INDIVIDUAL VALUES, TEAMWORKING AND KNOWLEDGE MANAGEMENT – A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

The purpose of this paper is to identify the relationships between teamwork, knowledge management and human values, categorizing the studies focused in the interplay of these three variables, with a focus on their appliance to the industrial shop floor context. By doing so, this paper seeks to identify literature gaps to be explored in subsequent researches. The research method adopted was a systematic literature review from databases related to the teamwork, knowledge management and human values published in periodicals from 2000 to 2015. Thirty-five open categories were initially identified in the interplay of the three variables, with the vast majority of them emphasizing the relationship between two of the three variables. Lately, these original categories converged to nine axial categories or different areas of research. By applying the above-mentioned methodology, it was possible to identify one main gap in the literature, synthetized by the question bellow, but with potential to be deployed in many research questions for further development: How team member's values influence teamworking design and management in order to maximize the effectiveness of knowledge management practices on the shop floor?

Keywords*:* Human Values. Consciousness Levels. Teamworking. Knowledge Management. Shop Floor. Systematic Literature Review.

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INTRODUCTION

Knowledge can be defined as the capacity to take action in uncertain situations. Knowledge management is a recent concept discussed more fully from the 1990s and on, defined as a process of promoting the flow of knowledge between individuals and groups within the organization (ALAVI; LEIDNER, 2001).

Work teams can be pointed out as one of the most popular type of teams. Cohen and Bailey (1997) puts that work teams normally are directed by a supervisor who make the most of the decisions, including how things are done and who does each of these things. In contrast, they also mention a self-managing or autonomous work team, which involves employees in making decisions. Many authors have stated that team members' autonomy is one of the main drivers of a successful knowledge management on the shop floor level (SCHURING, 1996; MARX, 2010; SACOMANO NETO; ESCRIVÃO FILHO, 2000). In contrast, some qualitative studies, such as one conducted by Wzorek and Cordeiro (2014) propose that autonomy alone cannot be associated with a more effective Knowledge management on the shop floor. According to Cordeiro, Pelegrino e Muller (2012), Cowan and Todorovic (2000) and others, the role played by a greater level of team autonomy in the causation of a better performance is closely dependent on the values or the level of consciousness of team members.

Values are defined as an individual view on what is most important in life that in turn guides behavior (HINES, 2011a). Its definition is really close to that of worldviews or level of consciousness provided by Cowan and Todorovic (2000).

This paper seeks to identify the relationships between Knowledge Management, Teamworking and Human Values or Levels of Consciousness, with a focus on the interplay of these three variables on the industrial shop floor. To accomplish this purpose a systematic literature review was conducted, aiming to identify how the current literature relates each one of these three variables to the others. More specifically, the article seeks to identify: i) how human values affect teams and their performance regarding knowledge management; ii) how knowledge management and sharing affect teams and organizational performance and iii) how organizational and teams design affect knowledge management and sharing and human values. The research main purpose can be summarized by the research question: How does human values, teamworking and knowledge management interrelate with each other on the industrial shop floor?

Section two presents the Theoretical Framework that helped developed the protocol that guided the research on periodicals' databases. It is divided into three subchapters, each one focusing on one of the research variables mentioned: i) Knowledge management on the shop floor; ii) Teamworking and iii) Human Values and Consciousness

Levels. Chapter three presents the Methodology used in this research, while Chapter four focus on research's main findings. Finally, the article finishes with the conclusions of the research.

1 THEORETICAL FRAMEWORK

1.1 KNOWLEDGE MANAGEMENT ON THE SHOP FLOOR

Knowledge management is a concept discussed since 1990s and it is described as a process of promoting the flow of knowledge between individuals and groups within the organization, consisting of four essential steps: acquisition, storage, distribution, and knowledge utilization (ALAVI; LEIDNER, 2001).

When individuals provides any part of their knowledge to others, they are involved in knowledge sharing (BARTOL; SRIVASTAVA, 2002). Knowledge sharing represents a social activity that occurs within a system where knowledge represents a resource that has a value (DAVENPORT; PRUSAK, 1998).

Despite being under debate as an area of research and publishing within the Social Sciences, since the early 1990s, the integration of Knowledge Management with Production Organization concepts is still quite recent (CORDEIRO; PELEGRINO; MULLER, 2012).

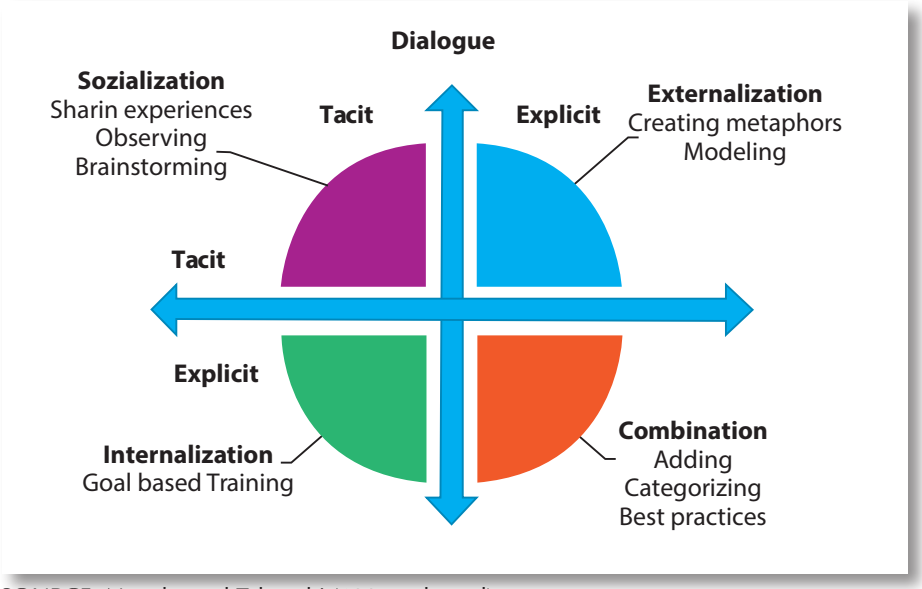
Knowledge management on the shop floor is a process that seeks the integration of tacit and explicit knowledge between human beings, during their jobs, looking for improvements in order to promote enhancements of the organizational performance (MUNIZ; SOUSA; FARIA, 2011).There is a difference between tacit and explicit knowledge and together they represent the "epistemological" dimension to organizational knowledge creation. This dimension involves a continual exchange between the two types of knowledge, which guides the creation of new ideas and concepts. While these interactions might include departmental or indeed organizational limitations, they define a further dimension to organizational knowledge creation, which is associated with the extent of social interaction between individuals that share and develop knowledge. This is referred to as the "ontological" dimension of knowledge creation (NONAKA, 1994).

Involvement of a wide range of employees creates more innovations and innovation with more diversity than if merely one limited group of employees is asked to participate with ideas and suggestions (TIDD; BESSANT, 2005). The larger the power distance and the more political behavior resisting change that exists within a company, the more

difficult it is for an employee to accept the role of involvement and be allowed and truly encouraged to participate (HALLGREN, 2008).

According to Nonaka and Takeuchi (1997), knowledge creation focus on building both, tacit and explicit knowledge and more also, on the interchange between these two aspects of knowledge through internalization and externalization.

FIGURE 1 – Knowledge Spiral



SOURCE: Nonaka and Takeuchi (1997, adapted)

Motivation is recognized as a main factor in successful knowledge flow in organizations (ARGOTE; MCEVILY; REAGANS, 2003). Understanding the factors that motivate workers to engage in knowledge sharing has started to receive considerable attention in the recent years (BORDIA; IRMER; ABUSAH, 2006).

An individual's motivation to engage in knowledge sharing can be linked to a cost-benefit relation. Goal orientations represent individuals' general tendency to seek better performance or learning goals when they are in achievement situations (DWECK; LEGGETT, 2000).

In a similar approach, Vandewalle (1997) suggest that goal orientations affect how individuals perceive the costs and benefits of feedback seeking. Swift, Balkin and Matusik (2010) suggest goal orientations affect how individuals perceive the costs and benefits associated with sharing their knowledge, there by influencing what knowledge individuals are willing to share and with who they would like to share (SWIFT; BALKIN; MATUSIK, 2010).

According to Argote, McEvily and Reagans et al. (2003), motivation to participate in knowledge management processes is one of the main drivers to knowledge outcomes. Accordingly, an individual's goal orientation to knowledge sharing in a particular situation

may improve organizational performance. Some sort of human resource management (HRM) practices may encourage the display of certain goal orientations. In this regard, two types of goal orientation can be identified: i) a learning goal orientation, emphasizing the acquisition of new skills and knowledge; ii) a performance goal orientation, focused on demonstrating competence and prevent failure.

Individuals with a performance goal orientation are more assertive in the organization because they want to experience the greatest positive results when they demonstrate their capabilities to those in higher positions. However, those workers with learning goal orientation are more likely to share knowledge with their colleagues, in order to make their learning objectives easier to achieve (SWIFT; BALKIN; MATUSIK, 2010; SNOWDEN, 2000).

According to Swift, Balkin and Matusik (2010), organizations should develop hiring processes that increase the probability of choosing workers with a learning-prove goal orientation, especially in positions that require high levels of knowledge sharing. Fitting an individual's goal orientation with the knowledge sharing needed in a particular position may increase organizational performance (SWIFT; BALKIN; MATUSIK, 2010).

As Inazawa (2009) points out, it is necessary to cut through the focus on the relationship between human and technology at the shop floor, reaching workers' relationships among themselves, their behaviors and motivations.

1.2 TEAMWORKING

Cohen and Bailey (1999) describe a team as a collection of individuals who are independent in their tasks, share responsibility for outcomes and manage their relationship across organizational boundaries.

Work teams are the most popular type of teamworking. Cohen and Bailey (1999) also points out that work teams normally are managed by a supervisor who make the most of the decisions, deciding how things are done and who does each of these things. In contrast, they also refer to a self-managing or autonomous work team, which involves employees in making decisions.

Pruijt (2003) defines the concept of teamworking as a product of two distinct developments:

- A neo-Tayloristic form of work, on which there is a fix supervisor who works as team leader, and only the team leader is able to participate in decision--making; standardization is pursued; there are bonuses based on assessments by supervisors, focusing on how deeply workers cooperate in the system;

- An anti-Tayloristic form of work, on which there is no supervisor and leader position rotates; all team members are able to participate in decision-making; Standardization is not crazy pursued; there is an inclination to alleviate technical discipline; remuneration is based on proven skill level and there are no group bonuses.

According to Pruijt (2003), one of the main concerns in the teamworking literature is the intensification of work and the use of shop floor autonomy. Marx (2010) presents two models of work teams at the shop floor: enriched groups and semiautonomous groups. His definition is quite similar to Prujit's, with the enriched groups being equivalent to the neo-Tayloristic Teams and the semiautonomous groups approximating the anti-Tayloristic teams. He also provides a template to assess teams' autonomy in order to rank them between the two types mentioned above.

According to Salerno (1991), Semiautonomous Groups are superior to enriched groups, especially in contexts on which production flexibility is needed due to a higher demand for product and method innovations. Accordingly, Marx (2010) defends that enriched groups have a restricted level of autonomy and assignments, focusing in operational improvements in the working environment. According to the author, these limitations have the potential to reduce the likelihood of enhancing professional skills and more strategic improvements.

The confusion about teamworking in Japan was noted by Dankbaar (1997, p. 577): "The Japanese notion of 'teamwork' refers to a sense of responsibility for the whole enterprise ('Team Toyota'), and to mutual aid and off-line improvement activities. It does not refer to working in teams". It can be noticed that Dankbaar's concept of teamworking is that of the anti-Taylorist teams or semiautonomous groups. It was exactly in this context that Womack, Jones and Roos (1992) introduced the term "team" to designate Japanese work groups.

Appelbaum and Batt (1993) used the term "American team production" to define a model that blend the characteristics of Swedish sociotechnical systems of self-directed work with those of quality engineering teams. The authors mentioned that such a model was still rare among US companies due to their difficulties to shift from Taylorism to teamwork. Pollert (1996) made clear the difference between the hierarchically dominated Japanese version and the democratic Swedish version of teamworking. Accordingly, Danford (1998) also mentions two models of teamworking: "Japanese Style" vs. "Autonomous teams".

One influencing factor for the teams' formation is that people who are part of them have thoughts, personalities and different formations, hindering a synergy between them. When the synergy happens, the team performs well. Otherwise, there is a misunderstanding and all problems could be amplified (SACOMANO NETO; ESCRIVÃO FILHO, 2000).

Wzorek and Cordeiro (2015) conducted a qualitative research with three auto parts companies in the state of Paraná, on which they explored in a deeper way the differences between enriched/neo Taylorist and semi-autonomous/anti Tayloristic. Based on Marx's template, they proposed a continuum between the simplest type of enriched/neo-

Tayloristic groups and the most complex kind of semiautonomous/anti-Tayloristic Groups. They also provided a table that enables one to assess and classify a work team based in Marx's assessment. In this same research, it was found that increased autonomy does not guarantee necessarily better results to the company in terms of knowledge management.

1.3 HUMAN VALUES AND CONSCIOUSNESS LEVELS

Maslow was the first researcher to synthesize a wide variety of studies related to human motivation. Before Maslow, researchers generally focused separately some factors as biology, achievement, or power, to explain what moves, directs, and maintains human behavior. Huitt (2003) holds that Maslow proposed a hierarchy of human needs based on two groups: deficiency needs and growth needs. Within the deficiency needs, each lower need must be met before moving to the next higher level. Once each of these needs has been satisfied, if at some future time a deficiency is detected, the individual will act to remove the deficiency.

Maslow's (1998 apud HUITT, 2001) initial concept included only one growth need: self-actualization. According to him, self-actualized people are defined by: being problem-focused, life's appreciation, interested about personal growth and having the ability to have great experiences.

After that conceptualization, he differentiated that if one becomes more self-actualized and self-transcendent; one becomes wiser and automatically knows what to do in different kind of situations.

Values could be defined as "an individual view on what is most important in life that in turn guides behavior". They are a useful option for intention changes, which relates to individual awareness (HINES, 2011a, p. 188).

The Institute for Management Excellence (2013) suggests there are nine basic human needs: i) security; ii) adventure; iii) freedom; iv) exchange; v) power; vi) expansion; vii) acceptance; viii) community, and ix) expression. How it is possible to motivate employees in the face of increased demands, particularly when they are being asked to meet these demands with fewer resources? The answer is, in large part, to make the employee feel secure, needed, and appreciated. This is not at all easy, but if organizations take into consideration the needs of the individual, and provides the training to meet both sets of needs, enhanced employee motivation and commitment are possible.

Inglehart's (1997) theory of intergenerational value change suggests that one's level of ''existential security'' is the key factor. It's not necessarily how much money one has, but how secure one feels. Considering knowledge as having a number of levels of comprehension, these levels (human data) growth from simple to complex turning out the different attributes of knowledge, providing some manners to measure and to understanding individual's values and consciousness (BENNET; BENNET; LEE, 2010).

According to Kohlberg (1981), moral development is hierarchical, and its six stages form the basis for moral decisions. The first stage of Kohlberg's sequence is based with a punishment orientation; that is, concerned more with the power of authorities and avoiding punishment than with doing the right thing. In the second stage, individual focus to satisfy personal needs. In the third stage, the individual makes decisions by internalizing the rules to realize their own desires or achieve approval of others. The stage four implies that the internalized rules are maintained for their own. On stages five and six, individuals begin understanding abstract moral principles and considering each situation differently.

FIGURE 2 – Levels of knowledge comprehension

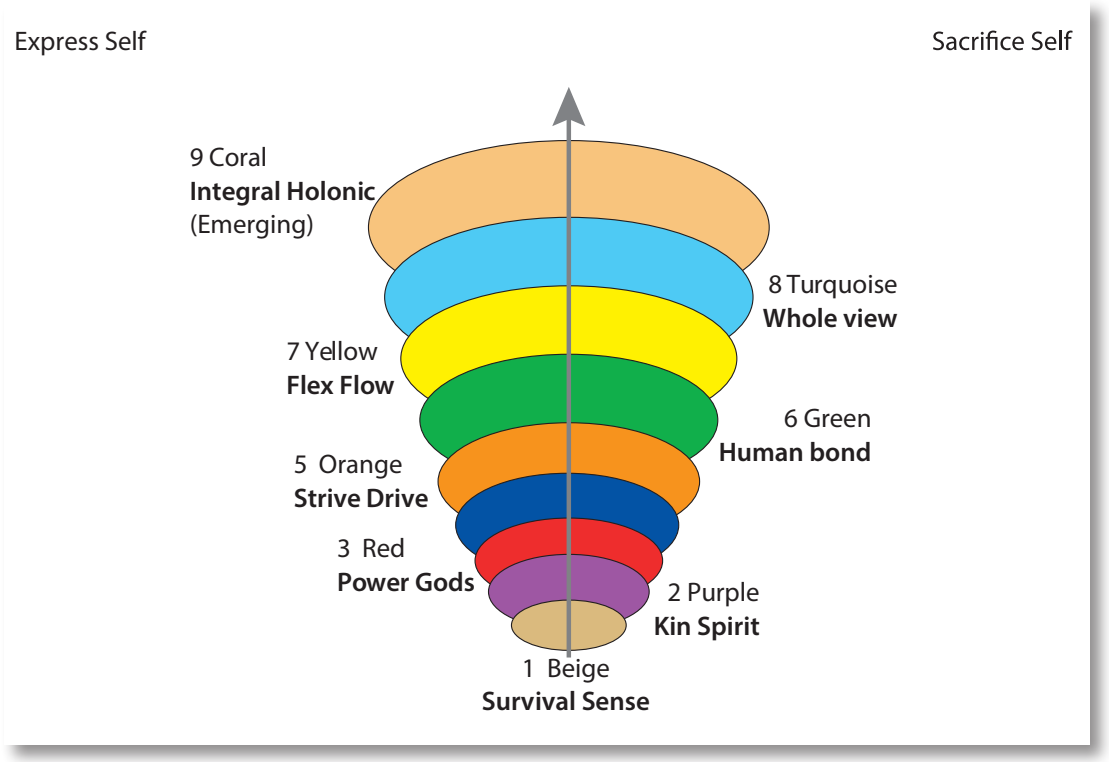
intelligence						BALANCE: SETTING AND ACHIEVING GOALS
anticipation of the future					CONCEPTUAL BASIS; THINKING IN ABSTRACT	
meaning				SYSTEMS: BOUNDARIES, CASUAL RELATIONSHIPS		
understanding			INTERACTION			
sense--making		WHAT'S IN IT FO ME (WFM)?				
information	ACTION IMMEDIATE CAUSE & EFFECT RESPONSE					
Kohlberg's levels of moral development	Power of authority, avoid punishment	Satisfying personal needs	Interpersonal Relationships, pleasing others	Doing one's duty, inward, for own sake	Post--conventional reasoning, flexibility, relativism in rules	Personal commitment, own delas somewhat independet og others

SOURCE: Bennet, Bennet and Lee (2010)

Schank (1995) defends that our knowledge of the world is more or less equivalent to our experiences and that ‘‘intelligence is the clever use of experience and the creation and telling of stories”.

The reasons for acting in particular ways change, as do the behaviors. Spiral Dynamics (SD) is based on Clare Graves’ Studies on human consciousness and describes biopsychosocial systems in form of an expanding spiral. The term biopsychosocial reflects a focus on a multidisciplinary approach to understand human nature (COWAN; TODOROVIC, 2000). So “Bio” stands for the neurology and chemical energy of life. “Psycho” is related to the variables of personality and life experiences and “social” focuses on the collective energy in group dynamics and culture as the interpersonal domain influences human behavior. Finally, “system” stands for the interdependence and action/reaction of these three upon one another in a coherent whole.

FIGURE 3 – Consciousness levels



SOURCE: Cowan and Todorovic (2000)

EXHIBIT 1 – What people in each worldview seek out in life:

Color	Color	Human Characteristics
1	Beige	Survival; biogenic needs satisfaction; reproduction; satisfy instinctive urges; genetic memory.
2	Purple	Placate spirit realm; honor ancestors; protection from harm; family bonds; respect elders; safety for tribe.
3	Red	Power/action; asserting self to dominate others and nature; control; sensory pleasure; avoid shame.
4	Blue	Stability/order; obedience to earn reward later; meaning; purpose; certainty; Truth; the reason to live and die.
5	Orange	Opportunity/success; competing to achieve; influence; autonomy; mastery of nature; understanding self.
6	Green	Harmony/love; joining for mutual growth; awareness; belonging; spirituality and consciousness.
7	Yellow	Independence/self-worth; fitting a sustainable living system; knowing; the big questions; the long view.
8	Turquoise	Global community without exploitation; understanding of life energies; survival of life on a fragile Earth.

SOURCE: Cowan and Todorovic (2000, adapted)

The main aspects of Graves' SD theory are described with two color families, with warm colors (beige, red, orange, yellow etc.) indicating an express-self way of living with a focus on the external and how to change and master it. It is how that expressiveness occurs that differentiates the levels. On the other hand, the cool colors (purple, blue, green, turquoise etc.) have a sacrifice-self way of living with a focus on the inner world and how to stabilize and come to peace with it. The Spiral winds between a series of individual "I" and collective "we" as it turns between cool, deny-self group systems, and warm, individualistic express-self systems (COWAN; TODOROVIC, 2000).

According to Cowan and Todorovic (2000), organizations could adjust its management system to fit the person; the school could match teacher, student, and method. If not, it will lose mind power and interest as the person moves elsewhere. According to the authors, getting the right person into the right job with the right materials at the right time within the right systems and structures is what SD is about.

The World Values Survey (WVS) and Ray's Cultural Creative are other values-based systems that are similar to Maslow's Hierarchy of Needs and Spiral Dynamics (HINES, 2013). According to Hines (2013), values can be synthesized into four main types: traditional, modern, post-modern and integral.

The traditional values are focused on following the rules, respect for authority, religious faith. They are closely related to the SD's blue values presented on Exhibit 1. Modern values focus on achievement, emphasizing consumption and are equivalent to SD's orange values. Post-Modern values emphasize the search for meaning in one's life and has self-expression as a priority, being equivalent to SD's green values. Integral values emphasize the need to adjust values to fit each particular situation, enabling one to pursue personal growth, relating to SD's yellow and turquoise values.

The first three value types derive from the WVS (www.worldvaluessurvey.org), but the "Integral" one is exclusively derived from the Integral Theory and SD. The Integral worldview is driven by the need to restore viability to a disordered world endangered by the cumulative effect of previous values and worldviews.

Traditional values were dominant for centuries. Modern values are coming and gaining in numbers with the advent of industrial revolution. Postmodern values emerged with the information and service society just some years ago, and Integral values, the newest on the scene, emerged perhaps a decade or two ago (HINES, 2011b).

Considering all the above mentioned, the challenge is to communicate, develop, motivate, and manage those people in ways that fit who they are now and prepare systems for who people will become next (COWAN; TODOROVIC, 2000).

2 METHOD

The main purpose of this paper is to characterize the relationship between teams' autonomy and individual values with the effectiveness of knowledge management at the shop floor by means of a literature review. Specifically, the analysis also aims to identify:

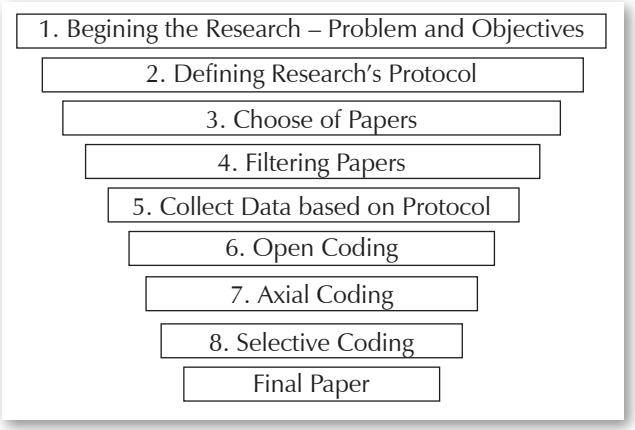
- How human awareness (values, culture) affects teams performance;
- How knowledge management (sharing) affects teams and organizational performance;
- How organizational design affects teams performance and human values.

In terms of its objectives, this is a descriptive research, for it is focused on identify and present the already developed research on the above-mentioned fields. However, it also presents some features of an explanatory research for it aims to provide a categorization of these studies and how they interrelate with each other. The reason a systematic literature review was chosen is due to its strategic and rigorous manner of conducting the literature review, which allows one to identify gaps in the theory, which can be explored later on (COOK; MULROW; HAYNES, 1997).

Grounded theory was used to develop the open coding, axial coding and selective coding (data analysis) process. Basically, open coding is the process of reading papers and summarizing their characteristics in terms of method and objectives, creating very narrow and specifically defined categories and allocating papers to them. The axial coding correlates and identifies relationships among the open codes, consolidating them into more broad and useful categories. Finally, the selective coding process rescues the research question in order to develop core categories and compare them with the research's initial aims, figuring out literature gaps (DROHOMERETSKI et al., 2015; CHO; LI, 2014).

The research was divided into eight main phases, according to FIG. 4:

FIGURE 4 – Research methodology



SOURCE: The authors (2016)

To initiate the papers search on CAPES database, the authors decided to use all available journals from all available databases. By accessing CAPES via PUC-PR, these were the databases available: Scopus (Elsevier); OneFile (GALE); MEDLINE/PubMed (NLM); Science Citation Index Expanded (Web of Science); ProQuest Advanced Technologies & Aerospace Collection; Social Sciences Citation Index (Web of Science); Technology Research Database; SciVerse ScienceDirect (Elsevier); Materials Research Database; Wiley Online Library; ASSIA: Applied Social Science Index and Abstracts; Engineering Research Database; Materials Business File; Advanced Technologies Database with Aerospace; Emerald Journals (Emerald Group Publishing); Mechanical & Transportation Engineering Abstracts; Computer and Information Systems Abstracts; ERIC (U.S. Dept. of Education); Civil Engineering Abstracts; ANTE: Abstracts in New Technology & Engineering.

The main limitation found by the authors (regarding journals' availability) was related to crossed referenced searches, that were done all the times it was decided to include in the research a paper that was cited in another one. Most of times the papers

found by this method were out of reach due to database limitations. Due to this fact, some important references might have been left out of this paper. The paper search focused on the period comprehended from 2000 to 2015.

The strategy to optimize searching was to divide it into three search windows, and at each one apply the defined variables and their equivalent keywords to find as many results as possible simultaneously. A string's model was structured to help on the research. As an example, the "Teamworking" variable gave birth to the following string: "Teamworking" OR "Semi-Autonomous Groups" OR "Autonomous Groups" OR "Team work".

The three variables focused by the research (Knowledge Management, Teamworking and Human Values) were deployed into the following keywords (using the string code cited before): Knowledge Management; Knowledge Sharing; Knowledge Management on the shop floor; High-involvement Innovation; Teamworking; Team work; Semi-autonomous Groups; autonomous groups; Levels of Consciousness; Levels of Human Development; Worldviews; Values.

At the beginning of the search process, all possible filters (period, language, and article) were used to refine journals findings, focusing exactly in the research questions. For example, in the search for "autonomous teams", the category "Robotics" was disabled, because this issue wasn't related to the research questions presented in the study. This sort of action diminished the numbers of papers found from (approximately) 312.000 to 10.000 papers, considering all those three main subjects: Knowledge Management, Teamworking and Human Values on the shop floor.

Using these criteria, the authors evaluated titles and abstracts in order to make sure they were related to research objectives, which limited the search further to 131 publications. This process was performed in two subsequent steps: i) discarding papers which focus was different from Business companies with an industrial context and those which conclusions couldn't be at least extrapolated to the shop floor context; ii) Discarding those papers that didn't explore the relationship between the variable under study and at least one of the other two variables. The exhibit 1 shows the amount of papers per journal and the exhibit 2 the amount papers per year.

EXHIBIT 2 – Papers per journal Continua

Journal	Amount
Academic Librarianship	1
Business Ethics	1
Business Research	2
Canadian Center of Science and Education	1

EXHIBIT 2 – Papers per journal

Conclusão

Journal	Amount
Computers in Human Behavior	1
Creative Behavior	1
Creativity and Innovation Management	1
Critical Care	1
Cross Cultural Management	1
Cross Cultural Psychology	2
Decision Support Systems	1
Economic and Industrial Democracy	1
Economic Psychology	1
European Management	1
Expert Systems With Application	3
Group Processes & Intergroup Relations	1
Human Factors	1
Human Relations	2
Human Resource Management	3
Industrial Management & Data Systems	1
Industrial Marketing Management	1
Industrial Relations	3
Info Systems	1
Information and Management	2
Information Development	1
Information Processing	1
Information Management	1
Information Science and Technology	2
Information Science	1
Innovation Management	1
Intelectual Capital	1
International Business	1
International Journal of Operations & Production Management	1
Interprofessional Care	1
Journal of Applied Social Psychology	1
Knowledge and Process Management	1
Inter-organizational KS	1
Knowledge Management	24
Knowledge Sharing	1
Leadership and Organization Studies	1
Management	2
Management Decision	3
Management Engeneering	1
Management Science	3
Management Studies	3
Marketing	1
Marketing Science	1
Occupational and Organization Psycology	1
Nurse Education Today	1

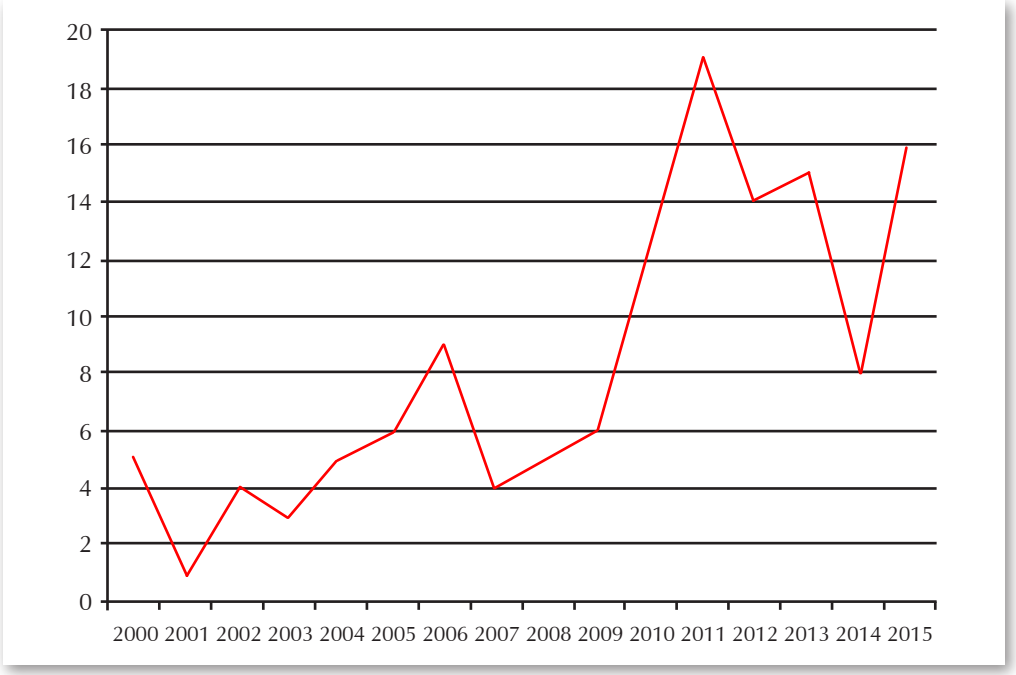
EXHIBIT 2 – Papers per journal

Conclusão

Journal	Amount
Operations Management	1
Organizational Behavior	3
Organizational Behavior and Human Decision Process	3
Organizational Change Management	1
Organizational Culture, Communications and Conflicts	1
Organization Science	1
Organization Studies	2
Project Management	2
Psychiatry Epidemiol	1
Psychological Science	1
Science and Business	9
Science Systems	1
Social Science & Medicine	3
Strategic Management	1
Strategic Information Systems	2
System Sciences	3
Team Performance Management	1
Tourism Management	2
Vocational Behavior	2
World Development	1
	2

SOURCE: The authors (2016)

EXHIBIT 3 – Publications per year



SOURCE: The authors (2016)

The focus on industrial shop floor was met in a broad fashion. Only papers presenting results that could not be extrapolated to the shop floor were discarded. For example, a paper focusing students values and their behavior within teams was kept, for its aim was to explore the correlations between teams' structure and teams' effectiveness (and so could be applied to a shop floor environment). On the other hand, a paper focusing on the relationship of nurses' teams and their patients was discarded, for a very specific relationship from a healthcare context was under exploration, with no possibility of extrapolation for the shop floor environment.

During the reading process, the following data were collected: title, keywords, authors, journal, abstract, objective, method, findings, publication's year. The 131 papers were analyzed by its type, and were carefully categorized using the open coding method, followed by axial coding and finally the selective coding.

The codings development and the categorization process were based on the data extracted as defined in the research protocol. This process started by mapping the paper's main objective, extracted from the abstract and/or the introduction, and analyzing the content section and the findings section.

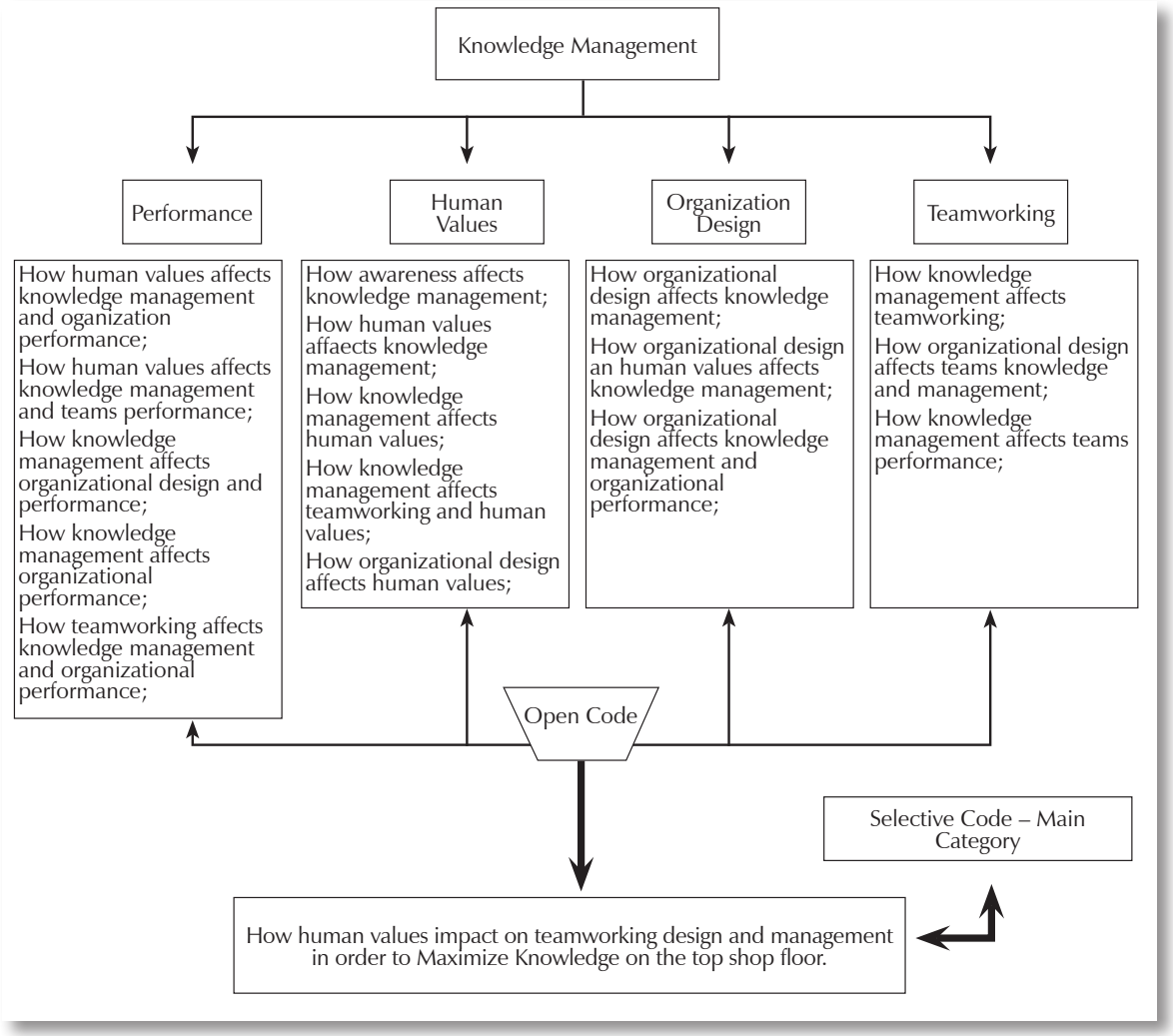
This process generated a large number of categories that were gathered according to the similarity of themes. For example, the study by Devaro (2008) was recorded as "The effects of Self-Managed and Closely Managed Teams on Labor Productivity and Product Quality". This paper was open coded as "How teamworking affects organizational performance" and then categorized as "Performance" during the axial coding process.

3 FINDINGS

With all papers collected and divided into folders, the open coding was developed. The frameworks were settled by categories (exhibit 4 to 6 shows the open and the axial codings for each variable). The axial categorization was performed aggregating the categories of the open coding into more broad categories related to the aim of the study. As an instance, for the variable "Knowledge Management" five different open codes (all of them focusing performance related issues within the Knowledge Management context) were agregated into just one axial category named "Performance". As shown in Exhibit 4, Performance, Human Values, Organizational Design, and Teamworking are the main categories on which papers focusing primarily on Knowledge Management were divided into. In a similar fashion, as it can be seen in Exhibit 5, papers focusing mainly on Teamworking were divided into five categories: Performance, Knowledge Management, Organizational Design, Autonomy and Human Values. Finally, papers

focusing primarily on Human Values were divided into only three categories, as shown in Exhibit 6: Organization Design, Knowledge Management and performance.

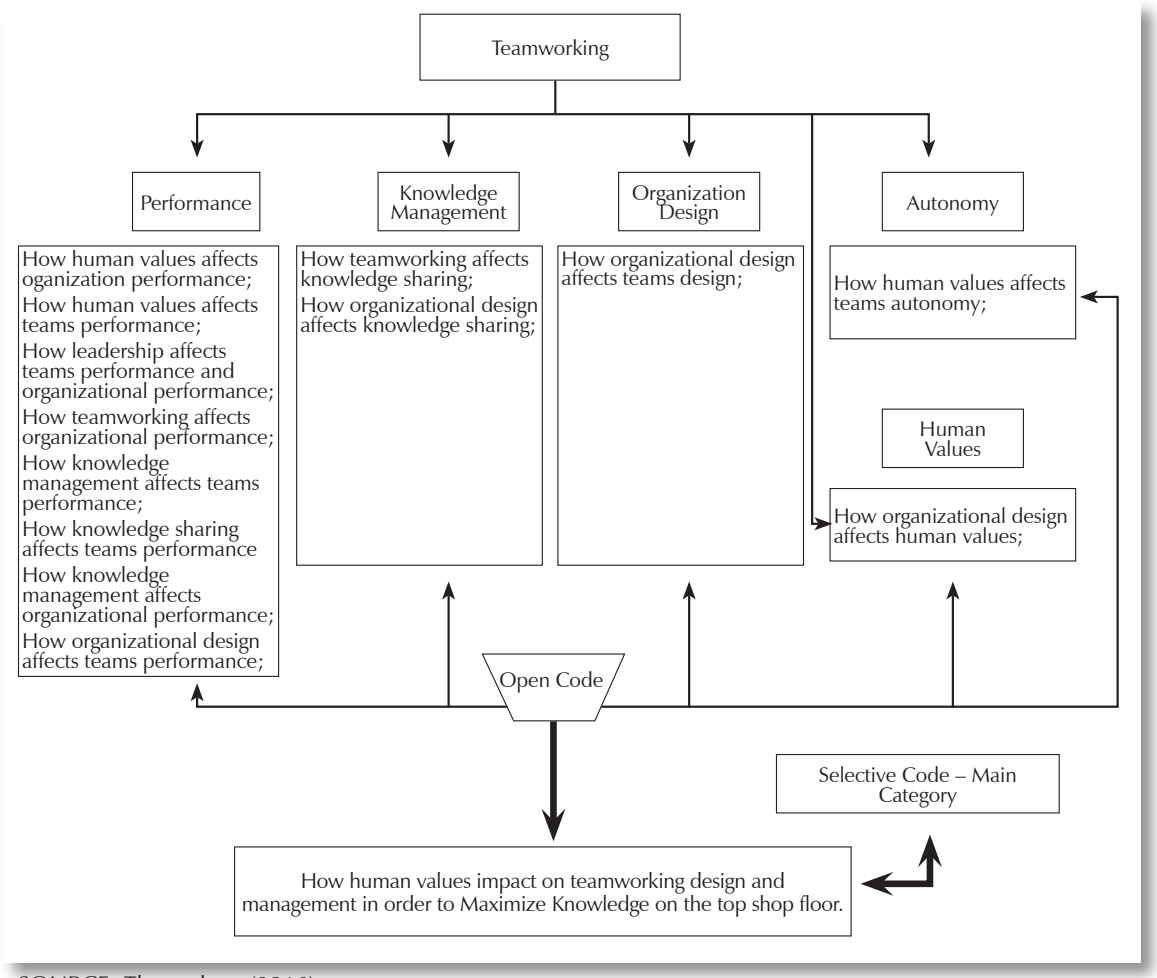
EXHIBIT 4 – Open and Axial Coding – Knowledge Management



SOURCE: The authors (2016)

After the conclusion of the axial coding for each one of the three variables, each group of axial categories (related to one of the variables) was cross-checked with the other two groups in order to identify possible redundancies. In this process, three sets of redundant categories were identified, for in each of them the same interplay of variables were under investigation. For example, one of the three axial categories for the variable "Teamworking" was "Human Values", which included all papers focused on the impact of human values in teamworking. Besides, one of the five axial categories for the variable "Human Values" was "Teamworking", including all papers aiming to investigate how teamworking relates to human values. So, these two categories were fused into just one, presented as one of the nine areas of research in Exhibit 8.

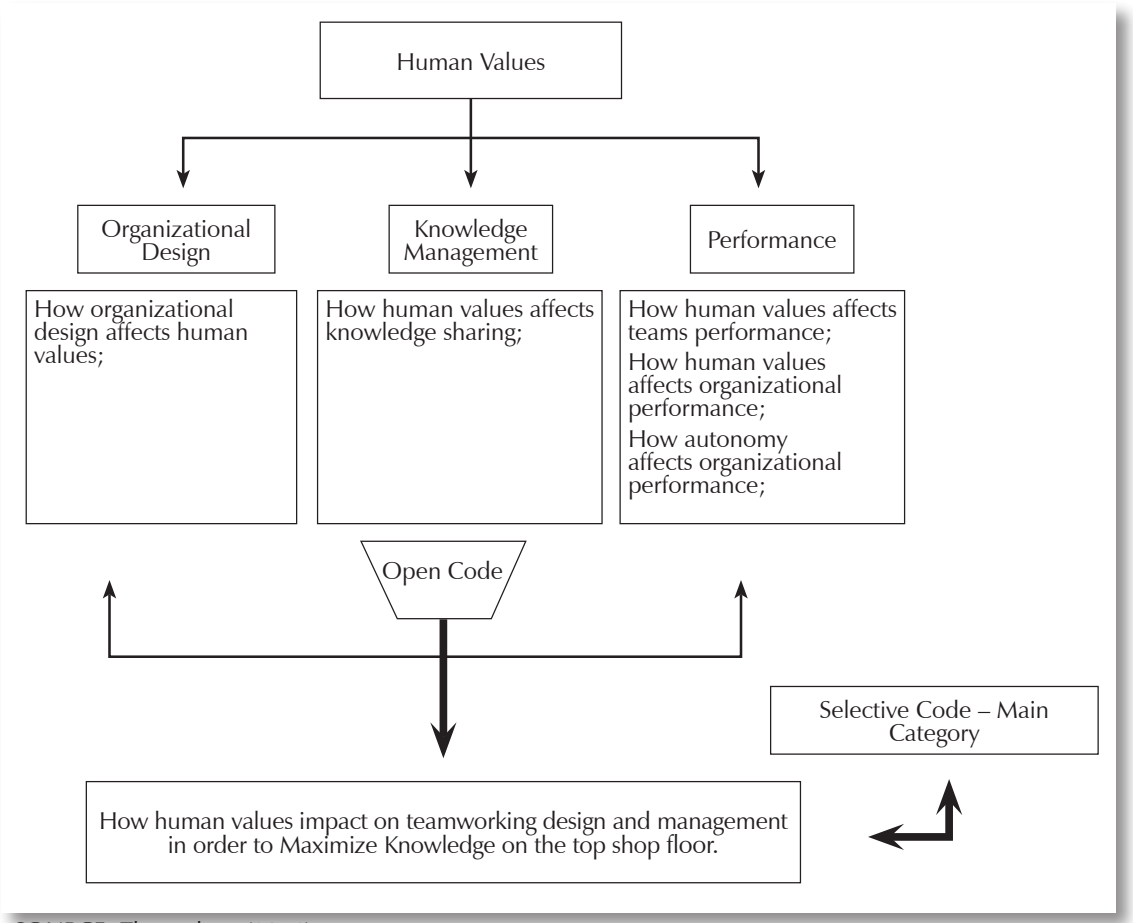
EXHIBIT 5 – Open and Axial Coding – Teamworking.



SOURCE: The authors (2016)

The Exhibit 7 present the three axial categories put together to form a whole regarding the interrelations of the three variables. This process was performed to assure that the main objective of this research, i.e., to identify the influence of the values of team members on their teams' performance in terms of knowledge sharing and creation was accomplished (or not) by one or more of the selected articles.

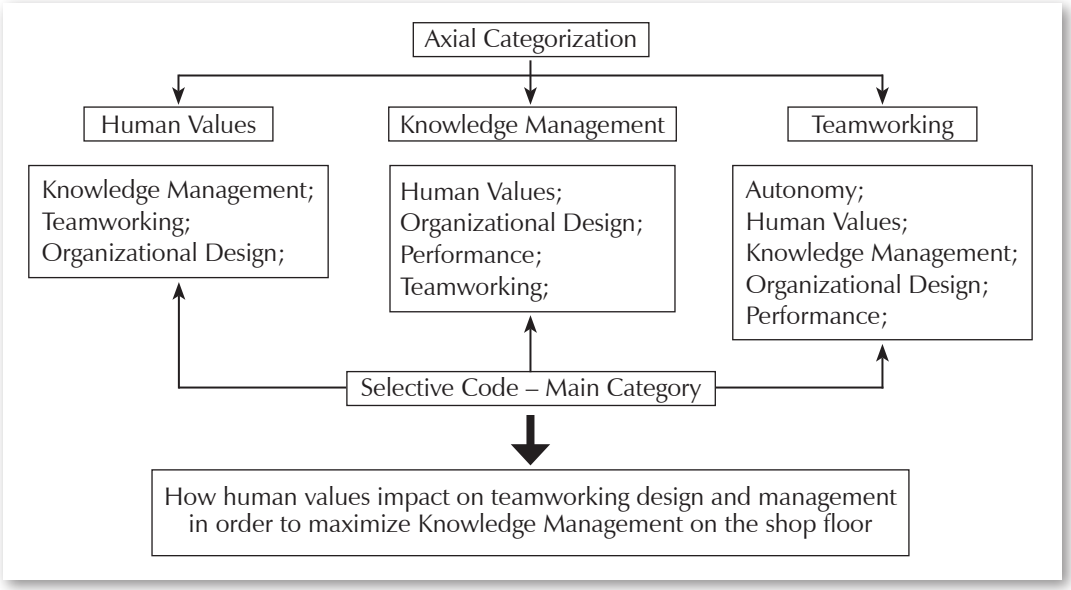
EXHIBIT 6 – Open and Axial Coding – Human Values



SOURCE: The authors (2016)

In all three categorizations, the focus was to identify papers which investigate how human values impact on teamworking design and management in order to maximize knowledge creation in the shop floor. Therefore, this was the selective coding defined for all three coding processes conducted.

EXHIBIT 7 – Axial Categorization – Interrelations between the three variables



SOURCE: The authors (2016)

Considering the crossed aspects of the Axial Coding performed, it was possible to define nine main areas of research in the interplay of the three variables. These areas are shown in Exhibit 8.

EXHIBIT 8 – Areas of research

Continua

Areas of Research	Main Subjects Investigated
Human Values vs. Knowledge Management	Investigate how Human Values affects Knowledge Management sharing and creation.
Human Values vs. Teamworking	Focus on the role played by human values and culture on teams' effectiveness.
Human Values vs. Organizational Design	Investigate the interplay of the two variables, focusing on both how organizational design effectiveness is affected by human values and culture and how organizational design can change human values.
Knowledge Management vs. Organizational Design	Focus on types of Organizational Designs that enable a better Knowledge sharing and creation
Knowledge Management vs. Performance	Focus on both how knowledge management initiatives enhances organizational performance and how to measure Knowledge Management performance.
Knowledge Management vs. Teamworking	Explore how Knowledge Management is affected by teamworking.
Teamworking vs. autonomy	Investigate the role played by autonomy in teamworking effectiveness.

EXHIBIT 8 – Areas of research Conclusão

Areas of Research	Main Subjects Investigated
Teamworking vs organizational design	Explore the interplay of teamworking and organizational design in a macro-level, i.e., how teamworking affects organizational design effectiveness and how organizational design in a macro level limits teamworking performance.
Teamworking vs. Performance	Investigate how to improve teamworking performance.

SOURCE: The authors (2016)

In this regard, many studies emphasized the impact of workers's consciousness levels on Knowledge creation. Authors such as Matzler et al. (2008) conducted an empirical study on which it was identified that individuals consciousness levels impacts knowledge sharing performance. In a similar way, Glazer et al. (2004) made cross-cultural comparisons, collecting data from workers from different countries such as Hungary, Italy, UK and USA. The authors found that values influence people's commitment with the organizations and human values are influenced by national culture. Accordingly, on a study developed by Taewon Moon (2013), it was found that cultural values affects human values, which in consequence, affects teamworking.

Pais (2010), in a study of self-managed teams, described an increase of commitment and productivity when people experienced autonomy. On the other hand, Devaro (2008) found that there is no statistically significant difference between the predicted gains from autonomous against non-autonomous teams. The opposition between these two findings is an indication that there is something in-between autonomy and team effectiveness, i.e., there might be a modulator of these two variables, inhibiting a direct causal relationship between teams' autonomy and teams' performance.

Intrinsic and extrinsic motivation influences workers' intention to share knowledge, but also, results and job oriented cultures have positive impacts on employee's intention in the knowledge management process. Some studies showed the importance of a trust environment in order for workers to want to share their knowledge and their own experiences with their teams. A strong positive relationship was found between trust and knowledge sharing for all types of teams (local, hybrid and distributed), but the relationship was stronger when task interdependence was low, supporting the position that trust is more critical than autonomy as a driver of knowledge sharing and creation (STAPLES; WEBSTER, 2008).

Worker's lack of consciousness may negatively affect the intention to share knowledge, consequently guiding to a weak decision-making and communication in organizations. Also, it limits the organization in some aspects like the ability to refuse

external risks, implement innovation and managing risks (ISRAILIDIS et al., 2015). This result implies that more complex levels of consciousness and values are needed to cope with the volatility, uncertainty, complexity and ambiguity increasing, typical of the new industrial environment.

Finally, it wasn't possible to identify a study aimed in the analyse of the impact of team member values on different teams' designs effectiveness in terms of knowledge sharing and creation, what represents an important literature gap to be explored in subsequent researches.

CONCLUSION

One of the main limitations of this study is the data collection period (2000 to 2015); however, these time limits were established in order to identify the most recent literature and practices on the shop floor, what diminishes its impact. To identify the quantitative and qualitative evolution of the measures and practices, it would be necessary to carry out a longitudinal study of the literature, which deviates from the focus of this particular work. Another limitation is with regard to the databases used and the ability to access them, what have been mentioned before in the Method section.

It was possible to identify in the literature many works emphasizing how human values affect teams and their performance regarding knowledge management. Furthermore, the impacts knowledge sharing and management have on organizational performance is the focus of many of the identified papers. Finally, it was also possible to find many works on the interplay of organizational and teams design, knowledge management and sharing and human values. Nevertheless, there was no paper focusing on how human values impact on teamworking design and management in order to maximize knowledge management on the shop floor. Despite the fact that nine different categories of studies were identified, all of them were focused on the interplay of only two of the three variables that were the focus of this research. This finding alone represents the accomplishment of research's main objective, i. e., identifying a gap in the literature.

Furthermore, the study provided many insights into the terms most used for its three main variables. For example, it was realized that the term "self-managed teams" refers to all types of teamwork without a formal supervision defined by the management level.

For future work, it is suggested that the categories defined in this study can help organize other knowledge management, teamworking and workers values studies. Furthermore and most of all, it is suggested that the interplay of team members' values and teamwork design and their impact on knowledge management performance on the shop floor constitutes a new field of study in the area.

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