be more critical and participatory. In addition, the results of an e-focus group are immediately documented in written form, streamlining the process of data analysis (Schröeder & Klering, 2009).

Another methodological concern, as noted by Martins (2008), is related to the creation of a homogeneous group of people. In this case, the group is considered homogeneous because all participants are managers of advertising agencies in Brazil, aged between 31 and 39 years and holding a degree in communications or graphic design. Some of them went to college together and this helped create a trusting group atmosphere, which facilitated the sharing of ideas, even contradictory ones.

Thus, the objective of the e-focus group was to analyse if the five conditions required for the creation of organizational knowledge (intention, autonomy, creative chaos, redundancy and requisite variety) were present and furthermore to cross the data with the SECI results aiming to analyse the externalization process. For this purpose, six managers from six different agencies were invited to participate. The group was selected through the *snowball* technique, which consists of inviting the first manager, who in turn invites other participants with a similar profile until the group is formed.

The group's mediator was one of the researchers collaborating in this study and she was attentive in keeping the group focused on relevant issues, as well as stimulating interaction among all the participants.

Table 3
Methodological care in planning the e-focus group

RECOMMENDATION	MEASURE ADOPTED
Desirable group of six to twelve people	Group with six participants
Participants should have something to say about the issues raised	All attendees were advertising agency owners and creative team managers
Similar sociocultural level	Group aged 31 to 39 years, with media or graphic design training

Participants feel comfortable expressing opinions	The snowball technique was used; the participants invited the next ones, forming a group of individuals already known to each other previously
Question script with around 12 questions	Elaboration of script with a guide of 12 questions
Moderator must control the dynamics of the group and the topics to be addressed	The researcher in possession of the script (Appendix A) was the mediator of the interview, asking questions whenever the discussion on each topic was exhausted and maintaining group participation

Source: Lindegaard (2014)

The final interview script, following the pre-test, is provided in Appendix A. Initially, the intention was to conduct the e-focus group through the Skype software, but not all participants knew how to use the tool. However, all six managers had an active Facebook® profile, so the researcher, acting as moderator, added each of them to her profile in the social network and created a group entitled "Focus Group", uniting them.

The virtual meeting was scheduled with each of the participants for a Tuesday at 09:30. The respondents would be online simultaneously in the instant messaging service within Facebook®. The participants were instructed to be online a few minutes before the scheduled time and to access the "Focus Group" within Facebook® from their computers and not smartphones to facilitate the typing of the interaction.

The interview lasted about two hours. After introductions and a brief explanation of the purpose of the research, the mediator began the round of questions. Participants were encouraged to respond, being called by name. An interesting point was that at one point the participants themselves questioned each other, expanding the debate.

As for the limitations of the e-focus group technique, as noted by Lindegaard (2014) and experienced in this case, because it is a virtual environment, it can suffer from interference from the surroundings, such as people calling, the telephone ringing and other noise, in other words, factors that are beyond the control of the mediator. In addition, a good capability for synthesis is necessary to transcribe the text of what was discussed in a logical manner, articulating and accurately representing the perspectives of those involved.

Reviewing the advantages and disadvantages of this still underutilized technique, the e-focus group was an efficient tool in meeting the defined objectives at it contributed to inter-subjectivity in the group discussion among experienced participants concerning the conditions necessary for the creation of knowledge.

5.2 Data analysis

Data of e-focus group was annualized by content analysis employing a mixed grid and themes categorization (Bardin, 2009).

Table 4
Content analysis of e-focus group data

Phase	Action
1. Pre-analysis	- Tabulation and treatment of the questionnaires
	- First reading of the group interview
	- Identification of the categories of analysis
	- Separating the categories of analysis by colour
	- Reading and selecting excerpts from the theoretical review on which externalization was based.

2. Analysis	- Transfer of evidence from the themes to the elements and the resulting data categories using Microsoft Word®
	- Adjustment of analytic elements
	- Critical reading of the content of the categories originating from the selected evidence
	- Crossing of managers' vision and teams' vision
3. Data treatment	- Conversion of data into information
	- Interpretation

Note. Based on Bardin (2009).

It should be mentioned that the content of the e-focus group was analysed in two distinct processes: first to explain the environmental context and second to explain the process of outsourcing. Thus, in the analysis of the outsourcing process, the data of the e-focus group were used, as well as the report of the analysis of the environmental context and the report of the analysis of the movement of the knowledge spiral.

The questionnaire aimed to describe the process of knowledge creation in advertising agencies and thus explored indications of the ways in which knowledge is converted, i.e. in relation to the SECI model. It was configured as a quantitative step supporting the qualitative data. When the period for responding to the online questionnaire ended, it was restricted in Google Forms®. The tool streamlined the analysis as the data were already tabulated in XLSX format, which can be read directly by Microsoft Excel®. With the support of Excel spreadsheets, graphs were used to aid in the interpretation of the results of the survey; this, when compared to the literature, allowed exploration of new discoveries in the next phase of the research.

The analysis of the case was based on the triangulation of the different data and methods. A report was drawn up for each of the three categories of analysis and after examining them individually, the results were compared and triangulated to examine the problem of externalization in terms of the points of convergence, trends and divergence present in the case.

6   Case Analysis

In the research phase resulting from the questionnaire analysis, the objective of which was to describe the scenario of the teams of the agencies that participated in the case, it was noticed that from the epistemological perspective of the knowledge spiral, which addresses the movement between tacit and explicit knowledge, there is a greater concentration of tacit knowledge to the detriment of explicit knowledge, characterized by the greater volume of notes concentrated in the modes of conversion related to tacit knowledge.

In Table 6, the general median (2.75) can be observed and also that of each of the stages of knowledge creation resulting from the analysis of the responses in the 82 questionnaires collected. The questions were classified according to a Likert-type scale of 1 to 5. Among the four stages of the SECI, it can be affirmed that there is engagement to a greater or lesser degree in socialization, externalization, combination and internalization; socialization has the highest median score (4.0) and externalization the lowest (2.0). It can thus be noted that knowledge is lost in the middle of the process, hampering the creation of new knowledge.

Table 6
Median scores for elements of the knowledge spiral

Socialization	Externalization	Combination	Internalization	**Overall Median**
4.0	2.0	2.5	3.0	**2.75**

Source: Own calculation (2015).

The second phase analysed the questionnaire results combined with the analysis of the focus group results. Table 7 summarizes the main evidence. With the aim of facilitating the identification of each individual manager without revealing their identities, they are named G1, G2, G3, G4, G5 and G6 for the agencies Alpha, Beta and so forth. The percentages represent the absolute value of respondents among the 82 questionnaires conducted with agency employees.

Table 7
Evidence of the externalization process

Elements in the process of externalization	Evidence
Lack of intention to engage in knowledge management	- Managers affirmed that they suffer from a chaotic routine and although this contributes to the execution of *jobs*, it is harmful to productivity and innovation. Lack of planning. - G3 argued that in management it is necessary to engage in "Stimulus always. Facilitating information and the environment". However, G2 responded that it is "too difficult, it is important not to set too many limits". - There are no formal KM programmes, although knowledge is the main raw input for the segment.
Socialization is present	- 80% of the staff members stated they share tacit knowledge with co-workers.
There is not sufficient autonomy to turn tacit knowledge into explicit knowledge	- 72% of the staff members indicated that there are no organizational actions directed at incentives for externalization. - G4 stated that "Freedom of ideas may contribute a lot, but there should be rules and these should be decided by the directors, otherwise it is a mess, even if people have great intentions". - G6 believes that "those professionals who show responsibility and present solutions to possible problems are the people we (managers) value the most. The fact is this person does not exist. We need to 'create' these professionals. Take them by the hand. The good experiences we have had were based on forming a professional not only technically but providing him/her with responsibility and autonomy".
Individual knowledge does not attain the group level	- 52% of the staff members rely on co-workers for knowledge about the company itself. - G6 explained: "We gather all the creative departments for the de-briefing session and then each person looks for the answers to their questions with the people responsible for each department. We really enjoy personal contact. Face-to-face communication, we do not use any other tool, just e-mail for simple, less important questions."
Low redundancy and variety of actions; the absence of a *ba*, a place that allows knowledge exchange	- Fewer than half of the staff members (48%) stated they use some kind of codified source to look for knowledge about the organization. - The managers understand that the advertising market is very dynamic and there is not enough time to codify existing knowledge. As G2 explained: "Some companies create a manual for the employees. This is difficult in our case because we are constantly improving. We are more dynamic in the evolution of processes." - According to G1, information and tasks must be classified "according to the natural abilities and capacities of each function".

Note. Primary research results.

It is possible to state that socialization (tacit to tacit knowledge) represents the most intensive conversion mode; this is a consequence of the interaction between people, dialogue and sharing experiences. Internalization (explicit to tacit knowledge) is less intensive; still, one can consider it an element that contributes to the creation of new knowledge in these organizations. Finally, externalization seems incipient because it has not contributed to the diffusion of individual knowledge in such a way that it can be noticed and used by the whole group.

Concerning the conditions required for the promotion of knowledge creation from the managers' perspective, four out of the five aforementioned conditions were identified. Only one of them – creative chaos – is represented to a considerable degree. Autonomy and intention seem relevant and even desired. However, the actions implemented have not yet reached the necessary level of practices to promote intentionally a rich environment full of knowledge creation. The requisite variety was not identified because access to information was limited to the group that needed the information to perform a specific task.

The codification of knowledge can be summarized in terms of four benefits, outlined as follows by Silva and Binotto (2013, p.135): 1) reduction of costs in knowledge acquisition; 2) access to knowledge; 3) reduction of problems and information asymmetry; 4) division of organizational labour. The analysis of the benefits pointed out above, intersected with the spiral movement of knowledge and associated with the fostering of knowledge creation in agencies, indicates that the absence of administrative actions has a major impact on the fact that the advertising sector in Brazil is losing opportunities to become more efficient and competitive.

It is possible that these agencies invest high amounts in hiring more experienced professionals to make up for the lack of collective knowledge as knowledge tends to remain individualized. Therefore, outstanding professionals who command salaries that are way above average tend to be the creative support for these agencies. However, these professionals might become less motivated over time because they are unable to exchange knowledge with other group members. As highlighted by Chauí (1999), humans have in themselves an inherent drive to belong to a social group and the inner will to improve and expand upon existing knowledge. Investment in hiring staff is therefore quite high.

Based on the evidence uncovered in the first phase of this research, one can conclude that new knowledge enters advertising agencies through the act of hiring new employees. More than 90% of employees go through some type of training when they join a new company. This is an opportunity for intense knowledge exchange to take place between new and existing employees. Agencies in Brazil have not yet found ways of taking advantage of these situations to diffuse new knowledge among the group. The chance of externalizing new knowledge is therefore lost.

Managers also complain that teams are not proactive and according to the interviewees, rely on decisions made at the director level to instigate action. According to Sveiby (1998), the manager's role used to be supervision and the organization of knowledge; this favoured support in a horizontal hierarchy, one that was focused on cooperation.

Another benefit of the codification of knowledge concerns access to information. The problems identified in advertising agencies, such as communication asymmetry and the division of labour, could be resolved through wider investment in redundancy and in requisite variety.

To sum up, when it comes to the externalization process, it is possible to assert that although managers recognize that it is important to manage knowledge, they have not yet realized that it is possible, even in knowledge-intensive activities, to combine knowledge through customized codification, as recommended by Bettiol *et al.* (2012). In particular, they have not grasped the differences between having an information system for communication and fostering a knowledge organization as they are not creating the necessary conditions for the manifestation of the creation of corporate knowledge. Within this context, externalization – the main engine of KM in the process of knowledge creation – is a secondary consideration when

faced with the urgency caused by chaos and by the deadlines that characterize the knowledge era (Sveiby, 1998).

7   Conclusion

This exploratory study aimed not only to describe but also to advance understanding of how the process of knowledge creation takes place. In terms of the knowledge creation spiral in the advertising agencies investigated, the study verified that the promotion of the necessary conditions and the progression of the four stages of the spiral formation (epistemological dimensions) were related.

The objective of this research was to investigate the central role that externalization plays in the process of creating corporate knowledge. To meet this challenge, we used the strategy of a case study, collecting data through an e-focus group with six advertising agency managers and questionnaire responses from 82 employees of advertising agencies. We employed content analysis and simple descriptive statistics, seeking first to describe the movement and progression of the knowledge spiral and then to investigate the promotion of the five conditions necessary to create corporate knowledge. This path has led to the discovery of a deep link between the SECI model and the five conditions, reinforced by the centrality of the role of externalization, which represents an important theoretical and practical contribution to the field.

One of the main conclusions reached by this research project is that externalization acts as a key element in the process of knowledge creation. It is not only important, as the literature points out, but vital, for its absence tends to impede completion of the other tasks in the cycle of knowledge creation. Without transforming tacit knowledge into explicit knowledge, knowledge management (KM) is not possible; new knowledge might be created, but it may not reach the organizational level.

In addition, following the path of knowledge from the individual through the group to the organization (ontological level), it can be understood that externalization plays a central role in the creation of corporate knowledge; this weakens the circulation of knowledge generated solely through socialization. Figure 1 represents the combined movement between aspects of Nonaka and Takeuchi's (1996) theory; these are represented separately, but their practical application is closely related because the lack of any one of these conditions is reflected in the (lack of) attainment of a step in the SECI model.

As displayed in Figure 1, the design of the progression of knowledge creation combines the aspects of the SECI model with the necessary conditions for knowledge creation as a way of representing the mutual efforts made by managers and teams. This is the ideal progression, as the success of one phase depends on the success of the preceding phase. When the process reaches its end, a new process begins because knowledge is an unlimited resource.

The phases in this proposed combined approach to knowledge creation theory are as follows:

1) The organization understands its need to focus on organizational knowledge and transforms this intention into organizational value, which permeates and is perceived by all staff members; together, they will look for tools and ways of sharing and creating new knowledge.

2) Strategically aligned in search of a knowledge network, autonomy is promoted so that the environment inspires trust and becomes favourable for the exchange of experiences, allowing the conversion of knowledge from tacit to tacit through socialization.
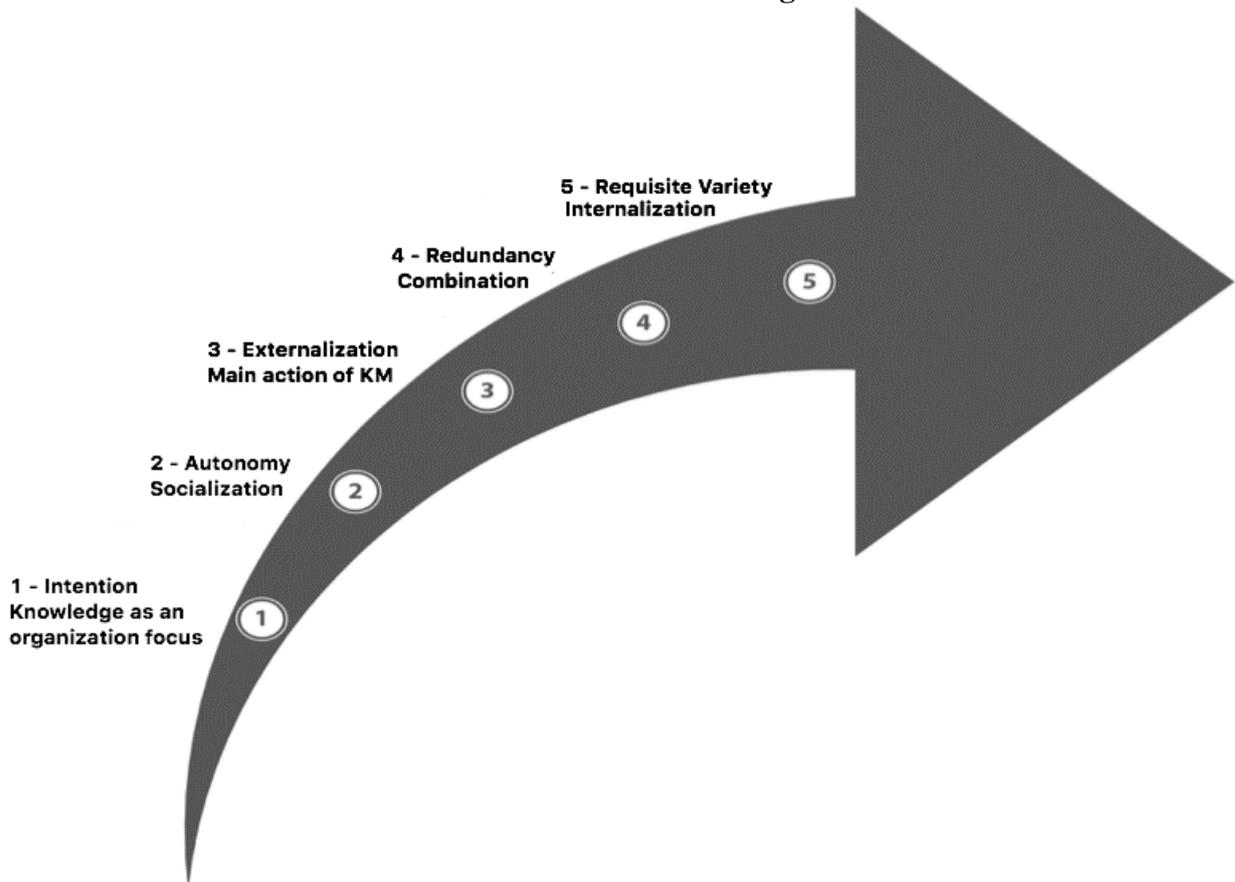
3) Socialization promotes shared knowledge, which in a context presenting a relational field (*ba*) and an organizational culture that provides support for codification (IT, meeting rooms, specific events) converts tacit knowledge into explicit knowledge in the form of externalization. Externalization becomes a decisive element for the existence of the other phases in knowledge creation; therefore, it is assumed to be the main aspect of KM.

4) Externalization facilitates the promotion of redundancy, offering various points of view concerning the same issue. Thus, combination – the mode of converting explicit to explicit knowledge – has a higher chance of creating new knowledge.

5) The aspect of requisite variety facilitates access to new learning and makes internalization happen; therefore, at the end of the process, all the knowledge created is made available in a quick, flexible way that is accessible to all staff members.

Figure 1
The central role of externalization in relation to knowledge

Note. Primary research results.

The role of externalization is central to knowledge creation and therefore the previous steps are necessary for its emergence. It is therefore necessary for an organization's management to work towards synchronizing the conditions that are required to foster knowledge management, taking into consideration the perception of how the group treats information and what actions are implemented in relation to what is known. In other words, this research has verified that if there is no externalization, knowledge is not propagated; instead, it remains restricted to the individual or to small groups.

References
Araújo, R. P. de, Mottin, A. P., & Rezende, J. F. de C. (2013). Gestão do conhecimento e do capital intelectual: Mapeamento da produção acadêmica brasileira de 1997 a 2011 nos encontros da ANPAD, *Organizações & Sociedade*, *20*(65), 283–301. doi: 10.1590/s1984-92302013000200006.

Avelar, E. A., Vieira, E. A., & Santos, T. S. (2011). Gestão do Conhecimento: uma análise das pesquisas brasileiras desenvolvidas na primeira década do século XXI. *Perspectivas em Gestão & Conhecimento*, *1*(2), 150–165.

Bardin, L. (2009). *Análise de conteúdo*. Lisboa: Edições 70.

Bettiol, M., Di Maria, E., & Grandinetti, R. (2012). Codification and creativity: Knowledge management strategies in KIBS. *Journal of Knowledge Management*, *16*(4), 550–562. doi: 10.1108/13673271211246130.

Binotto, E., Nakayama, M. K., & Siqueira, E. S. (2011). *O modelo das cinco fases do processo de criação do conhecimento organizacional: uma aplicação prática*. Rio de Janeiro: Encontro da Associação Nacional de Pós-Graduação e Pesquisa em Administração, XXXV.

Braga, E. V. C., & Gemino, A. M. (2017). O indivíduo e o ambiente organizacional favorável à criação de novos conhecimentos. *Perspectivas em Gestão & Conhecimento*, *7*(1), 175−189.

Carneiro, M., Zilinksi, T., & Costa, E. (2017). Práticas e mecanismos de compartilhamento de conhecimento em um programa de aceleração de startups. Navus - Revista De Gestão E Tecnologia, 113-123. http://dx.doi.org/10.22279/navus.2017.v7n2.p113-123.531

Carvalho, F. C. A. (2012). *Gestão do conhecimento*. São Paulo: Pearson.

Chauí, M. (1999). *Convite à Filosofia* (12th ed). São Paulo: Ática.

Cherman, A., & Rocha-Pinto, S. R. (2013). Gestão do conhecimento no Brasil: Visão da academia. *Revista Pensamento Contemporâneo em Administração*, *7*(1). doi: 10.12712/rpca.v7i1.187

Choo, W. C. (2011). *A organização do conhecimento: como as organizações usam a informação para criar significado, construir conhecimento e tomar decisões* (3rd ed). São Paulo: Editora Senac São Paulo.

CENP. (2014). Conselho Executivo das Normas-Padrão. Retrieved from http://www.cenp.com.br/sobre%2Do%2Dcenp/o%2Dque%2De%2Do%2Dcenp/

Dalfovo, O., Scharf, E. R., & Krambeck, G. A. (2009). A gestão do conhecimento em ambientes intensivos de conhecimento: as pequenas empresas incubadas de softwares. *Revista de Gestão da Tecnologia e Sistemas de Informação*, *6*(1), 45–60.

Eisenhardt, K. (1989). Building theory from case study research. *Academy of Management Review*, *14*(4), 532–550.

Fell, A. F. A., Rodrigues Filho, J., & Oliveira, R. R. (2008). Um Estudo da Produção Acadêmica Nacional sobre Gestão do Conhecimento Através da Teoria do Conhecimento de Habermas. *Revista de Gestão da Tecnologia e Sistemas de Informação*, *5*(2), 251–268.

Figueiredo, S. P. (2007). Demolindo alguns mitos da gestão do conhecimento. In Silva, R. V. & A. Neves (Eds.), *Gestão de empresas na era do conhecimento* (pp. 273−310). São Paulo: Serinews.

Hansen, M. T., Nohria, N., & Tierney, T. (1999). What's your strategy for managing knowledge? The knowledge management yearbook 2000–2001, 1-10.

Hayashi, T., & Ohsawa, Y. (2015). Relationship between externalized knowledge and evaluation in the process of creating strategic scenarios. *Open Journal of Information Systems*, *2*(1), 29−40.

Ichijo, K. (2008). Da Administração à Promoção do Conhecimento. In Takeuchi, H. & I. Nonaka (Eds.), *Gestão do conhecimento* (pp. 118−141). Porto Alegre: Bookman.

Kumar, K. (2006). *Da sociedade pós-Industrial à pós-Moderna: Novas teorias sobre o mundo contemporâneo* (2nd ed). Rio de Janeiro: Jorge Zahar Editores.

Lastres, H. M. M., & Ferraz, J. C. (1999). Economia da informação, do conhecimento e do aprendizado. In Lastres, H. M. M. (Ed.), *Informação e globalização na era doconhecimento* (pp. 27−57). Rio de Janeiro: Campus.

Lévy, P. (2003). *A inteligência coletiva: por uma antropologia do ciberespaço* (4th ed). São Paulo: Loyola.

Lindegaard, L. (2014). Doing focus group research: Studying rational ordering in focus group interaction. Discourse Studies, 16(5), 629-644. http://dx.doi.org/10.1177/1461445614538563

Lunardi, G. L., Dolci, P. C., & Maçada, A. C. G. (2010). Adoção de tecnologia de informação e seu impacto no desempenho organizacional: um estudo realizado com micro e pequenas empresas. *Revista de Administração*, *45*(1), 5–17.

Ma, Z., & Yu, K-H. (2010). Research paradigms of contemporary knowledge management studies: 1998−2007. *Journal of Knowledge Management*, *14*(2), 175–189. doi: 10.1108/13673271011032337.

Marodin, F. A., & Vargas, L. M. (2004). Estratégias de gestão do conhecimento e o uso de tecnologia de informação: um estudo de caso em uma empresa de software. *Facep Pesquisa*, *7*(2), 36–53.

Martins, G. A. (2008). *Estudo de caso: uma estratégia de pesquisa*. São Paulo: Atlas.

Meira, S. L. (2013). *Novos negócios inovadores de crescimento empreendedor no Brasil*. Rio de Janeiro: Casa da Palavra.

Menezes, K. C., Johann, J., Valentim, P. P., & Scott, P. (2017). Gestão do conhecimento nas organizações: uma aprendizagem em rede colaborativa. *Perspectivas em Gestão & Conhecimento*, *7*(1), 145−159.

Moskaliuk, J., Bokhorst, F., & Cress, U. (2016). Learning from others' experiences: How patterns foster interpersonal transfer of knowledge-in-use. *Computers in Human Behavior*, *55*, 69−75.

Muzzio, H. (2017). Indivíduo, Liderança e Cultura: Evidências de uma Gestão da Criatividade/Individual, Leadership and Culture: Evidence of Creativity Management. *Revista de Administração Contemporânea*, *21*(1), 107.

Nonaka, I. (2008). A empresa criadora de conhecimento. In Takeuchi, H. & I. Nonaka (Eds.), *Gestão do conhecimento* (pp. 39−53). Porto Alegre: Bookman.

Nonaka, I., & Takeuchi, H. (1996). The knowledge-creating company: How Japanese companies create the dynamics of innovation. Long Range Planning, 29(4), 592. http://dx.doi.org/10.1016/0024-6301(96)81509-3

Nonaka, I., & Takeuchi, H. (2008). *Criação de conhecimento na empresa: como as empresas japonesas geram a dinâmica da inovação* (20th ed). Rio de Janeiro: Elsevier.

Nonaka, I., & von Krogh, G. (2009). Perspective−tacit knowledge and knowledge conversion: Controversy and advancement in organizational knowledge creation theory. *Organization Science*, *20*(3), 635–652. doi: 10.1287/orsc.1080.0412.

Razmerita, L., Kirchner, K., & Nielsen, P. (2016). What factors influence knowledge sharing in organizations? A social dilemma perspective of social media communication. *Journal of Knowledge Management*, *20*(6), 1225−1246.

Richardson, R. J. (2014). *Pesquisa social: métodos e técnicas* (3rd ed). São Paulo: Atlas.

Rocha Neto, I. (2012). Gestão do conhecimento e complexidade. *Revista de Gestão e Projetos*, *3*(1), 94–126. doi: 10.5585/gep.v3i1.41.

Schröeder, C. S., & Klering, L. R. (2009). On-line focus group: uma possibilidade para a pesquisa qualitativa em administração. *Cadernos EBAPE.BR*, 7(2), 332−348.

Shin, M., Holden, T., & Schmidt, R. A. (2001). From knowledge theory to management practice: Towards an integrated approach. *Information Processing & Management*, *37*(2), 335–355. doi: 10.1016/s0306-4573(00)00031-5.

Silva, I. F., & Binotto, E. (2013). O conhecimento e a aprendizagem no contexto de uma organização rural. *Perspectivas em Gestão & Conhecimento*, *3*(1), 132–156.

Silveira, M. M. R. V., & Rocha Neto, I. (2013). Gestão do Conhecimento e a Oralidade na Capes: implicações à inteligência coletiva. *Perspectivas em Gestão & Conhecimento*, *3*, 148–162.

Sorensen, S. Y. (2015). *Motivating the solicited and unsolicited sharing of tacit knowledge through the process of externalization*. Retrieved from http://nsuworks.nova.edu/cgi/viewcontent.cgi?article=1061&context=gscis_etd

Stake, R. E. (2010). *Qualitative research: Studying how things work*. New York: Guilford Publications.

Sveiby, K. E. (1998). *A nova riqueza das organizações: gerenciando e avaliando patrimônios do conhecimento*. Rio de Janeiro: Campus.

Takeuchi, H., & Nonaka, I. (2008). Criação e dialética do conhecimento. In Takeuchi, H. & I. Nonaka (Eds.), *Gestão do conhecimento* (pp. 17−38). Porto Alegre: Bookman.

Terra, J. C. C. (2014). Gestão do Conhecimento: O grande desafio empresarial! Retrieved from http://bit.ly/1pk3JXe

Terra, J. C. C., & Gordon, C. (2002). *Portais corporativos: a revolução na gestão do conhecimento*. São Paulo: Negócio Editora.

Vick, T. E., Nagano, M. S., & Popadiuk, S. (2015). Information culture and its influences in knowledge creation: Evidence from university teams engaged in collaborative innovation projects. *International Journal of Information Management*, *35*(3), 292−298.

Yin, R. K. (2010). *Estudo de Caso: Planejamento e Métodos* (4th ed). Porto Alegre: Bookman.

Zhao, J., Ha, S., & Widdows, R. (2016). The influence of social capital on knowledge creation in online health communities. *Information Technology and Management*, *17*(4), 311−321.