

Conflict Management Styles and Knowledge Management Cycle Categories: Theoretical Analysis with Application

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Abstract: The aim of this study is to analyze the relationship between conflict management styles and knowledge management cycle categories. This question is relevant because it is important to verify whether the way organizations and groups manage knowledge is related to the way they manage conflict and relationships. The research is based on theories of conflict management (Deutsch, 1980), and knowledge management (Nonaka and Takeuchi, 1995). The relationship is measured through a quantitative study, using confirmatory factor analysis, on two already validated scales. The sample was composed by 381 respondents and we validated 330 questionnaires. We had two main hypothesis exploring the biunivocal relation between types of knowledge management and types of conflict management. We used four types of knowledge management, namely Capturing, Organizing, Refining and Transferring. We used five types of Conflict Management namely Collaborating, Accommodating, Compromising, Competing and Avoiding. All the nine scales were submitted to validation. Refining and Transferring were not validated. After factorial analysis we conclude that the KM cycle is indeed related to conflict management, and in particular, more integrative ways of managing conflict are related to a higher level of knowledge-management-related activities. This finding reinforces the notion that KM is based on dialogue, as put forward by Nonaka's concept of Ba (Nonaka and Konno, 1998). The study is original because KM and Conflict Management are two fields which have not so far been linked and studied together. The study is limited in that the sample was composed of a small number of individuals; confirmation of the results is needed using a larger sample.

Keywords: Conflict management, Knowledge management cycle, Empirical study

1. Introduction

Organizations are flows of relations. Those relations may be more or less cooperative or conflictual. Conflict management is therefore an essential activity in organizations. Organizations are also knowledge. And knowledge also flows. These flows may be smaller or greater, and their density and activity are extremely important in determining the success of organizations.

In any negotiation, the three vertices of the triangle of success are power, information and time: therefore, whoever has more and better information has more power. Quite interestingly, in the Knowledge Management (KM) community, people are so centered on success that they do not take conflict resolution as seriously as a matter of study. At the same time, conflict managers center themselves on psychological traits and not so much on the importance of knowledge. Therefore, strangely enough, the relationship between conflict management and knowledge management remains a largely unexplored field in scientific literature. Only a few exceptions exist to this rule (see 2.3). This fact is surprising given the importance of both conflict management and knowledge management, both in organizations and in science. Therefore, in this paper we aim to fill the research gap between conflict management and knowledge management, and to test it empirically. Consequently, the research question is: how does Knowledge Management as defined in the knowledge cycle, relate to conflict management styles? The question is first analyzed through a literature review (section 2), which is then put into practice using the methodologies described in section 3, producing the results shown in section 4. Those results are discussed in section 5, and concluding comments are presented in section 6.

2. Literature Review

In this section we first discuss the concept of conflict management (2.1) addressing first the notion of conflict (2.1.1) and then conflict management styles (2.1.2); we then explain the concept of knowledge management (2.2) beginning also likewise with the notion of KM (2.2.1) and then defining styles of knowledge management (2.2.2). The section ends with a discussion of the theoretical relation between conflict management styles and knowledge management styles (2.3).

2.1 Conflict Management

2.1.1 The notion of conflict

Deutsch (1980) states that "*we stand before a conflict whenever any incompatible activity exists*". Thomas (1976) and Van de Vliert (1993) enhance this definition when they underline that conflict is a process that starts when one partner perceives that the other partner has frustrated or will frustrate their interests. Pruitt e Rubin (1986), on the other hand, see conflicts as arising from a divergence of interests or from the belief that the wishes of the partners cannot be achieved simultaneously. Along a similar line of thinking, Bercovitch (1984) mentions that conflict is the perception of incompatibility between two or more partners and the variety of behaviors associated with this perception.

In the classical conception of conflict management (Monteiro, 2010), conflict is considered prejudicial – a fact that promotes the avoidance management style to avoid confrontation (see below). However, many authors feel that conflict also has a positive side. Monteiro (2010) states that conflicts can create an effective antidote against inertia and can build curiosity and interest. Thus, conflict may eventually become the most trusted means to clarify and debate matters, as through it organizations may find solutions for problems; conflict may also be a source of personal and social change. Also, Carvalho, (2016) states that "*the decision-making process occurs when positions diverge*".

Baron (1984) addresses conflicts as a two-sided phenomenon. On the positive side, the development of new ideas and careful weighing of the critical problem can be included; on the negative side, blocking of communications and a lesser ability to search for other viewpoints are to be found — besides, the creation of negative stereotypes increases. Brown (1983) uses the curve of the Yerkes–Dodson law, in which an inverted U represents the relationship between the quantity of conflict and the results obtained. Thus, either a very low or very high level of conflict produces negative results for organizations.

2.1.2 Conflict management styles

To settle conflicts and, thus, benefit from their good side, one must manage them. Everyone has a typical behavior during a conflict. For Kumar et al. (2009) each person's conflict management style is the "*sum of the ways someone acts and reacts in interpersonal relationships to satisfy the needs that caused the conflict*". For Weingart (2007), the different behaviors during the conflict are caused by the social motivations that influence each negotiator. Mintu-Wimsatt (2002), suggests that conflict management style is the result of each individual's personal traits taking into account their social background. Each negotiator's individual differences such as gender, age, beliefs, set of values, experience, as well as their experience and personality, strongly influence the negotiation (McIntyre, 2007). Torres (2012) assumes that the most significant impact on conflict management styles lies in the negotiator's personality. Thus, everyone's conflict management style is made up of their personality together with their life's background. The analysis and identification of the conflict management styles used by each negotiator is information of great importance for those who lead the negotiation process. It is particularly essential for foreseeing their opponents' actions (Kumar et al., 2009; Monteiro, 2010; Schein, 2003).

In this context, it is decisive to bear in mind that there is vast research on conflict management styles. This means there is a large body of styles to be studied. In many cases, the differences between the proposed models and styles are in name only, not in essence (Melo, 2019). The approach proposed by Vliert and Euwema (1994) is the one that presents the fewest limitations among all those that exist.

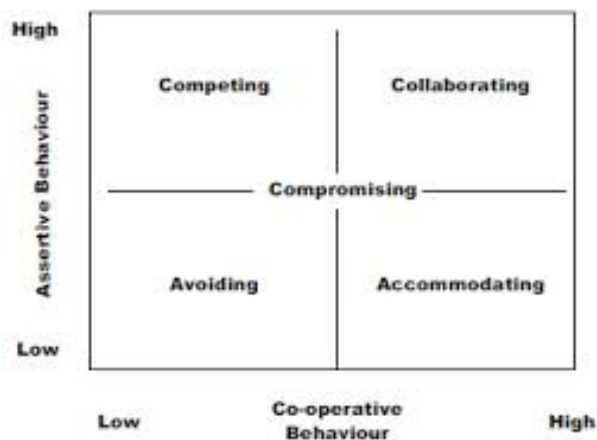
Accordingly Vliert and Euwema (1994) defined five types of conflict management: Obliging, Avoiding, Integrating, Dominating and the Compromising. The five styles are defined as follows:

1. The Obliging or Accomodating style is characterized by acting in accordance with the opponents' wishes, following their suggestions and accepting concessions.

2. The Avoiding style shows behaviors such as trying to postpone decisions so one can study them better; trying to make the issue seem irrelevant, or asking meaningless or out-of-context questions to end the dialogue.
3. The Integrating or Collaborating style tries to find a solution that satisfies both parties and always displays an eagerness to obtain information that allows a precise approach to the issue. It also includes a two-party analysis of the situation and the integration of both parties' self-satisfying goals to look for a mutually accepted solution.
4. The Dominating or Competing style acts to achieve self-satisfying goals that harm the opponents' wishes and objectives. Within this style, there are two main types of action: either the direct fight, whereby one tries to bring down the opponent's objectives and force them to offer concessions, or the indirect fight. In the latter, the actions do not express a head-on confrontation; instead, one may purposefully deviate the theme of the conflict.
5. Finally, the Compromising style displays an intermediate interest in one's own and the opponent's goals. This style implies an exchange of concessions to reach a mutually acceptable intermediate position.

The Accommodating, Competing, Compromising and Collaborating styles are all considered styles that seek to resolve the conflict, although they have different goals and consequently, different resolution strategies. The Avoiding style, on the other hand, does not seek to resolve the conflict, but rather to avoid it. In the negotiation context, it is considered that resolving the conflict through the Accommodating, Avoiding and Competing styles generates loss of value to both parties. The conflict resolution through the Collaborating style, on the other hand, generates value for both parties. Resolving the conflict through the Compromising style does not generate consensus regarding the generation of value, with some authors considering that it generates loss of value, as is the case with Fisher, Ury, and Patton (2003), and others considering that it generates some value for both parties.

An illustration of these 5 styles, Rahim and Bonoma (1979), is shown in figure 1, above:



Source: (Rahim and Bonoma 1979)

Figure 1: Conflict Management Styles

Quite crucially, it is important to note that, at the practical level, the model has many advantages. One is the use of observation as a methodology applied to the analysis of conflict management styles, which deals with behaviors rather than personal inclinations. Another is that it offers an observation methodology to analyze those styles. Yet another is that it clearly defines those styles under the dualities of active/passive and pleasant/unpleasant. It takes into account the diversity of existing behaviors, particularly in the case of the domineering style. Within these two dualities of behavior, there is a vast diversity of possibilities covering conflict management.

2.2 Knowledge Management

2.2.1 Notion

Knowledge is a concept as old as Humanity; in fact, humans developed and became what we are today because of knowledge. But Knowledge Management (KM) only became an important branch of science after the third

industrial revolution. The main concepts are data (raw facts), information (organized data), knowledge (understood information), and wisdom (a the ability to make sound judgments about a subject). KM draws on tacit knowledge and explicit knowledge. Tacit knowledge is personal and private, exists in people’s minds, is unique, hard to formalize, difficult to communicate, and is generated through experience and acquired on the job; explicit knowledge is codified, shared, available to everyone, systematic, formal, articulated communicable and captured (Collins, 2012). Several other factors have also been defined in KM, namely that Technology, People and Processes matter (Edwards. 2011).

2.2.2 The knowledge cycle

Knowledge is essentially a very dynamic asset. Nonaka and Takeuchi (1995) described the SECI model showing that knowledge is socialized, externalized, combined and internalized. Another very important concept is Ba (Nonaka and Konno, 1998), which holds that KM implies a degree of dialogue, with other individuals or within ourselves. Another important model (Probst, 1998) defines Identification, Use, Acquisition, Preservation, Developmet and Dissemination. Important papers have analyzed each of these phases, namely creation (Dang et al., 2019), acquisition (Al-Emran et al., 2020), use (Tingting and Galleta 2012), sharing (Rouyre et al., 2019), transfer (Nurye et al., 2019), transformation (Gao and Lloyd, 2020), unlearning (Cegarra-Navarro et al., 2013) and renewal (Ben-Said and al, 2016).

In this paper we try to relate the phases of the knowledge cycle, as defined in this sub-section, with the styles of conflict resolution, as defined in 2.1.2

2.3 Known Studies

We performed a search in the B-On database (B-On), combining the keywords “Knowledge Management” and “Conflict Management”. We also selected “Academic Journals” published in the English language. We ended with 68 papers. We did not find any joint application of the Van de Vliert (1993) model and Nonaka’s (Nonaka and Takeuchi 1995) SECI model, or any of its variants, as defined in Figures 1 and 2.

The closest study we found was from Velthuisen (2011), who at least tried to bring together knowledge management and conflict resolution. Significantly, Velthuisen, (2011), found that merging traditional knowledge practices with more modern knowledge management practices, provides a valuable framework for using knowledge management for conflict resolution. Very recently, Guo and al., (2019), studied cross-functional project teams in China and concluded that the relationship between cognitive conflict and innovation is moderated by knowledge leadership. Furthermore, task-related information/knowledge elaboration and affective conflict are two processes manifesting whether cognitive conflict can or cannot be incorporated into team innovation, and they create the aforementioned moderating effect. Also, very recently, Wang et al. (2019) found that efficient and effective KM can minimize losses from contract changes and disputes.

The fact that we did not find any study relating the two main models just described is a very good indication of the knowledge gap that exists, and of the “scientific and intellectual divorce” that has existed between the two areas. In the next subsection, we explain this problem in more detail.

2.4 Theoretical Model

As a result of the forgoing, we arrived at two distinct concepts, as defined in Table 1, and identified a conceptual gap between them:

Table 1: Knowledge Management and Conflict Management

	Knowledge Management	Conflict Management
Author	Nonaka	Van der Vliert
Main Concept	Knowledge cycle	Conflict Management Styles
Objective	Manage knowledge	Manage conflict
Result	Sharing, transfer etc	Who manages conflict
Main focus	Companies	Companies
Conceptual root	Operational behaviour related to knowledge	Personel behavior
Measurement method	Likert scales	Likert scales

Source: Own work.

On one hand we have knowledge management, based on Nonaka and dealing with what happens in the knowledge cycle. The analysis seeks to manage knowledge and achieves results when it is found that knowledge is shared, transferred, acquired, captured, used, created, etc. These operations are seen as organizational benefits, and the analysis is essentially made for companies (Paez and Dongcheol, 2020) and other organizations (Balasubramanian, 2020), but also for individuals (Ishakand Mansour, 2020), sectors (Bathelt, 2014), countries (Xiabo et al., 2006) or regions (Brito et al., 2017). Therefore, Likert scales are used to measure operational behavior related to knowledge.

On the other hand, we have conflict management, based in Van der Vliert's analysis and dealing with styles of conflict management. This means that a negotiator may compete, collaborate, accommodate, avoid or compromise. The analysis is done at the level of individuals (Dreu et al., 2017). Likert scales are used to measure individual behavior linked to conflict.

It seems that it never occurred to knowledge managers to see how they can help resolve conflicts, and it also seems that it never occurred to conflict managers to see whether the way they use knowledge could benefit their actions. This is quite surprising, because we know that we live in a knowledge economy and that organizations fight a great deal over knowledge.

This gap might have originated because, on one hand, knowledge managers are not very interested in studies related to any kind of conflict, and they are too focused on performativity; and on the other hand, knowledge is not seen as fundamental basis for conflict management. As a consequence, two models that emerged at almost the same time, were never put together as they should have been, despite the enormous synergy that could have been derived, and indeed became competing categories, The situation is even more extraordinary because the focus of both models is the same – i.e., the companies.

3. Methods and Data

3.1 Scales

Regarding conflict scales, we use the DUTCH tool, which operationalizes the Van de Vliert and Euwema (1994) model. It is based on a questionnaire of twenty questions, four for each negotiation style, with replies given according to a seven-point Likert-type scale. The style that obtains the highest number of points shows the interviewed person's negotiation style, as validated by Dreu et al. (201).The five styles in question are Competing, Collaborating, Avoiding, Accommodating, and Compromising (Van de Vliert and Euwema,1994). We used four questions for each style and a 7 point Likert Scale (1 being Strongly disagree and 7 being Strongly agree).

Regarding the types of knowledge behavior, we use an adaptation of Huslinda et al., (2012). Those authors defined and validated four types of behavior in universities. We translated the questionnaire from English to Portuguese and adapted from the University environment to a business environment. The styles considered are the following: Capturing, Organizing, Refining, and Transferring (Huslinda et al., 2012). We used 6 questions for each style and a 7 point Likert Scale (1 being Strongly disagree and 7 Strongly agree).

3.2 Hypothesis

As a result of what was previously said we ended up with two main hypotheses:

Hypothesis 1 – Different conflict management styles originate different knowledge management behaviors. This means that certain relations between styles and management should be found, and this relationship exists because conflict management styles should originate different ways of managing knowledge. Namely, we may suggest that conflict management styles based in collaboration would require higher levels of knowledge management than the more assertive styles, because knowledge management is based in dialogue; also, more assertive types of conflict resolution should have higher levels of capturing and organizing, while more collaborative styles should have higher levels of refining and transferring. The integrative style of conflict management, due to its diffuse and complex character, would not originate any precise tendency on knowledge management.

Hypothesis 2 – Different types of knowledge management lead to different types of conflict resolution; namely, a knowledge management strategy based on organizing and capturing, and therefore involving more isolated and less dialogue-prone practices, would lead to less cooperative conflict management styles, such as avoidance and competition. In contrast, a knowledge strategy based on refining and transferring would lead to conflict management based on collaboration and accommodation. The

integrative style would result from a balanced type of knowledge management in which no specific style would prevail.

The bi-univocal type of relationship described above is explained by the exploratory nature of this study.

3.3 Data

The data collection consists of three questionnaires: demographic, knowledge management, and conflict management style. It uses the online form of Google Forms, which allows only one response per individual and whose link, sent by e-mail to the respondents, allows them to respond anonymously and confidentially is. Respondents were recruited by distributing the questionnaire link via electronic message to the professional contacts of the researchers, with a request that they also share it with their own professional contacts. The questionnaire has a single version, in Portuguese. The response period ran from April 26, 2019 to May 29, 2019. 381 individuals answered the questionnaire. We obtained 330 validated questionnaires.

4. Results

4.1 Distribution of Cases per Types of Conflicts

For each one of the 330 answers the set of 20 answers related to types of conflict management was analyzed. We ended up with the following distribution of cases (see Table 2 below):

Table 2: Cases per type of conflicts

	Collaborating	Accommodating	Compromising	Competing	Avoiding	Mixed
Age						
18-30	17	6	7	5	2	13
31-40	23	8	8	4	0	21
41-50	32	11	18	7	1	32
51-60	37	11	11	6	2	21
60 +	8	6	4	2	0	6
Gender						
Female	44	19	24	8	1	46
Male	73	14	24	16	5	47
Literacy						
Secondary	13	6	3	7	0	21
Graduation	35	17	17	9	2	24
Pos-Grad	18	5	12	2	0	23
Masters	41	9	11	5	3	18
PhD	10	5	5	1	1	7
Sector						
Private	83	13	35	23	5	90
Third Sector	5	4	1	1	0	3
Public	29	6	11	0	1	0
Size of company						
Micro	18	3	1	1	0	9
Small	18	10	10	2	0	16
Medium	18	9	11	8	0	23
Large	46	17	20	11	3	34
Selfwork	13	2	6	2	3	7
Skills						

	Collaborating	Accommodating	Compromising	Competing	Avoiding	Mixed
Middle manager	30	16	19	8	0	36
Top manager	72	18	20	12	5	36
Other	13	9	9	4	1	20
Total	117	44	48	24	6	93

Source: Own work.

4.2 Distribution of Cases per Type of Knowledge Management

Also for each type of the 330 answers the set of 24 answers related to knowledge management was analyzed. We ended up with the following distribution of cases (see Table 3 below):

Table 3: Cases per Knowledge Type

Styles of Knowledge Management	Capturing	Organizing	Refining	Transferring
Age				
18-30	3	31	2	12
31-40	11	28	1	15
41-50	13	54	1	26
51-60	12	43	1	18
60 +	6	8	0	6
Gender				
Female	19	76	3	30
Male	26	88	2	47
Literacy				
Secondary	6	18	3	15
Graduation	12	56	0	23
Pos-Grad	6	28	0	19
Masters	12	51	2	15
PhD	9	11	0	4
Sector				
Private	29	123	4	62
Third Sector	2	8	1	3
Public	14	33	0	12
Size of company				
Micro	5	16	1	9
Small	5	24	2	18
Medium	10	29	1	18
Large	17	76	1	24
Selfwork	5	16	0	6
Skills				
Middle manager	14	52	3	28
Top manager	22	85	1	34
Other	8	24	1	15
Total	44	161	5	77

Source: Own work.

4.3 Socio-demographic Characteristics of the Sample

The sample of respondents was essentially middle-aged, with almost one-third of them being between 41 and 50 years of age, a bit more than one-quarter being older, and a bit more than one-third being younger (Table 4, columns 1 and 2). Men were more represented than women, by a margin of 14 percentage points – 57 to 43 (Table 4, columns 3 and 4). Almost one-third of the sample were Bachelor's graduates, and only less than one-sixth had less than a Bachelor's degree as their highest academic qualification- therefore, we may say that the sample had high academic level. This idea is reinforced by the fact that almost one-fifth of participants had post-graduate degrees, more than one-quarter had master's degrees, and almost one-tenth had doctorates (Table 4, columns 5 and 6).

Table 4: Socio-demographic Characteristics of the Sample

Age (years)	%	Gender	%	Literacy	%
18-30	15.1	Male	57.1	Less than bachelor	15.1
31-40	19.6	Female	42.9	Graduate	31.4
41-50	30.8			Post-graduate	18.1
51-60	26.6			Master	26.3
				PhDs	9.1

Source: Own work

The vast majority of participants (almost 3 in 4) work in the private sector, a much smaller number (1 in 5) work in the public sector, and a residual number (1 in 20) work in the private and non-profit sector (Table 5, columns 1 and 2). Large organizations (with number of workers greater than 250) had the largest share of respondents: 2 in 5. Medium-sized organizations (with a number of workers between 50 and 250) came next, with 1 in 5, followed by small organizations (with a number of workers between 10 and 50) with 1 in 6. Finally, 1 in 10 of the respondents were independent workers, and another 1 in 10 worked in organizations with fewer than 10 workers (Table 5, column 3 and 4). Finally, almost half of the respondents were from upper management, and almost one-third were middle managers.

Table 5: Socio-demographic Characteristics of the Sample (Continued)

Sector	%	Size of organization	%	Professional Qualifications	%
Private non-profit	4.5	Independent	10,0	Middle Management	32.9
Private profit	74.1	Micro	10,0	Upper Management	49.2
Public	21.1	Small	16,9	Other	16.9
		Medium	20,8	NA	0.9
		Large	40,2		
		NA	2,1		

Source: Own work

We therefore conclude that the sample was mostly composed by middle-aged men, working in rather large companies in the private sector, and with high levels of education, correspond a high level in the hierarchy.

4.4 Validation of Scales

In order to proceed with the analysis relating conflict management and knowledge management scales, we first validated the two types of scales:

4.4.1 Conflict management style

We used SPSS software to perform a confirmatory analysis to the 5 types of scales, with the following results(see Table 6 below):

Table 6: Validation of Conflict Management Styles

Styles of Negotiation	Cronbach alfa	Average	Variance	Coefficient of Variation (%)	Significance F
Collaborating	0.730	5.286	0.110	6.3	0.023
Accommodating	0.709	4.507	0.414	14.3	0.000
Compromising	0.736	5.633	0.067	4.6	0.000
Competing	0.706	4.950	0.168	8.3	0.000
Avoiding	0.732	4.650	0.111	7.2	0.000

Source: Own work.

Note: N=328 and number of items in each factor is 4, except regarding the Compromising Scale for which the values were obtained after deleting question 4, and regarding the Avoiding Scale for which question 3 was deleted.

The dominating style among respondents was Compromising, followed by Collaborating and then Competing. The styles with the lowest averages were Avoiding and Accommodating. All five styles had very high levels of F statistic with Collaborating showing a slightly lower significance than the other four styles. The variance among the averages of the items that represented each scale was very low (less than .2) for four of the scales, with a maximum of .41 for the accommodating scale. The coefficients of variation (standard deviation divided by average) of the various items in the scales were small, representing a high degree of stability in the observations.

Therefore, we conclude we may use the five scales, with two adjustments for Compromising and Avoiding, in order to test the relationships between Conflict Management and Knowledge Management as stated in the Hypothesis above.

4.4.2 Knowledge management scales

We used SPSS software to perform a confirmatory analysis to the 5 types of scales, with the following results (see Table 7 below):

Table 7: Validation of Knowledge Management Styles

Styles of Negotiation	Cronbach alfa	Average	Variance	Coefficient of Variation (%)	Significance
Capturing	0.685	4.913	0.084	6.0	0.000
Organizing	0.701	5.363	0.306	10.3	0.000
Refining	0.346	3.561	2.286	42.5	0.000
Transferring	0.455	4.589	1.771	29.0	0.000

Source: Own work.

Notes: N is 317, and number of items is 6, with the exception of the Organizing Scale, for which we dropped item 6.

The respondents' behavior was essentially related to organizing, then capturing, then transferring and least of all, refining. The data on the scales with the two lowest levels were very diverse and not reliable.

Due to the results obtained, we dropped the Refining Scale and the Transferring Scale from the next step of analysis.

4.5 Relation between Conflict Management and Knowledge Management

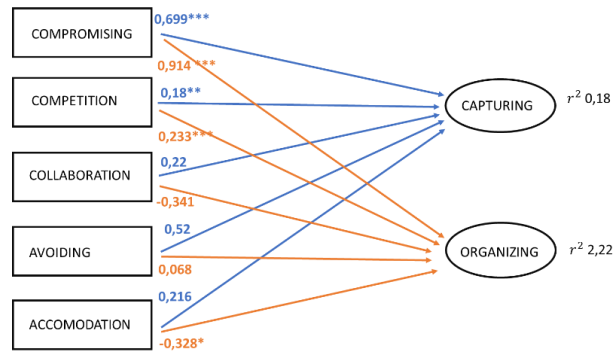
4.5.1 Factor computation

In order to extract values for the factors to be used in this analysis, we began by performing a Confirmatory Factor Analysis, using SPSS AMOS software, on a model in which the five scales of conflict management (ACCOMODATING, COLLABORATING, COMPETING, COMPROMISING, and AVOIDING) were each composed of four items, with the exception of Avoiding and Compromising, which had one item deleted, as described in the scales section, 4.1.1. We obtained a model significant a probability of 0.000, a Chi-square value of 403.935, and 126 degrees of freedom. Values for the fit indices were CFI = 0.858, TLI = 0.804, RMSEA = 0.082.

After that, we performed the same operation, using the same software, on the knowledge management scales, bearing in mind that we had decided not to use Refining and Transferring scales and that we had also reduced the Organizing scale by one item. With those restrictions, we obtained a model significant at a probability of 0.000, a Chi-square value of 121.310, and 44 degrees of freedom. Values for fit indices were CFI = 0.890, TLI = 0.834, RMSEA = 0.073.

4.5.2 Conflict management as a cause of knowledge management

We then proceeded to estimate a structural equation model with SPSS AMOS, in which the five types of conflict management explained the two types of knowledge management, as in the following figure, Figure 2.



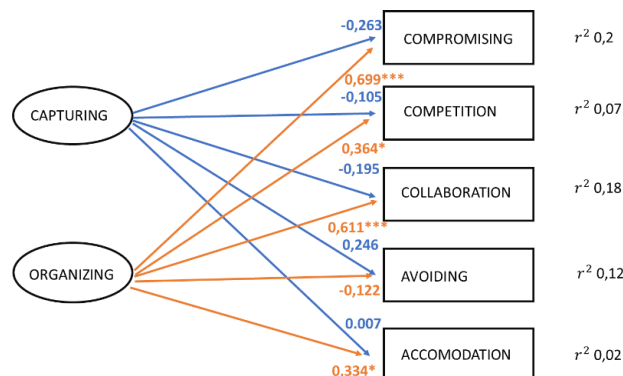
Source: Own work

Figure 2: Conflict Management as Cause of Knowledge Management

The results show that, in our sample, the Organizing style was explained by three types of conflict management, namely Compromising and Competing, and Accommodating, the latter being negatively related and weaker. Furthermore, the Capturing style was explained by Compromising, and also, to a lesser extent, by Competing. Both knowledge styles were explained to around 20 percent by the five conflict management types- figures that, not extraordinary, are at least interesting.

4.5.3 Knowledge management as a cause of conflict management

We then proceeded to estimate a structural equation model with SPSS AMOS in which the two types of knowledge management, explained the five types of knowledge management as in the following figure 3.



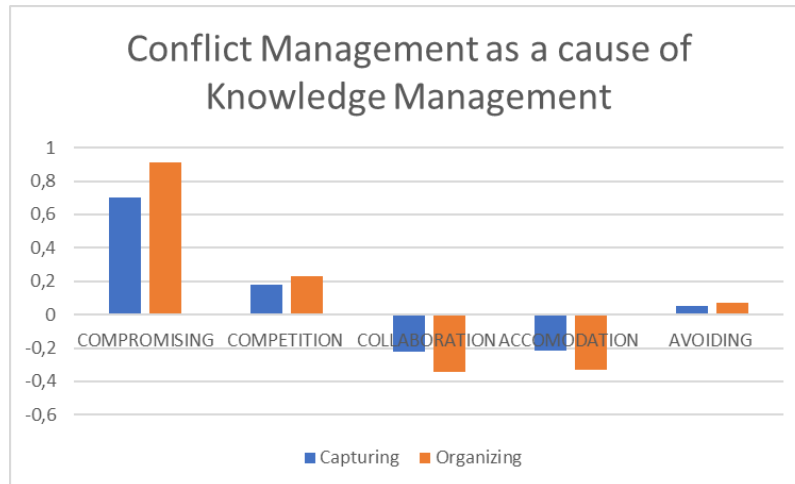
Source: Own work

Figure 3: Knowledge Management as a Cause of Conflict Management

The results suggest that Organizing style of knowledge management has an effect on the negotiation styles of conflict management: this effect is higher for the Compromising and Collaborating styles, is small and not very significant for the Competition and Accommodation styles and is not significant for the Avoiding style. We did not find any statistically significant influence of the Capturing style in the negotiation style. Knowledge management styles explain around 20 percent of the variation in the Compromising and Collaboration styles, a bit more than 10 percent of the variation in the Accommodation style, a bit more than 5 percent of the Competition style, and almost nothing in the Avoiding style.

5. Discussion

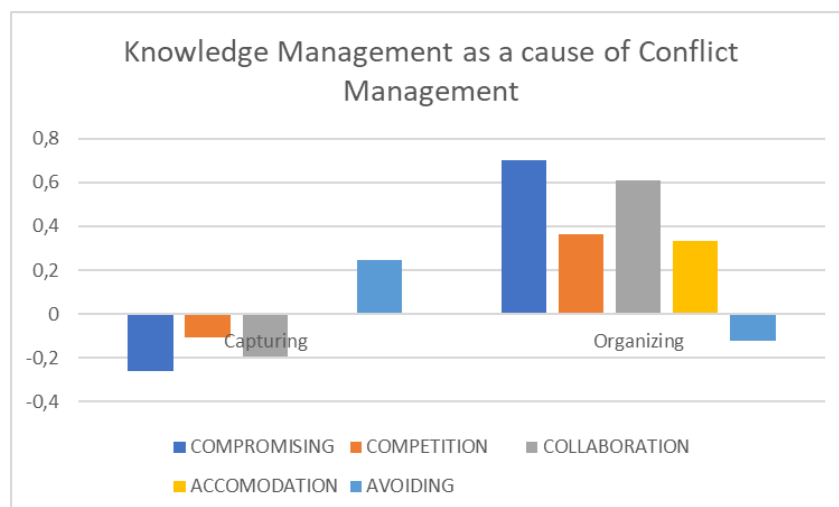
The conflict management styles that are more related with the self-interest, or that avoid conflict, seem to be those that generate more KM activities. On the other hand, the conflict management styles that show more concern for the other party, contribute negatively to KM behaviors. The management style that usually generates more value (Collaboration) seems to be the one that generates the least KM. On the other hand, management styles that are recognized as generating a loss of value (Compromising, Competition, Avoiding), are the ones associated with more KM practices. The situation is shown in Figure 4:



Source: Own work

Figure 4: Conflict Management as a cause of Knowledge Management

On the other hand, KM has an opposite impact on Avoiding, as opposed to the other conflict management styles. Capturing contributes negatively to the styles that are more intensely related with problem solving, and it has a greater effect on the styles that are more concerned with solving both parties' problems (Collaborating e Compromising). Furthermore, Capturing contributes positively to the style that avoids solving problems, and to the one that usually generates more value (Collaborating). This seems to be aligned with the idea that KM is basically about sharing, and that value is created through dialogue – Capturing being the inverse of both these practices. This also seems to suggest that Organizing in KM stimulates management styles that are concerned with problem solving. The effect is greater for the styles that tend to satisfy both parties involved in the conflict, that is, the resolution of problems for both parties (Collaborating e Compromising). But above all, it stimulates the conflict management styles more focused on resolution and discourages non-resolution. Therefore, it seems that Organizing creates value and is meant to satisfy the both sides of the negotiation. The situation is shown in Figure 5, below:



Source: Own work

Figure 5: Knowledge Management as a cause of Conflict Management

For managers, the results mean that we have here some insights on how to manage conflict better, wasting less energy and time. For scholars, the results raise questions about pre-existing theory. This is a first exploratory study. We suggest it should be redone with a larger sample and refined scales on KM.

6. Conclusions

Our findings suggest that Organizing Knowledge Management has a positive and significant impact on most of the negotiation styles, above all Compromising and Collaborating. We also found that Compromising and Collaborating in negotiation have a significant and positive association with Organizing Knowledge Management. We suggest that a much larger study should be conducted, and a book should be written on this topic of the paper. The book would develop some loose ends that we had to leave unsolved due to length and time restrictions in this initial paper. The book would have two parts – one theoretical and the other empirical. In the first part, a detailed conceptual study linking conflict management and knowledge management should be undertaken. In the second part, data from a qualitative and quantitative analysis of the relationship we have just proposed and briefly surveyed should be presented. As a final thought, we sincerely believe that, more than in many cases, this paper is a beginning and not an end of a large adventure in social research - one to be pursued by us, but essential for other academics as well.

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AI Declaration: No artificial intelligence was required for this paper.

References

- Al-Emran, Mostafa; Teo, Timothy (2020) Do knowledge acquisition and knowledge sharing really affect e-learning adoption? An empirical study. *Education & Information Technologies*, May 2020, Vol. 25 Issue 3, p1983-1998, 16p
- Balasubramanian, Sreejith; Al-Ahbab, Sultan; Sreejith, Sony. (2020) Knowledge management processes and performance: The impact of ownership of public sector organizations. *International Journal of Public Sector Management*. 2020, Vol. 33 Issue 1, p1-21. 21
- Baron, R. A. (1984). *Behaviour in Organizations: understanding and managing the human side of enterprises*. Boston: M.A
- Bathelt, Harald; Golfetto, Francesca; Rinallo, Diego (2014) Knowledge Dynamics in Export Shows: The Affirmation of the Italian Furniture Industry In: Bathelt, Harald; Golfetto, Francesca; Rinallo, Diego; Trade Shows in the Globalizing Knowledge Economy, 2014, ill.; Oxford: Oxford University Press, 2014
- Ben-Said, Anis; Shahzad, Muhammad; Zama, Eric; Hubac, Stéphane; Tollenaere, Michel. (2016) Experts' knowledge renewal and maintenance actions effectiveness in high-mix low-volume industries, using Bayesian approach. *Cognition, Technology & Work*, Feb 2016, Vol. 18 Issue 1, p193-213, 21
- Bercovitch, J. (1984). Problems and approaches in the study of bargaining and negotiation. *Political Science*, 36 (2), 125-145
- Britto, Lydia Maria Pinto; da Silva, Naeldson Expedito Alves; de Castro, AHIRAM BRUNNI CARTAXO;
- Brown, L. D. (1983). *Managing conflict at organizational interfaces*. Reading, MA: Addison-Wesley.
- Carvalho, J. C. de. (2016). *Negociação (5a Edição)*. Edições Sílabo.
- Cegarra-Navarro, Juan-Gabriel; Martinez-Martinez, Aurora; Gutiérrez, Jaime Ortega; Rodríguez,
- Collins, H. (2012) *Tacit and explicit knowledge*. University of Chicago Press.
- Dang, Chau Ngoc; Le-Hoai, Long (2019) Relating knowledge creation factors to construction organizations' effectiveness: Empirical study, *Journal of Engineering, Design & Technology*, 2019, Vol. 17 Issue 3, p515-536, 22p.
- Deutsch, M. (1980). Fifty years of conflict. In L. Festinger (Ed.), *Retrospections on Social Psychology*. New York: Oxford University Press.
- Dreu, C. K., Evers, A., Beersma, B., Kluwer, E. S., W De Dreu, C. K., & Nauta, A. (2001). A Theory-Based Measure of Conflict Management Strategies in the Workplace. *Nauta Source: Journal of Organizational Behavior Journal of Organizational Behavior J. Organiz. Behav*, 22(22), 645-668.
- Dreu, Carsten K. W.; Kluwer, Esther S.; Euwema, Martin S.; Van der Vegt, Gerben S.. (2017) Conflict and Culture Across Time and Space: Work and Legacy of Evert van de Vliert. *Negotiation & Conflict Management Research*, May 2017, Vol. 10 Issue 2, p141-152,
- Edwards, John S. (2011). A process view of knowledge management : it ain't what you do, it's the way that you do it. *Electronic journal of knowledge management*, 9 (4), pp. 297-306.
- Fisher, R., Ury, W., & Patton, B. (2003). Como Conduzir uma Negociação? *Comunicação / Ação*, 224.
- Gao, Ruomei; Lloyd, Judith. (2020) Precision and Accuracy: Knowledge Transformation through Conceptual Learning and Inquiry-Based Practices in Introductory and Advanced Chemistry Laboratories, *Journal of Chemical Education*, v97 n2 p368-373 Feb 2020.
- Guo, Haiyan; Zhang, Lianying; Huo, Xiaoyan; Xi, Guannan (2019) When and how cognitive conflict benefits cross-functional project team innovation: The importance of knowledge leadership. *International Journal of Conflict Management (Emerald)*. 2019, Vol. 30 Issue 4, p514-537. 24p.
- Haslinda Sutan, Ahmad Nawi, Nur Syufiza. Ahmad Shukor, Suzana Basaruddin, Nasrudin Md Rahim, Rohaya Abu Hassan, Kamaruzaman Jusoff (2012) Determining The Existence Of Knowledge Management Processes Among Academicians

- Journal of Knowledge Management Practice, Vol. 13, No. 2, June 2012. <http://www.tlinc.com/article299.htm> As assessed on May 19th 2020.
- Ishak, Rosnah; Mansor, Mahaliza. (2020) The Relationship between Knowledge Management and Organizational Learning with Academic Staff Readiness for Education 4.0 Eurasian Journal of Educational Research, n85 p169-184 2020
- Kumar, M., Rai, H., & Pati, S. P. (2009). An Exploratory Study on Negotiating Styles: Development of a Measure. Vikalpa, 34(4), 37–50.
- McIntyre, S. E. (2007). Como as pessoas gerem o conflito nas organizações: Estratégias individuais negociais. (Portuguese), 25(2 OP-Análise Psicológica; Apr-Jun2007, Vol. 25 Issue 2, p295-305, 11p), 295.
- Melo, P. G. C. B. S. de. (2019). A utilização dos estilos de negociação como critério para a atribuição de clientes a vendedores. Universidade Europeia.
- Mintu-Wimsatt, A. (2002). Personality and negotiation style: The moderating effects of cultural context. Thunderbird International Business Review, 44(6), 729–748. <https://doi.org/10.1002/tie.10047>.
- Monteiro, A. P. dos S. (2010). Eficácia Negocial e Características Pessoais dos Negociadores. Universidade de Santiago de Compostela - Facultad de Psicología.
- Nonaka I. and Takeuchi K. (1995) The Knowledge Creating Company. Oxford University Press.
- Nonaka, I.; Konno, N. (1998) The concept of "Ba": Building foundation for Knowledge Creation. California Management Review Vol 40, No.3 Spring
- Nurye, Solomon A.; Molla, Alemayehu; Assefa, Temtim. (2019) Factors Influencing Knowledge Transfer in Onshore Information Systems Outsourcing in Ethiopian African Journal of Information Systems. 2019, Vol. 11 Issue 4, p279-29
- Paez, Oliver Ortiz; Dongcheol Heo. (2020) Exploring knowledge coordination in a distributed and highly interdependent knowledge firm: A case study of Thai Destination Management Company. Proceedings of ISPIM Conferences. 2020, p1-14. 14p.
- Probst G. (1998) Knowledge Management: a Model that Works. Prism Second Quarter 98 17-29
- Pruitt, D. G., & Rubin, J. Z. (1986). Social conflict: Escalation, stalemate, and settlement. New York: Random House.
- Rouyre, Audrey; Fernandez, Anne-Sophie (2019) Managing Knowledge Sharing-Protecting Tensions in Coupled Innovation Projects among Several Competitors California Management Review. Nov2019, Vol. 62 Issue 1, p95-120. 26p.
- Schein, E. (2003). The Ultimate Business Library, Wiley. (W. The Ultimate Business Library, Ed.).
- Thomas, K. W. (1976). Conflict and conflict management. In M. D. Dunnette (Ed), Handbook of Industrial and Organizational Psychology (889-935). Chicago: Rand McNally.
- Tingting Chung; Galletta, D (2012) Conceptualizing knowledge use: A theoretical framework and empirical study, 45th Hawaii International Conference on System Sciences System Science (HICSS), 2012 45th Hawaii International Conference on. :3949-3958 Jan 2012; IEEE
- Torres, S. C. (2012). Sandra Carvalho Torres Estilos de gestão construtiva de conflitos numa organização empresarial. Universidade Fernando Pessoa - Faculdade de Ciências Humanas e Sociais.
- Van de Vliert, E. (1993). Paths to constructive conflict management in organization. In L. Munduate & M. Barón (2005) (Orgs.). Gestión de Recursos Humanos y Calidad de Vida Laboral (pp. 13-29). Madrid: Eudema.
- Van de Vliert, E.e Euwema, M. C. (1994). Agreeableness and activeness as components of conflict behaviors, 66(4 OP-Journal of Personality and Social Psychology. April 1994, Vol. 66 Issue 4, p674, 14 p. table), 674.
- Velthuisen, A. G (2011) Best practices for the management of knowledge for conflict resolution: Lessons learned from the Great Lakes region of Africa. International Journal of African Renaissance Studies. Nov2011, Vol. 6 Issue 2, p118-131.
- Wang, Chen; Yap, Jeffrey Boon Hui; Wood, Lincoln C.; Abdul-Rahman, Hamzah. (2019) Knowledge modelling for contract disputes and change control. Production Planning & Control, Jun2019, Vol. 30 Issue 8, p650-664, 15p.
- Weingart, L. R. (2007). Negotiating Differences: How Contrasting Styles Affect Outcomes., Negotiaton, newsletter, January.

Appendix 1: Questionnaire

Part 1 Socio Demographic Data

1. What is your age *
2. Gender *
3. What is your level of education? *
4. What is your employment status? *
5. What sector do you work in? *
6. What is the size of the company you work for?
7. What is your job title?

Part 2 - Questionnaire about Knowledge Management

8. I discuss company management with my colleagues

9. I document my knowledge in writing (for example, through diaries, *notepads, slides, or module development).
10. Most of the time, I pass on my knowledge to my subordinates by sharing my experiences and knowledge with them.
11. When my colleagues come to me for advice on certain areas of my specialisation, I usually provide well-researched material.
12. Most of the time, when my colleagues approach me for advice on certain areas of my specialism, I share my knowledge verbally.
13. Most of my knowledge is acquired through reading (i.e. journals, books, or any other documented material in physical or digital format)
14. I am willing to share all my knowledge.
15. Not all my knowledge can be shared with my subordinates
16. Not all my knowledge can be shared with my colleagues
17. When a subordinate asks me about something that is not related to the planned strategy
18. If I am unable to answer questions asked out of context, I make an effort to look for solutions in printed materials at a later date
19. When a subordinate asks me about something that isn't part of the planning strategy, I decide not to answer, as it isn't relevant.
20. I only share my knowledge with my subordinates within the company.
21. I have personal blogs to share my knowledge with my colleagues *
22. I use my case file to find a solution when I am assigned a new case
23. I contact the experts when I am assigned a new case that is different from previous ones.
24. I use printed materials when I am assigned a new case that is different from previous ones
25. I make the most of technology in organisational processes.
26. I have no problem gathering my knowledge and analysing it
27. I can easily identify patterns or analyse scenarios based on my knowledge without having to use any IT tools
28. I use IT tools, such as Clementine, SPSS or SQL Server, to identify patterns or analyse scenarios.
29. I find it easier to analyse scenarios and identify patterns using tools than without them
30. If you are the group coordinator, do you produce any guidelines for use by colleagues dealing with the same issues?
31. I do not hold a formal or informal session to pass on my knowledge to any new colleague who needs my expertise

Part 3 Questionnaire on conflict management style

31. In the last conflict I managed, I did the following: Not at all Rarely Sometimes Almost always
32. I gave in to the other party's wishes
33. I tried to find a compromise
34. I imposed my point of view
35. I examined the issues until I found a solution that truly satisfied both myself and the other party
36. I avoided confrontations about our differences
37. I agreed with the other party
38. I insisted that we had to find a compromise

- 39. I sought to gain an advantage
- 40. I defended both my own objectives and interests and those of the other party
- 41. I avoided differences of opinion as much as possible
- 42. I tried to satisfy the other party
- 43. I insisted that we both make concessions
- 44. I fought for a good outcome for myself
- 45. I analysed the ideas from both sides to find an optimal solution for both of us
- 46. I tried to make the differences between both sides seem less stark
- 47. I adapted to the objectives and interests of both parties.
- 48. I strove whenever possible for a 50–50 compromise.
- 49. I did everything I could to resolve the conflict
- 50. I devised a solution that served both my interests and those of the other party as much as possible
- 51. I tried to avoid a confrontation with the other party