The relationship between organizational commitment, knowledge transfer and knowledge management maturity

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Abstract

Purpose – *This paper aims to analyse the relationship between the organizational commitment, the knowledge transfer and the knowledge management maturity at a Brazilian public university. As indicated in the literature, the organizational commitment and the influence on knowledge management in the public sector, especially in developing countries, configures an important gap to be filled (Razzaq et al., 2018).*

Design/methodology/approach – *The research has a descriptive and quantitative nature, and to run the analysis, an exploratory factorial analysis was conducted and after that a structural equations modelling was carried out.*

Findings – *The results indicated a significant relationship between the organizational commitment to the knowledge transfer and, consequently, to the knowledge management maturity.*

Originality/value – *In the first place, the model including all dimensions of commitment: affective, calculative and normative with knowledge transfer and knowledge maturity was not tested before. Second, data on the public sector in developing countries are still rare and studies in this field encouraged (Razzaq et al., 2018). In this case, the present study contributes in this field, specifically in the education sector. Finally, understanding the individual commitment profile helps to understand the extent to which that person contributes both to the knowledge transfer, and therefore, in the same analogy, to the knowledge management maturity level.*

Keywords *Knowledge management, Organizational commitment, Knowledge transfer, Modelling*

Paper type *Research paper*

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1. Introduction

In the current scenario, based on the competitiveness and the new management forms, organizations through their human resources policies, seek to establish a link with their employees and, in a way, aim to influence these employees' behaviour and involvement in the organizational environment (Rocha and Ceretta, 2013).

The public sector does not escape from this scope (Angelis, 2013); the organizations have being influenced by the increasing need for competition, performance standards, monitoring, flexibility, emphasis on the results, customer focus and the society control.

In another study (Amayah, 2013) argues that the organizational objectives in public institutions are typically more difficult to measure and more conflicting than in private organizations, as well as being differently affected by the political influences. The author points to the knowledge management and increased organizational commitment as some of the goals from which the public organizations seek to achieve better performance and productivity.

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In terms of knowledge management and organizational commitment, the recent research great majority links the affective organizational commitment to two knowledge management items, which are the knowledge transfer and sharing (Razzaq *et al.*, 2018; Ouakouak and Ouedraogo, 2018; Rafique, Hameed and Agha, 2018; Schaufeli *et al.*, 2002; Rich *et al.*, 2010), which is based on the obtained results in the literature (Martin-Perez and Martin-Cruz, 2015). These last authors point out that new studies are needed to understand the organizational behaviour relationship constructs to the knowledge management.

After a bibliographic search in the EMERALD and SPELL database, from 2014 to 2016, no research was found that related the three organizational commitment dimensions to the knowledge transfer and the knowledge management maturity. However, the research suggestion was found to the knowledge management maturity. The research suggestion of Martin-Perez and Martin-Cruz (2015) found that studies should be carried out by examining the relationship between these constructs.

Thus, this article is justified from the perspective of an academic contribution when examining the relationship suggested by Martin-Perez and Martin-Cruz (2015); using (Meyer and Allen, 1997) organizational commitment model, the authors' respective model to measure the knowledge transfer, and the knowledge management evaluation in public administration instrument (IAGCAP), proposed by Batista (2016). In a pragmatic perspective, this article can help in the organizational diagnosis, highlighting the human resources practices importance to the organizational commitment leverage as a way of achieving results, aiming at a knowledge management greater maturity. With this, the following research problem is presented: what is the relationship between the organizational commitment, the knowledge transfer and the knowledge management maturity in a public Brazilian university?

The university contributes directly in society performance and on the economy because it is a *locus* of knowledge production, learning and research that promotes technological improvements and competitiveness in the world economy (Sá *et al.*, 2018). For these authors, universities are fundamental to promote innovation and explore entrepreneurship engagement. Universities also provide the important function as a responsible for knowledge transfer. Specifically, in this federal university, which is the object of this research study, was created in 1969, works in several areas of knowledge, operates in the face and distance modality, with undergraduate, specialization, master's and doctorate courses, with an annual average of 15,000 students enrolled per year and with an average of 12,000 graduates per year. The oldest university courses form oriented professionals for the mining industry, metallurgy and geology, responsible sector in Brazil by 4.3 per cent of the entire national GDP and employs around 185,000 workers (IBGE, 2015).

Thus, to answer this question, the theoretical framework analyses the studies carried out and establishes relationships about the constructs researched.

2. Literature review

The human resources and the knowledge management have considered the two most important factors within an organization that help it achieve a competitive advantage. In this sense, the organizations must care about the human factors to increase their commitment to organizations to take the full advantage knowledge they possess (Obeidat *et al.*, 2014). The organizations are increasingly interested in promoting a commitment among their employees on the various benefit basis associated with the improving employee performance (Lew, 2011), improving the performance mediated by affective commitment (Razzaq *et al.*, 2018), also improving the use of knowledge also mediated by affective commitment (Ouakouak and Ouedraogo, 2018) and reducing the employee turnover and increasing the knowledge transfer rate (Martin-Perez and Martin-Cruz, 2015).

2.1 The organizational commitment

The organizational commitment is defined as "the individual's identification and involvement, strength with a particular organization" (Imran and Ahmed, 2012 p. 81). From the various definitions found in the literature, the organizational commitment can be interpreted as the employees' belief (Zaitouni *et al.*, 2011), as well as the individual attachment to an organization (Suma and Lesha, 2013).

The chosen model for this research development is the commitment three component model developed by Meyer and Allen (1997). This model distinguishes the three dimensions of commitment, namely, affective commitment, related to the identification and involvement with the organization, an emotional affiliation feeling to the organization. The affective commitment leads to the feeling of always wanting to collaborate with the organization. The second commitment dimension is the calculative one, related to the high costs associated with leaving the organization. It correlates to the continuing benefits to collaborate with the organization and the cost associated with leaving it creates a sense of the need to continue collaborating. The last dimension is the normative, related to the obligation feeling before the organization. It creates a continued collaborative sense with the organization. Thus, as the first analysis proposed in this article will be organizational commitment to the knowledge transfer and later to the knowledge management maturity, the presentation of the theoretical reference follows this order.

2.2 The knowledge transfer

The knowledge transfer can be understood as the process where the knowledge management occurs; between individuals, from individuals to explicit sources, from individuals to groups, between groups, through groups and the group to the organization (Alavi and Leidner, 2001). The authors (Nonaka and Takeuchi, 1995) indicate that knowledge is broadened and internalized; based on the interactions among the organization individuals, and it is completed by (Kubo and Botomé, 2001) suggesting that the knowledge management processes, as well as the knowledge transfer, can be affected by factors such as trust in interpersonal relations, communication intensity, search for benefit by collaborating, interorganizational relations and organizational behaviours. This article contemplates the analysis of the relationship between the knowledge transfer and the knowledge management maturity, defined below.

2.3 The knowledge management maturity

As Sinha and Date (2013) postulate, the knowledge management maturity process is the extent to which an organization can consistently manage knowledge assets and take advantage of them effectively. In other words, a maturity model can be also seen as a structured approach application to the knowledge management application.

One way to analyse the knowledge management maturity level is the Instrument for the Evaluation of Knowledge Management in Public Administration (IAGCAP) proposed by Batista (2016). This instrument allows identifying the knowledge management maturity level that the organization is in; to distinguish the strengths and opportunities for improvement in the knowledge management institutionalization, to determine if the organization meets the necessary conditions to implement the knowledge management and to maintain the achieved results (Batista, 2016).

Thus, after a constructs brief conceptualization presented above, it is important to show the relationship between them so that in the sequence, a reference model for performing the proposed analyses in the objectives of this study will be presented.

2.4 Knowledge management in public organizations

Knowledge management in public organizations is not a new approach, and some researchers showed this specific scenario with its importance and difference comparing to the private one (Razzaq *et al.*, 2018; Amayah, 2013; Chawla and Joshi, 2010; Røste and Miles, 2005; Syed-Ikhsan and Rowland, 2004). The difference between the public sector and others are objective, goals, environment and process (Chawla and Joshi, 2010); the way that executive manages the employees (Roste and Miles, 2005); the way that public sector transfer and share knowledge (Liebowitz and Chen, 2003); funding and control (Amayah, 2013; Willem and Buelens, 2007); the difficult to measure the knowledge meaning (Amayah. 2013); and also comparing knowledge management in developed countries with developing countries (Razzaq *et al.*, 2018) . For these authors, this research focussing public sector is a relevant field that needs to be improved.

Some research lacks about public sector are pointed (Razzaq *et al.*, 2018; Chawla and Joshi, 2010; Cong and Pandya, 2003) and knowledge transfer (Martin-Perez and Martin-Cruz, 2015; Syed-Ikhsan and Rowland, 2004) that justify this research. Wiig (2002) sees that understanding public knowledge management can help managers to improve decision-making, increase public participation and develop a knowledge management. He also indicates that different approaches and variables are important to be investigated to understand the knowledge management practice and develop new comprehensive ways to improve management (Razzaq *et al.*, 2018).

The literature also indicates the importance of investigate about developing competent work force (Wiig, 2002), organization behaviour and organizational context (Syed-Ikhsan and Rowland, 2004), the responsibility for employees (Chawla and Joshi, 2010), the way that personnel are managed and integrated in organization (Amayah, 2013), and the impact of commitment, culture, motivation and other behaviour variables (Cong and Pandya, 2003 and Martin-Perez and Martin-Cruz, 2015), seeking to understand more about how and which variables are critical success factors to knowledge management in any kind of sector, even public one.

2.5 The relationship between constructs and the hypotheses

The knowledge creation and use are an organization challenge. The knowledge and experience are scattered throughout the organization and, in many occasions, kept by people or work units. There are numerous reports of organizations having unnecessarily to waste a lot of time for no reason, able to locate such existing expertise somewhere in the organization (Choo, 1996). Another difficulty for the learning lies in the fact that organizations find it difficult to unlearn their past, that is, question their *modus operandi* and their beliefs, thus rejecting existing new practices.

Thus, the individual commitment to the organization plays a fundamental role in overcoming these difficulties in managing knowledge and, therefore, achieving high levels in knowledge management maturity. According to Hooff and Ridder (2004), the organizational commitment influences the transfer, management and solicitude of employees in contributing to the organizational development functions. In this perspective, the organizational commitment, in its affective, calculative and normative dimensions, is behavioural (Allen, 2003) which is an individual psychic disposition, a kind of tendency and necessity in their respective work development (Chang *et al.*, 2007).

2.5.1 The affective commitment and the knowledge transfer. The authors (Martin-Perez and Martin-Cruz, 2015) state that an employee who has developed a high level of affective commitment is more likely to transfer his or her knowledge. Therefore, the potential loss of tacit knowledge for the organization is reduced if this employee leaves the organization, in addition, organizations can build affective commitment, providing open communication, access to information and allowing employees to participate in decision-making (Suma and

Lesha, 2013). Thus, the extent to which knowledge transfer applied in this new context is a central element of knowledge transfer itself (Burmeister *et al.*, 2015). In the public sector, health area, Razzaq *et al.* (2018) found a positive influence between affective commitment and knowledge management suggesting that other areas in public sector may behave with the same influence.

The following hypothesis is proposed to confirm the studies carried out by Martin-Perez and Martin-Cruz (2015), who stated that:

H1. Affective commitment is positively related to the knowledge transfer among the employees.

2.5.2 The affective commitment and the knowledge management maturity. This relationship purpose is to contribute empirically to the knowledge management by measuring its maturity level and its human resources. Current organizations encourage the knowledge management through the modern technological facilities advent, disregarding or paying close attention to the connection between the human resource management and the organizational knowledge management (Han *et al.*, 2010).

Once, according to Sinha and Date (2013) in which the maturity model in the knowledge management process can be used to evaluate the organizations ability to manage and leverage their knowledge assets, the following hypothesis tries to relate the two constructs positively:

H2. The affective commitment is positively related to the knowledge management maturity level in the organization.

2.5.3 The relation between the calculative commitment to the knowledge transfer and the knowledge management maturity. Allen (2003) indicates that the calculative commitment reflects the degree to which the employee acknowledges or is aware that they are obliged to remain working in function of the associated costs for leaving the organization, not by the mere existence of the costs themselves. If, objectively, the employee has debts with the company, but is subjectively unaware of these costs and therefore does not experience them as obligatory, then, the calculative commitment is not present. In addition, the consciousness level may be the various events or perceptions result, natures or substances, which may be quite idiosyncratic for the individual. For this reason, the author argues "the calculative commitment best articles are those that capture the perceived costs identification and do without referencing it to its specific origin".

The link between the organizational commitment and the various effectiveness indicators, such as turnover and absenteeism (Mowday *et al.*, 1982; Mathieu and Zajac, 1990); knowledge sharing (Li *et al.*, 2015); among other indicators related to the employee's physical health (Bartlett, 2001) have already been researched and are available in the literature. No correlation so far has been made and studied relating the calculative commitment to the transference of knowledge in the organizations effectiveness and, therefore, in relation to the knowledge management maturity level. Thus, it is inferred, according to the following hypothesis:

H3. The calculative commitment is positively related to the knowledge transfer among the employees.

H4. The calculative commitment is positively related to the knowledge management maturity in the organization.

2.5.4 The relationship between the normative commitment to the knowledge transfer and the knowledge management maturity. The normative commitment reflects an obligation sense to remain in the organization (Meyer and Allen, 1991). Employees with a high level of normative commitment feel they must remain in the organization (Meyer and Allen, 1997).

The normative commitment increases through a moral obligation to pay the employee to the organization as a reward for perceived benefits, such as payments in training (Scholl, 1981) or through socialization experience that emphasizes the convenience in remaining faithful to an employer (Wiener, 1982). This obligation feeling resulting from the socialization experiences can be initiated by observing the models used by the organization and/or the contingent use of rewards and punishments (Yucel *et al.*, 2015). The normative commitment is established through the psychological contract between the employee and the organization (Meyer and Allen, 1997).

It is well known that to promote a competitive advantage and to optimize organizational performance in today's complex and dynamic environment requires the organization's ability to create and transfer new knowledge and practices (Mohan and Kumar, 2015); many academic writers and researchers have wondered about these phenomena and numerous articles were written in this respect in the knowledge transfer field (Andersson and Bergenheim, 2013).

Davenport and Prusak (1998) say that the most common knowledge among the sectors is the day-to-day operations. This knowledge must be efficiently managed through its sharing, storage and retrieval so that the employees can access it conveniently. Anchored in this knowledge management need and the search for high levels of maturity, and based on Siqueira's (2008) assumption, where employees with a strong normative commitment remain in the organization due to their beliefs, in what they believe to be right and morality to perform, the following hypotheses are proposed:

H5. The normative commitment is positively related to the knowledge transfer among the employees.

H6. The normative commitment is positively related to the knowledge management maturity in the organization.

2.5.5 The knowledge transfer and the knowledge management maturity. It is known, according to Liu *et al.* (2010), that in the knowledge management systems use, often the knowledge transfer is voluntary. Considering the time that the employee spends contributing to the system, there is a move away from their primary responsibilities. In this sense, the employee decides whether they want to contribute to the knowledge management systems (Wang *et al.*, 2015).

Gallagher and Hazlett (1999) argue that the maturity models must be incremental in nature, which represents an attempt to interpret a succession of positions, phases or stages in terms of growth and maturity, all with the goal of improving the process and business performance. Furthermore, with the search for an increasingly advanced level in the knowledge management maturity, the knowledge transfer seeks to organize, create, capture or distribute the knowledge and ensure its effectiveness for future users. Knowledge is of limited value and must be shared and transferred throughout the organization. Organizations that can transfer their knowledge effectively from one unit to another are more productive and are more likely to survive than those who are less able to transfer their knowledge (Ruta and Macchitella, 2008).

Although organizations achieve significant increases in their performance through the knowledge transfer, a successful knowledge transfer is difficult to achieve. When knowledge is transferred, it becomes enriched by the organization processes, products and services and eventually contributes to the organizational competitiveness increase and its value to its clients. Thus, the knowledge externalization and its facilitation and use across the enterprise become very important for the organizational competitiveness. The knowledge transfer concept is therefore not merely a link between the existing knowledge and its application but is strongly related to the generation of knowledge and its absorption by the recipient (Mohan and Kumar, 2015). From the studies carried out in the knowledge

transfer and knowledge management itself through its maturity models, the following hypothesis is proposed:

H7. The knowledge transfer in organizations is positively related to the knowledge management maturity in the organization.

Table I presents the main authors who based the relationships study between the themes: organizational commitment, knowledge transfer and knowledge management maturity

After the presentation of the relations and the respective hypotheses, the theoretical model is presented to verify the relationships between the constructs.

2.5.6 The model for verifying the relationship between the organizational commitment, the knowledge transfer and the knowledge management maturity. To analyse the relationship between the organizational commitment, the knowledge transfer, and the knowledge management maturity in a public higher education organization in Brazil, this theoretical model seeks to answer the research question and to analyse the relation between the constructs through the presented hypotheses.

The methodological paths followed in the work will be outlined below.

3. Methodology

From the methodological point of view, this work is characterized as a descriptive, field and quantitative research, as it exposes the characteristics of a certain population (Vergara, 2006). It was carried out at a Federal University of the Minas Gerais State, in Brazil- whose studied population is 997 teachers and 815 administrative technicians.

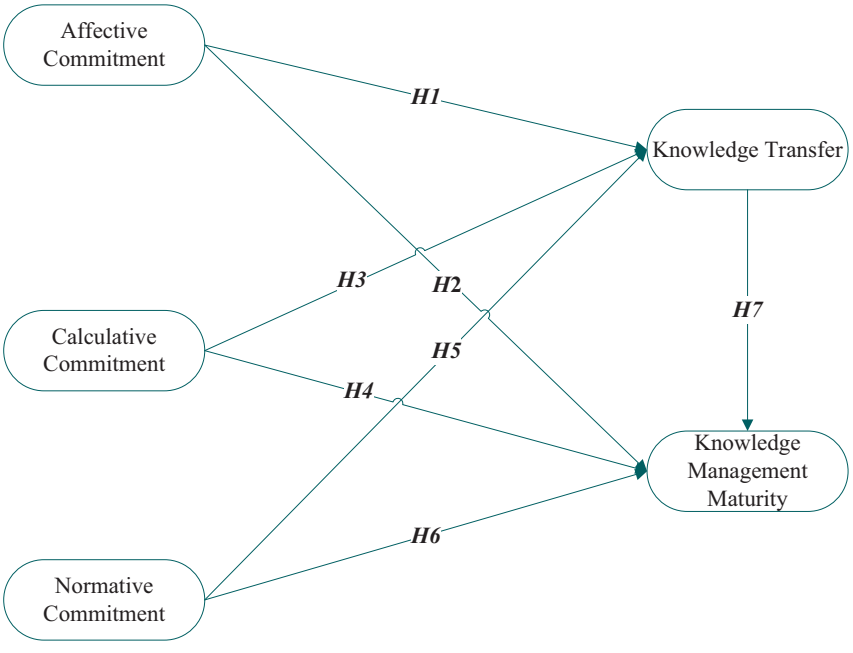
The research was carried out with all university professors and administrative technicians, obtaining the adhesion of 323 respondents, totalling 18 per cent of the total of to the 98

Table I Hypotheses list and authors

Relations	*Hypothesis*	*Authors*
The affective commitment and the knowledge transfer	*H1* – The Affective commitment is positively related to the knowledge transfer among the employees	Iskoujina and Roberts (2015); Chang *et al.* (2012); Martin-Perez and Martin-Cruz (2015)
The affective commitment and the knowledge management maturity	*H2* – The affective commitment is positively related to the knowledge management maturity among the employees	Imran and Ahmed (2012), Suma and Lesha (2013)
Calculating the commitment and the knowledge transfer	*H3* – The calculating commitment is positively related to the knowledge transfer among the employees	Mowday *et al.* (1982), Mathieu and Zajac (1990), Li *et al.* (2015) Meyer *et al.* (2002)
The calculative commitment and the knowledge management maturity	*H4* – The calculative commitment is positively related to the knowledge management maturity among the employees	Ling and Wang (2012), Cabrera *et al.* (2006), Wang and Noe (2010)
The normative commitment and the knowledge transfer	*H5* – The normative commitment is positively related to the knowledge transfer among the employees	Wiener (1982), Meyer and Allen (1997), Mohan and Kumar (2015)
The normative commitment and the knowledge management maturity	*H6* – The normative commitment is positively related to the knowledge management maturity among the employees	Davenport and Prusak (1998), Siqueira (2008)
The knowledge transfer and the knowledge management maturity	*H7* – The knowledge transfer in organizations is positively related to the knowledge management maturity in the organization	Curado and Bontis (2006), Ruta and Macchitella (2008), Jimenez and Sanz (2013), Mohan Kumar (2015)

Source: Prepared by the authors

Figure 1 A model to verify the relationship between affective, calculative and normative commitment, knowledge transfer and knowledge management maturity



Source: Prepared by the authors

variables of interest, of which nine were individual's characterization variables and 89 were variables related to five constructs.

For the data collection, a questionnaire composed of nine demographic questions was used; 42 on the knowledge management maturity degree, according to Batista's (2016) model; 7 questions regarding the employee involvement degree in transferring their knowledge, according to the model proposed by Martin-Perez and Martin-Cruz (2015); and 40 questions about organizational, affective, calculative and normative commitment, according to the Meyer and Allen (1997) model. It should be noted that the model items used a five-point Likert scale.

The Knowledge Management Assessment Tool in Public Administration (IAGCAP) is a maturity model in knowledge management to be used in the Brazilian public administration (Batista, 2016). According to the author, the IAGCAP criteria are leadership in knowledge management, process, people, technology, knowledge processes, learning and innovation and finally the knowledge management results.

In relation to the data analysis technique, a multivariate analysis was performed, divided into an exploratory factorial analysis and the structural equation models (SEM). For this stage of the analysis, it was considered that the knowledge management maturity is a second-order construct, that is, it is not formed directly by the items (questions), but by other latent variables (dimensions). To deal with the measurement structure characteristic it was used the "Two-Step" approach (Sanchez, 2013). Thus, we first computed the latent variables scores of the first order, using the confirmatory factor analysis (Mingoti, 2007).

For the organizational, affective, calculative and normative commitment dimensions, which, in this case, explain the organizational commitment, the confirmatory factor analysis has the objective of verifying the need to exclude some items from the

dimensions that is not contributing to the formation of the indexes. According to Hair *et al.* (2009), items with factor loads less than 0.50 should be eliminated from these dimensions, as not contributing significantly to the formation of the latent variable impairs the scope of the basic assumptions for the validity and quality indicators created for representing the interest concept. The same is used for the knowledge transfer first-order construct. To analyse the quality and validity of the first-order constructs, it was verified the dimensionality, the reliability and convergent validity. To verify the convergent validity, it was used the criterion proposed by Fornell and Larcker (1981). It guarantees such validity if the average variance extracted (AVE), which indicates the average percentage of shared variance between the latent construct and its items, are greater than 50 per cent (Henseler *et al.*, 2009), or 40 per cent in case of exploratory research (Nunnaly and Bernstein, 1994). To measure the reliability, the Cronbach's alpha (A.C.) and compound reliability (C.C.) (Chin, 1998) were used. According to Tenenhaus *et al.* (2005), the indicators A.C. and C.C. should be greater than 0.70 for a construct reliability indication, and in exploratory research, values above 0.60 are also accepted (Hair *et al.*, 2009). To verify the constructs dimensionality, the acceleration factor (AF) criterion was used (Raîche *et al.*, 2013), which determines the dimensions number according to the factors number where there is a sudden drop in eigenvalues. When using the factor solution, it is important to check if it is suitable for the research data. For this purpose, the Kaiser–Meyer–Olkin (KMO) sample adequacy measure was used, which indicates the data variance proportion that can be considered common to all variables. It is a measure that varies from 0.0 to 1.0, and the closer to 1.0 (unit), the more appropriate the sample is to the factorial analysis application. It is appropriate to apply the exploratory factor analysis to the set of variables when the KMO is greater than or equal to 0.50.

The structural equation modelling was used to evaluate the relationship between the constructs. The structural equations modelling is divided into two parts: The measurement model and the structural model. The measurement model and the structural model were performed using the partial least square (PLS) method. The structural equation models are very popular in many disciplines, with the PLS approach being an alternative to the traditional covariance approach. The PLS approach has been referred as a soft modelling technique with minimal demand when considering the measurement scales, the sample size and the residual distributions (Monecke and Leisch, 2012).

In the measurement model analysis, the convergent validity, the discriminant validity and the dimensions reliability and constructs are verified. The convergent validity ensures that the construct dimensions are correlated enough to measure the latent concept. The discriminant validity checks whether the constructs measure effectively the different interest phenomena aspects. Reliability reveals the measurements consistency in measuring the concept they intend to.

From this information and tests, it was possible to develop the structural model, which according to Hair *et al.* (2009) the structural equations modelling is a continuation of some multivariate analysis techniques, mainly of the multiple regression analysis and factorial analysis. What differs from the other multivariate techniques is that the SEM allows examining several dependency relations at the same time, while the other techniques can verify and examine a single relationship between variables at a time.

To verify the fit quality, R^2 and GoF were used. R^2 represents on a scale of 0 to 100 how much the independent constructs explain the dependents, and the closer to 100 per cent the better. The GoF is a geometric mean of the constructs AVE average with the R^2 mean of the model. It ranges from 0 per cent to 100 per cent, and there is no cut off values to consider a fit as good or bad, but it is known that the closer the fit is to 100 per cent the better (Hair *et al.*, 2009). The software used in the analyses was the R (version 3.3.1). After

the procedures presentation and the methodological analyses, the data results and analyses will be presented.

4. Results and analysis

Regarding to the demographic variables, the sample was mostly male (53.25 per cent), with the most frequent age groups being 31 to 35 years (21.36 per cent) and more than 50 years (20.74 per cent). Regarding to the marital status, 47.68 per cent of the interviewees were married and 34.37 per cent were single. The most frequent schooling was doctoral or postdoctoral (29.10 per cent) and masters (19.20 per cent). Most of the participants are administrative technicians (62.85 per cent, but teachers (37.15 per cent) also participated in the research. The sample also had diversified participants in relation to the organization time, with the majority, 27.55 per cent in the range of 1 to five years.

The model proposed by Martin-Perez and Martin-Cruz (2015) was used to analyse the organizational commitment, developed by Meyer and Allen (1997), in three ways, namely, affective, calculative and normative, and the knowledge management maturity level, from the model proposed by Batista (2016), a confirmatory factorial analysis was carried out to verify and validate the measurement models applied at the University. Table II shows the results, which indicate the three models use feasibility.

Thus, as shown in Table II, the results indicate that all dimensions and constructs presented AVE greater than 0.50 and, thus, there is a convergent validation for all. The dimensions and the construct presented values of A.C. and C.C. far above 0.60; therefore, all presented the required reliability levels. The factor analysis adjustment was adequate in all dimensions and in the construct, as the KMO values were far above 0.50. Based on the acceleration factor criterion, we conclude that all dimensions and constructs were treated in a one-dimensional manner. It can be noted in Table II, the results for the validity and quality of the organizational commitment dimensions, knowledge management maturity and the knowledge transfer construct.

After conducting the exploratory factorial analyses, the structural equation modelling analysis will be carried out. To carry out these analyses, the measurement model was initially evaluated, and later the structural model was presented and evaluated to make the considerations characterizing this study.

The convergent validity, discriminant validity, dimensionality and reliability dimensions and the measurement model constructs analysis are presented in Table III and, therefore, it is concluded that: the dimensions and the constructs presented the reliability indices AC and

Table II Reliability, convergent validity and dimensionality

Constructs	*Items*	*AVE*[a]	*A.C*[b]	*C.C.*[c]	*KMO*[d]	*Dim.*[e]
Leadership in CG	6	0.69	0.91	0.89	0.88	1
Process	6	0.77	0.94	0.92	0.91	1
People	6	0.68	0.90	0.88	0.86	1
Technology	6	0.58	0.85	0.84	0.77	1
Knowledge processes	6	0.76	0.94	0.91	0.91	1
Learning and innovation	6	0.74	0.93	0.91	0.89	1
GC results	6	0.83	0.96	0.94	0.90	1
Organizational commitment affective	17	0.55	0.95	0.93	0.95	1
Organizational compensation calculation	15	0.52	0.93	0.92	0.93	1
Organizational commitment normative	7	0.63	0.90	0.88	0.91	1
Transfer of knowledge	7	0.64	0.90	0.88	0.88	1

Notes: [a]Extraction variance; [b]Cronbach's alpha; [c]Composite reliability; [d]Measurement of suitability of the Kaiser–Meyer–Olkin sample; [e]Dimensionality
Source: Prepared by the authors

Table III The measurement model validation

Dimensions/Constructs	*Items*	*A.C.*[1]	*C.C.*[2]	*Dim.*[3]	*AVE*[4]	*VMC*[5]
Affective organizational commitment	15	0.95	0.95	1	0.55	0.40
Calculative org. commitment	17	0.93	0.94	1	0.52	0.42
Normative organizational commitment	7	0.90	0.92	1	0.63	0.28
Knowledge transfer	7	0.90	0.93	1	0.64	0.50
Knowledge management maturity	7	0.96	0.96	1	0.79	0.50

Notes: [a]Cronbach's alpha; [b]Composite reliability; [c]Dimensionality' [d]Variance extracted; [e]Maximum share variance
Source: Prepared by the authors

CC above 0.70, thus evidencing their reliability. According to the AF, the criterion of all dimensions and all constructs were unidimensional. There was a convergent validation, since the AVE was higher than 0.50. According to the criterion proposed by Fornell and Larcker (1981), there was also a discriminant validation, as the maximum-shared variances were smaller than the respective AVE.

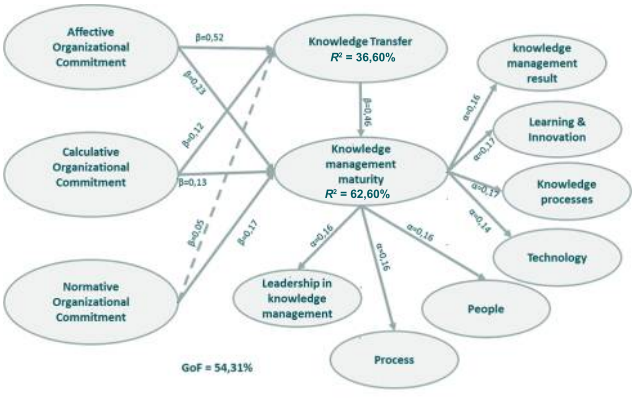
In the sequence, the analyses will be presented the structural model.

The model presented a GOF of 54.31 per cent and the bootstrap confidence intervals agreed with the results found via *p*-value, indicating greater validity of the presented results. In view of this, Table IV is presented to illustrate the structural model results.

Thus, it was observed that, following the proposed order in Table IV, in relation to the Knowledge Transfer, there was a significant influence (*p*-value = 0.000) and a positive influence (β = 0.52 [0.42; 0.61]) of the affective organizational commitment on the knowledge transfer. Therefore, the greater the affective organizational commitment, the greater will be the knowledge transfer (*H1*).

This analysis confirms the studies carried out by Martin-Perez and Martin-Cruz (2015), that if employees develop a high affective commitment to the organization, they tend to stay there longer, giving their peers greater knowledge sharing, besides seeking training and gaining more experience for the organizational benefits. The results obtained in this study corroborate to such empirical analyses showing that the affective commitment is a powerful factor for the knowledge transfer among the employees within the organization.

Figure 2 Structural model illustration



Source: Prepared by the authors

Table IV The structural model results

Exogenous	*Endogens*	*β*	*I.C.–95%*[1]	*E.P.(β)*[2]	p-*value*	R^2 *(%)*
Knowledge transfer	Affective organizational commitment	0.52	[0.42; 0.61]	0.05	0.000	36.60
	Calculative organizational commitment	0.12	[0.00; 0.25]	0.06	0.049	
	Normative organizational commitment	0.05	[-0.07; 0.18]	0.06	0.383	
Knowledge management maturity	Affective organizational commitment	0.23	[0.13; 0.34]	0.05	0.000	62.60
	Calculative organizational commitment	0.13	[0.03; 0.22]	0.05	0.007	
	Normative organizational commitment	0.17	[0.07; 0.27]	0.05	0.000	
	Knowledge Transfer	0.46	[0.36; 0.55]	0.04	0.000	

Notes: [a]Bootstrap validation; [b]Standard error; GoF = 54.31%
Source: Prepared by the authors

In the sequence, it was observed that there was a significant (p-value = 0.049) and positive (β = 0.12 [0.00, 0.25]) influence of the calculative organizational commitment on the knowledge transfer (*H3*). Thus, the greater the organizational commitment, the greater the knowledge transfer. The authors Martin-Perez and Martin-Cruz (2015) suggested that besides the use of the structural modelling, tests were carried out to analyse this proposition.

Therefore, in addition to confirming the constructs positive relation, it was possible, through this analysis, to associate the calculative organizational commitment questions related to the costs and the necessity feelings in remaining in the organization; to the benefits that it is for the organization to retain this type of employee who, as said, tend to share, and transfer their knowledge, in fact collaborating with the benefits by performing such practices.

On the other hand, the same cannot be said in relation to the normative organizational commitment since there was no significant influence (p-value = 0.383, β = 0.05 [−0.07; 0.18]) of this respective commitment on the knowledge transfer (*H5*).

Therefore, the sense of obligation to remain in the organization, coupled with the duty to collaborate with it, from the analyses carried out does not seem to influence the knowledge transfer. In this same line of reasoning, the organizational competitive advantage achievement through the creation of practices that stimulate the knowledge transfer is not achieved by investing in employees who do not have moral obligations to the organization, that is, employees who do not have the benefits perception received from them.

Again, this analysis is the result of suggestions by Martin-Perez and Martin-Cruz (2015) and, a little more can be understood about this relationship, which, in fact, seems little to contribute to the organizational performance longings. Not that this analysis is unworthy of credit. In the opposite way, it greatly enriches the organizational efforts to increase the efficiency through investments in practices that stimulate the knowledge transfer, as well as to heal a gap in the literature, as proposed by the authors.

With the analyses, the references are now on the exogenous variables relationship proposed in Table IV in relation to the knowledge management maturity. It was also observed that there was a significant influence (p = 0.000) and positive (β = 0.23 [0.13, 0.34]) of the affective commitment on the knowledge management maturity (*H2*). Therefore, the greater the affective commitment, the greater will be the knowledge management maturity.

Although this is not a research suggestion, relating these two constructs meets the several authors wishes (Nonaka and Takeuchi, 1995; Wernerfelt, 1984; Grant, 1996; Curado and Bontis, 2006; Imran and Ahmed, 2012; Suma and Lesha, 2013), who encourage the knowledge management through their respective maturity level to be treated as true strategic organizational resources. Thus, corroborating with the studies of Han *et al.* (2010), human resources management, in this case, employees who have affective organizational commitment, possibly contribute to the improvement of the knowledge management maturity level in the idea of pursuing a better organization through a better management of this.

In the same logic, following the analyses, there was a significant influence (p = 0.007) and positive (β = 0.13 [0.03; 0.22]) of the calculative commitment on the knowledge management maturity (*H4*). Therefore, the greater the calculative commitment, the greater will be the knowledge management maturity.

As the calculative commitment reflects the commitment based on the perceived costs of leaving the organization, both economic and social, researchers have used this compromise model to predict important employee outcomes, including business values and behaviour; organization membership, delays in work and absenteeism (Meyer *et al.*, 2002). Joining it positively to the knowledge management maturity demonstrates one more benefit in managing it effectively.

Thus, supported by studies by Cabrera *et al.* (2006) and Wang and Noe (2010) which served as a basis for proposing this relationship analysis, this result facilitates and seems to inform that it is compensatory to invest in employees with a high level of calculative commitment, as it is already clear that the real element of success in knowledge management and, therefore, in their level of maturity are the employees who really wish to contribute to such processes.

Another possible observation is that there was a significant (p-value = 0.000) and positive (β = 0.17 [0.07; 0.27]) influence of the normative commitment on the knowledge management maturity (*H6*). Thus, the greater the normative commitment, the greater the knowledge management maturity. In this sense, it seems worthwhile for the organization to establish a good psychological contract with the employee, making him realize the benefits of working for the organization, investing in the employee's sense of moral obligation to contribute.

This result indicates that when the employees feel this moral obligation because of the perceived benefits, they tend to contribute to increase the knowledge management maturity level in the organization.

Finally, it is discussed the analysis between the knowledge transfer and the knowledge management maturity which obtained the highest average among the relationships proposed in this study, with significant influence (p = 0.000) and positive influence (β = 0.46 [0.36, 0.55]). In this way, the greater the knowledge transfer, the greater will be the knowledge management maturity (*H7*). This relationship was positive, according to the results, corroborating the studies of Nonaka and Takeuchi (1995), Derr (1999), Gallagher and Hazlett (1999), Garud and Kumaraswamy (2005) and Boughzala and De Vreede (2015), who theoretically indicated the relation between the knowledge transfer and the knowledge management successively to its maturity.

Lin and Hwang (2014) argue that promoting a competitive advantage and optimizing the organizational performance in today's complex and dynamic environment requires the organizational ability to create and transfer new knowledge and practices. Also, according to the (Curado and Bontis, 2006) assumptions, in which they affirm that organizations are increasingly dependent on the knowledge resources, demanding strategic focus on aspects such as the competence development, the organizational learning beyond the tacit and explicit knowledge management. The results obtained in this study indicate that it is necessary to invest in knowledge transfer practices to increase the knowledge management maturity level.

Finally, Table V presents the synthesis of the results in relation to the hypotheses proposed in this study.

4.1 Implications for theory and practice

This research presents some theoretical contributions and practical. The theoretical perspective the research examined the relationship between affective, calculative and

Table V Synthesis of the results of the proposed model hypotheses

Hypotheses	*Results*
There is a positive effect of the affective organizational commitment on the transfer of knowledge	Confirmed
There is a positive effect of the affective organizational commitment on the maturity of knowledge management	Confirmed
There is a positive effect of the organizational compensation on the transfer of knowledge	Confirmed
There is a positive effect of the organizational compensation on the maturity of knowledge management	Confirmed
There is a positive effect of the normative organizational commitment on the transfer of knowledge	Unconfirmed
There is a positive effect of the normative organizational commitment on maturity of knowledge management	Confirmed
There is a positive effect of the knowledge transfer on the maturity of knowledge management	Confirmed

Source: Research data

normative dimensions of organizational commitment with the knowledge transfer, research still not performed and indicated by Martin-Perez and Martin-Cruz (2015). Also including the insertion of the relationship of these variables with the maturity of the management of knowledge, indicated by theory (Nonaka and Takeuchi, 1995; Derr, 1999; Gallagher and Hazlett, 1999; Garud and Kumaraswamy, 2005; Boughzala and De Vreede, 2015). The study focuses on a public organization, indicating another contribution, as Amayah (2013), Chawla and Joshi (2010); Roste and Miles (2005) and Syed-Ikhsan and Rowland (2004) highlighted the importance of this sector and the need to understand the variables that relate to knowledge management. This study aimed to fill the gap described above and in the literature. The result shows that organizational commitment by affective and calculative dimensions can help understand how knowledge transfer occurs. Also, the results show how this relation contribute with the result of knowledge management, assessed in public organizations by the model of maturity of knowledge, contribution that is still not reported in earlier studies. In previous research, the size of affective commitment indicated significant and positive impact on the transfer of knowledge (Martin-Perez and Martin-Cruz, 2015), also found in the current study. Similarly the calculative commitment showed significant and positive impact on the transfer of knowledge, which although described theoretically; however, there was no empirical studies on this relationship. The research also presents evidence of the significant and positive effect of knowledge transfer in the measurement of knowledge management through the knowledge maturity model, which can help to measure the results of this management in public organizations.

As regards the practical implications, this study examines one of the variables of organizational behaviour, commitment and its implications for the management of knowledge. By showing significant positive effects, leaders and managers must pay attention to the management practices of people who can generate changes in the way of commitment and employee engagement in your organization. In this sense, practices described in the commitment literature, such as improvement of reward system, new forms of progression, improved communication and increased autonomy can bring beneficial impacts to increase affective and calculative commitment and consequently improvement in the form of transfer of knowledge, emphasizing that other antecedents also need investigation to better understand the impacts. Finally, the analysis of the maturity of knowledge can be useful to managers as a way of to evaluate the practice of knowledge transfer and knowledge management in public organizations.

The study shows that actions aimed at improving organizational behaviour, specifically the commitment has a relevant role in the internal processes of knowledge management. Within the public sector, understanding it as a relevant practice for society, these issues related to internal policies are even more sensitive as the mission of a public organization depends on the total commitment of the server to the provision of service. Attention by public managers becomes essential for the improvement of

commitment and with the practices of knowledge transmission to improve organizational performance. The study also shows that the improvement of affective commitment is the largest target to be pursued in the organization, as this is the one that most influences the outcome of the maturity of knowledge.

The final considerations in this article will be outlined below.

5. Final considerations

This article sought to analyse the relationship between the organizational commitment, the knowledge transfer, and the knowledge management maturity at a university of higher education in Brazil, starting from a suggestion for a study proposed in the work of Martin-Perez and Martin-Cruz (2015). To reach this objective, it was used an exploratory factorial analysis and the structural equations modelling.

The results indicated a significant relationship between the organizational commitment to the knowledge transfer and, consequently, to the knowledge management maturity, except for the relationship between the normative organizational commitments in relation to the knowledge transfer, which was not confirmed in the model.

The results also show that the organizational commitment influences the knowledge transfer and, therefore, influences its maturity level. However, this influence does not happen in an equal way or in all its forms, such as the normative organizational commitment to the knowledge transfer that did not have significance.

Thus, understanding the individual commitment profile helps to understand the extent to which that person contributes both to the knowledge transfer, and therefore, in the same analogy, for the knowledge management maturity level. The result also proved the understanding of several authors, such as Curado and Bontis (2006), Ruta and Macchitella (2008), Jimenez and Sanz (2013), Rodriguez (2010), and Mohan and Kumar (2015), regarding to the strength that the knowledge transfer positively influences the knowledge management maturity level.

Regarding the work academic contributions, it is evident its application in the area, as, through it, new studies can be carried out, given the relevance of the theme, its importance, evolution and consistency of the found results. As this research is limited to a specific Public Federal University of Higher Education, the results should not be used comprehensively to other universities even if these are governed by the same regulatory instrument and have similarities.

Other considerations become relevant to the extent that the knowledge management must be treated as a driving force for achieving organizational goals. Thus, the more this theme is worked on, the more it creates the knowledge management maturity development cycle. Both globally and, more specifically, in the national political context, the education sector and, more strictly, the federal public educational sector, because of this research, is undergoing through intense changes, so the organizational behaviour, as well as the knowledge, are considered critical resources to achieving organizational objectives. In this way, the organizations must create the necessary conditions to encourage their employees to transfer their knowledge by contributing to the maturity of the knowledge management. Once the employees' commitments are known, the more easily a better performance is achieved; and this could be proven through this study.

As this study is limited to the data obtained from only one organization, it is necessary to replicate the study in other public and private organizations to validation and for the found results comparisons. Future studies may also address the organizational commitment relationships, knowledge transfer and knowledge management maturity with other constructs treated in the organizational behaviour, such as the organizational values, the organizational culture, the organizational identity, among others.

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