

East vs West: Satisfaction With Knowledge Sharing Among Millennials

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Abstract: Knowledge sharing (KS) among individuals working together is complex and has an effect on their satisfaction. We adopt the self-determination theory and the theory of reasoned action to examine the relationship between millennials' characteristics, KS and the resulting satisfaction. Using a mixed-method approach we address the antecedents of satisfaction in KS for 213 millennials attending Master programs in management at Polish and Portuguese business schools. The quantitative results show that knowledge characteristics influence KS as well as the fear of losing power due to KS. Knowledge complementarity and knowledge complexity positively contribute to KS. Knowledge complexity increases the fear of losing power due to KS, while knowledge complementarity decreases it, probably because individuals recognize complex knowledge as a more valuable one. The qualitative findings corroborate the quantitative results. Knowledge complementarity's presence alone leads to KS, while its absence and knowledge complexity's existence generate the fear of losing power. KS behavior and not being afraid of losing power due to KS lead to satisfaction from KS. The integration of both outputs is robust since quantitative results and qualitative findings converge: a) KS results from knowledge complementarity: knowledge complementarity relates positively to KS, which is consistent with a high level of knowledge complementarity providing a sufficient condition for a high level of KS; b) The fear of losing power results from the absence of knowledge complementarity and the existence of knowledge complexity, which is consistent with knowledge complementarity relating negatively to the fear of losing power and knowledge complexity relating positively to the fear of losing power; c) Satisfaction occurs when KS exists and the fear of losing power is absent, which is in line with KS relating positively to satisfaction and the fear of losing power due to KS relating negatively to satisfaction. Furthermore, the results show that millennial students' satisfaction from KS is really a behavioral question and not a cultural one since there is no evidence of significant differences between the two subsamples. Millennials behave uniformly on Europe's western and eastern ends.

Keywords: Knowledge, Knowledge sharing, Fear of losing power, Satisfaction, Millennials

1. Introduction

Knowledge sharing is a significant asset and a powerful tool to access to a competitive advantage (e.g., Argote and Ingram, 2000; Foss *et al.*, 2010). Its importance both to academicians and practitioners is widely reflected in the large number of published works that address the determinants of knowledge sharing in various contexts with various supporting theories (e.g., Curado *et al.*, 2021; Oliveira *et al.*, 2019; Wu, 2013). However, these studies have neglected the importance of the millennial generation in conjunction with the satisfaction from the type of knowledge shared. Analyzing the behavior of the millennial generation regarding knowledge sharing is especially relevant since the distinct characteristics of this generation when compared to others (Adriani *et al.*, 2022).

However, the literature has neglected the influence of the type of knowledge on its sharing and the fear of losing power. Additionally, the effect of this influence on the satisfaction from sharing knowledge remains unaddressed. Analyzing the knowledge sharing of millennials is especially relevant because of the distinct characteristics of this generation (Adriani *et al.*, 2022; Galdames and Guihen, 2022). Millennials were born from 1980 to 2000 and have particular characteristics that are different from preceding generations, so there is a larger scope for research on generational social change (Kavanagh *et al.*, 2021). Millennials are collaborative, impatient, and search for recognition; they prefer a good work-family balance and tend to seek self-fulfillment and to be less committed to the workplace, as a result, sometimes they are considered "job-hoppers" (Galdames and Guihen, 2022). These characteristics when combined with a work environment with high turnover and entrepreneurial opportunities create a huge challenge to knowledge management and in particular to knowledge sharing.

1.1 Knowledge sharing

While organizations can promote a culture of sharing knowledge, a university can also develop knowledge sharing as a skill (Gamlat and Wilson, 2020). Knowledge sharing (KS) is “the process where individuals mutually exchange their knowledge and jointly create new knowledge” (Hooff and Ridder, 2004, p. 118). Among the knowledge management (KM) processes, KS is the most significant (Lo and Tian, 2020). KS in a competitive environment (an organization or a classroom) can be an asset (Foss *et al.*, 2010) or a significant basis for competitive advantage (e.g., Argote and Ingram, 2000). At the individual level, knowledge can be considered a strategic asset and a source of power. Therefore, the type of knowledge is important in encouraging individuals to share it (Wu, 2013). Employees face a potential loss of importance when they share what they know with other organizational members (Kankanhalli *et al.*, 2005).

Knowledge sharing involves gathering and then donating knowledge: the first consists of seeking knowledge, that is, asking or looking for someone else's knowledge (Hooff and Ridder, 2004), and the second consists of giving knowledge to another. Knowledge sharing is one of the most important processes in knowledge management (Kuo and Young, 2008), as KS has effects at the individual and organizational levels (Ahmad and Karim, 2019). At the individual level, KS increases the efficiency in carrying out actions, solving problems, and making decisions (Ahmad and Karim, 2019). Knowledge sharing encourages innovation and the creation of new knowledge (Iqbal *et al.*, 2015). At the individual level, KS also leads to increased autonomy, skills, and self-realization; at the organizational level, KS is a significant basis for competitive advantage (Argote and Ingram, 2000; Wang and Noe, 2010). However, promoting and encouraging KS within organizations remains a challenge (Davidavičienė *et al.*, 2020).

1.2 Complex and Complementary Knowledge

In order for KS to be effective, the type of knowledge should be conducive to sharing. In this study, we classify knowledge as either complex or complementary. Knowledge complementarity is “the degree to which knowledge is not redundant and is interesting enough to join with other knowledge” (Subramaniam and Venkatraman, 2001). Knowledge complementarity has the ability to generate added value from the interaction between the complementary parts (Kim *et al.*, 2010). Given the synergy, individuals will share it as a way to increase their stock of knowledge and to simultaneously avoid appearing opportunistic by maximizing their own stock of knowledge at the expense of others. (Kim *et al.*, 2012). In this study, we follow Henriques *et al.*'s (2019) study and we assume characteristics of complementary knowledge. Complementary knowledge and skills contribute to knowledge creation (Yao *et al.*, 2013); thus, it is relevant for achieving a competitive advantage that is similar to KS (Argote and Ingram, 2000; Wang and Noe, 2010). Complementary knowledge increases the advantage in the competitive race against others, therefore it relates oppositely to the fear of losing power. Thus, we hypothesize that:

H1. Knowledge complementarity relates positively to knowledge sharing.

H2. Knowledge complementarity relates negatively to the fear of losing power.

However, complex knowledge reflects the degree to which sharing knowledge is not simple and is intricate (Subramaniam and Venkatraman, 2001). Therefore, the people with this type of knowledge are likely to do a cost-benefit analysis before sharing it (Cabrera and Cabrera, 2002). If the cost-benefit analyses indicates a cost from sharing, the individual will not share the knowledge because it contributes to the progress of other individuals that leads to losing the competitive advantage over others in the organization (Andolšek and Andolšek, 2015). Sharing the individual knowledge in the group is limited by the fear of losing value in the group, in the same way employees lose value in the organizations (Lam and Lambermont-Ford, 2010). Therefore, one of the strongest factors that reduces KS within the group is the fear of losing their value (Clark *et al.*, 2007; Evans *et al.*, 2015; Iheukwumere-Esotu and Kaltungo, 2020; Kankanhalli *et al.*, 2005; Silva de Garcia *et al.*, 2020). Following Henriques *et al.*'s (2019) study rationale, we assume characteristics of complex knowledge. It is highly valuable, since it can be assisted and enhanced, but not replaced, by technological devices such as computers (Autor *et al.*, 2003). Thus, it requires a human contribution and cannot be substituted with software programs (e.g., using artificial intelligence) (Pettersson, 2019). Therefore, we propose the following hypotheses:

Therefore, we propose the following hypotheses:

H3. Knowledge complexity relates negatively to knowledge sharing.

H4. Knowledge complexity relates positively to the fear of losing power.

Guaranteeing satisfaction is a way to encourage KS (Wu, 2013). This satisfaction means the individual’s positive evaluation and affective response to the overall experience of sharing knowledge with others (Chiu et al., 2011). Thus, we may consider that satisfaction with KS results from a comparison between expectations and perceived performance, and it could be a feeling of pleasure or disappointment (Chiu et al., 2011). Knowledge-intensive environments (organizations or classrooms) are learning environments. Learning occurs through KS and could be one of the explanations for satisfaction with it (Yuen and Majid, 2007). Additionally, its effect on satisfaction is associated with helping others which is a motivation for KS (Lo and Tian, 2020). Following previous studies on the KS dependence on satisfaction with KS (Chen et al., 2012; Wu, 2013), we hypothesize:

H5. Sharing knowledge relates positively to satisfaction with knowledge sharing.

Knowledge is often seen as a basis to ensure power in organizations. Fear emerges from thinking that sharing will diminish an individual’s value when the individual is no longer the exclusive owner of that knowledge. This psychological phenomenon restrains individuals from sharing what they know (Evans et al., 2015; Silva de Garcia et al., 2020). Consequently, there is a fear of losing one’s own value due to KS (Smaliukienė, et al., 2017), that is why knowledge workers fear sharing their expertise (Iheukwumere-Esotu and Kaltungo, 2020). Individuals contribute with their knowledge to the progress of other individuals, thus, sharing one’s knowledge leads to losing the advantage in the competitive race with other employees and lose value in the organizations (Lam and Lambermont-Ford, 2010). So, they might be reluctance to share knowledge because the fear of feeling disadvantaged (; Smaliukienė, et al., 2017). When employees do not share what they know, they will not feel the satisfaction of doing so. Following Oliveira et al. (2019) and Arain et al. (2020) studies, we assume individuals often do not engage in KS because they fear losing power, therefore, we propose that:

H6. The fear of losing power relates negatively to satisfaction with knowledge sharing.

2. Method

2.1 Mixed Methods

There is a growing methodological trend in literature that integrates qualitative and quantitative methods in the same study. The resulting mixed methods approach provides the necessary empirical sophistication and rigor to match the complexities of organizational phenomena (Molina-Azorin, et al., 2017). By integrating of quantitative and qualitative approaches we want to offer a better understanding of the research problem and the related complex phenomenon than either approach alone could give (Creswell and Plano Clark 2011).

2.2 Data Collection and Measures

Data for the study were collected through a cross-sectional survey. The sample was the students’ databases of master programs at two business schools (one in Poland - far east European mainland - and one in Portugal - far west European mainland). This type of data diversity is important when addressing satisfaction with KS from a behavioral point of view (Lauring, 2009). The questionnaires were distributed among the 215 students who agreed to participate in the study and were collected at the end of a class, which resulted in 213 complete questionnaires. Two questionnaires were removed after applying cleaning procedures (Hair et al., 2009). Respondents’ demographics are presented in Table I.

Table 1: Demographic Statistics of Students

Millennials		Portugal	Poland	Total
		(n=129)	(n=84)	Total n=213
Gender	Male	38,8%	16,7%	30%
	Female	61,2%	83,3%	70%
Average age (years)		24,88	23,62	24,7
Average % of respondents that have a job		53%	63%	57%
Having a job on average for (years)		2,68	2,14	2,7

Survey questions for measuring the variables in the study were adopted from pre-existing instruments in the literature. Their measurements were based on Likert scales with options ranging from 1 (complete disagreement) to 5 (complete agreement):

Knowledge complementarity (KCM) measures the level of knowledge shared that occurs within the class that is not redundant (Subramaniam and Venkatraman, 2001).

Knowledge complexity (KCX) measures the level of complex knowledge shared that occurs within the class (Subramaniam and Venkatraman, 2001).

Knowledge sharing (KS) is the process of sharing one’s own knowledge within the class (Xue et al., 2011).

Fear of losing power (FLP) is the perception of power and unique value lost due to the knowledge shared within the class (Kankanhalli et al., 2005).

Satisfaction with knowledge sharing (SATS) measures the individual’s assessment and emotional response to the global experience of KS with other students in the class (Chiu et al., 2011).

2.3 Data Analysis

The exploratory factor analysis using the principal component analysis (PCA) with the varimax rotation method was used with the support of SPSS 21°. The factor loading of each item was greater than the recommended 0.70, except KCM3, KCM5, KCM6, STATS3 and KS4. These five items were removed. Structural Equation Modeling (SEM) was used to test hypotheses and validate the model, considering the measurement model and the structural model. The data were analyzed with the support of SPSS 21° and PLS 3.0°. Qualitative Comparative Analysis was developed using fsQCA 3.0.

2.4 Measurement Model

The reliability of the constructs was verified using Cronbach’s alpha, rho_A, and composite reliability (CR). The values obtained were within the range recommended by Hair et al. (2020). The convergent validity was checked using the analysis of the average variation extracted (AVE) and CR. The AVE should be higher than 0.5 (Bagozzi and Yi, 1988), and the CR should be higher than 0.8 (Koufteros, 1999) (Table II). The discriminant validity was assessed using the heterotrait-monotrait (HTMT) ratio of correlations, as recommended by Hair et al. (2020). The HTMT ratio of correlation is presented in Table III. The maximum value was below 0.85 (for conceptually different constructs) and 0.90 (for conceptually similar constructs) according to Hair et al. (2019). Considering the HTMT, discriminant validity was established for this model. The model had no collinearity problem because the variance inflation factor (VIF) was below 5, as recommended by Hair et al. (2019). According to Kock (2015), VIF test values under 3.3 indicate there is no common method bias. In this model, all the values for VIF were under 1.001.

Table 2: Reliability and Convergent Validity

Constructs	Cronbach's Alpha	rho_A	CR	AVE
KCM	0.673	0.698	0.821	0.608
KCX	0.848	0.882	0.890	0.622
KS	0.691	0.726	0.826	0.616
FLP	0.897	0.918	0.928	0.763
SATS	0.668	0.675	0.819	0.601

Table 3: The Heterotrait-Monotrait Ratio of Correlations (HTMT)

Constructs	KCM	KCX	KS	FLP	SATS
KCM					
KCX	0.162				
KS	0.556	0.194			
FLP	0.162	0.432	0.107		
SATS	0.391	0.071	0.724	0.270	

2.5 Structural Equation Modelling

The significance of the relationships was assessed using a bootstrapping algorithm. The hypotheses are valid when the *t* values are above 1.96 (Hair et al., 2019). Table IV has the results of the hypothesis test. The model explains 16.3% of the variance in KS, 17.6% of the variance in FLP and 30.3% of the variance in SATS. No significant differences were identified between Polish and Portuguese students' responses. This result means that students in both countries have similar behavior regarding the research model estimation.

Table 4: Results of the Hypothesis Test

Paths	Coefficient	t value	P	Hypothesis testing result
H1 KCM→KS	0.367	5.212	0.000	Supported
H2 KCM→FLP	-0.141	2.133	0.033	Supported
H3 KCX→KS	0.159	2.366	0.018	Not Supported
H4 KCX→FLP	0.399	5.549	0.000	Supported
H5 KS→SATS	0.509	10.355	0.000	Supported
H6 FLP→SATS	-0.190	2.938	0.003	Supported

2.6 Fuzzy-set Qualitative Comparative Analysis

In this study, fsQCA complements the SEM results to discover the configurations of conditions for the outcome variables, apart from the SEM’s single estimated solution to the dependent variable: satisfaction (Rihoux and Ragin, 2009). Our qualitative research questions are interrelated as follows: what are the configurations of causal conditions that generate KS, FLP, and satisfaction with KS? Thus, the application of fsQCA to the data enables us to answer these questions by developing a configurational model.

Table 5: Descriptive Statistics and Calibration of the Conditions and the Outcomes

Conditions (C) and Outcomes (O)	Descriptive statistics (n= 213)	Calibration
KCM (C)	$\mu = 3.34; \sigma = 0.51; \text{min} = 2.00; \text{max} = 5.00$	(4.2; 3.2; 2.6)*
KCX (C)	$\mu = 2.82; \sigma = 0.74; \text{min} = 1.00; \text{max} = 5.00$	(3.9; 2.8; 1.6)*
KS (C/O)	$\mu = 3.62; \sigma = 0.76; \text{min} = 1.75; \text{max} = 5.00$	(4.6; 3.6; 2.4)*
FLP (C/O)	$\mu = 2.08; \sigma = 0.98; \text{min} = 1.00; \text{max} = 5.00$	(3.1; 2.0; 1.0)*
SATS (O)	$\mu = 4.02; \sigma = 0.59; \text{min} = 2.00; \text{max} = 5.00$	(4.8; 4.1; 3.1)*

μ = Mean; σ = Standard Deviation; min = Minimum; max = Maximum; *Cut-off values: 0.95; 0.50; 0.05

3. Results

3.1 Results From SEM

KCM is related positively with KS (H1). Knowledge complementarity could give a sense of belonging to group. Knowledge complementarity is related negatively with the FLP (H2). KCM aggregates value for the donor and collector which reduces the FLP. Knowledge complexity is related positively to the FLP (H4). However, it was not enough to support H4. KS is positively related to SATS (H5). The results of this research could be aligned with Lo and Tian (2020) who find that enjoyment in helping others motivates KS that leads to satisfaction with it. The FLP is related to SATS (H6). If the individuals consider knowledge as power, they will not find satisfaction in KS.

3.2 Findings From fsQCA

There are no necessary conditions for either of the three outcomes. Both solutions and configurations for each model were analyzed using consistency and coverage levels. In this investigation, the solutions and configurations obtained fulfill the imperatives of consistency and coverage emphasized by the literature, as well as the best practices for presenting the results (Ragin, 2008). Thus, we included in the study the intermediate solutions for the three results (Tables VI, VII and VIII). There is no solution for the configurational modelling on the absence of FLP, thus, millennials seem to be afraid of losing it. All conditions in the tables are core conditions.

Table 6: Configurational Modeling for (and Absence of) KS

KS=f(KCM, KCX)				
Attributes (causal configuration) → KS (outcome)				
Causal configuration	Raw coverage	Unique coverage	Consistency	Interpretation of configuration

KCM	0.785353	0.785353	0.765050	A high level of knowledge complementarity provides a sufficient condition to high levels of knowledge sharing
Solution coverage:0.785353				
Solution consistency:0.765050				
Absence of KS=f(KCM, KCX)				
Attributes (causal configuration) → ~KS (outcome)				
Causal configuration	Raw coverage	Unique coverage	Consistency	Interpretation of configuration
~KCM	0.730612	0.730612	0.752930	A low level of knowledge complementarity provides a sufficient condition to low levels of knowledge sharing
Solution coverage:0.730612				
Solution consistency:0.752930				

Table 8: Configurational Modeling for FLP

FLP=f(KCM, KCX)				
Attributes (causal configuration) → FLP (outcome)				
Causal configuration	Raw coverage	Unique coverage	Consistency	Interpretation of configuration
~KCM *KCX	0.476031	0.476031	0.802796	A combination of low levels of knowledge complementarity and high levels of knowledge complexity provides a high level of fear of losing power due to knowledge sharing
Solution coverage:0.476031				
Solution consistency:0.802796				

Table 7: Configurational Modeling for (and Absence of) SATS

SATS=f(KS, FLP)				
Attributes (causal configuration) → SATS (outcome)				
Causal configuration	Raw coverage	Unique coverage	Consistency	Interpretation of configuration
KS*~FLP	0.581020	0.581020	0.831610	A combination of high levels of KS behavior and low levels of fear of losing power provides a high level of satisfaction with knowledge sharing
Solution coverage:0.581020				
Solution consistency:0.831610				
~STAS=f(KS, FLP)				
Attributes (causal configuration) → ~SATS (outcome)				
Causal configuration	Raw coverage	Unique coverage	Consistency	Interpretation of configuration
FLP*~KS	0.550092	0.550092	0.838988	A combination of high levels of fear of losing power and low levels of KS behavior provides low levels of satisfaction with knowledge sharing
Solution coverage:0.550092				
Solution consistency:0.838988				

4. Discussion and Conclusions

The SEM results show that knowledge characteristics influence KS as well as the FLP. KCM and KCX positively contribute to KS, the more complementary and complex the knowledge; the more it stimulates KS. KCX increases the FLP, while KCM decreases it, probably because individuals recognize complex knowledge as a more valuable one.

The fsQCA findings corroborate the SEM results. KCM's presence alone leads to KS, while its absence and KCX's existence generate the FLP. KS behavior and not being afraid of losing power due to KS lead SATS. The fsQCA results reveal a much more complex causation of the sequential models used to address the phenomena at hand, which is particularly suitable for analyzing high levels of complexity (Fiss, 2011), involved in behavioral issues. The combination of the results from the mixed methods approach enable us to confirm the relevant roles that the antecedents considered in this study play in generating millennials' satisfaction in sharing knowledge. The integration of both outputs is robust since quantitative results and qualitative findings converge:

a) KS results from KCM: The SEM supports H1 in which KCM relates positively to KS. The fsQCA configuration in Table VI shows that a high level of KCM provides a sufficient condition for a high level of KS. Such results are in line with the effect produced by knowledge complementarities (Hamel *et al.*, 1989; Milgrom *et al.*, 1991; Kim *et al.*, 2010), confirming individuals tend to share complementary knowledge (Kim *et al.*, 2012).

b) The FLP results from the absence of KCM and the existence of KCX. The SEM supports H2 that KCM relates negatively to the FLP and supports H4 in which KCX relates positively to the FLP. The fsQCA configuration in Table VII shows that a combination of low levels of KCM and high levels of KCX provide a high level of the FLP. Our findings are consistent with sharing complementary knowledge being accepted as a practice that will benefit all collectively and thus generates no fear for it is not seen as a threaten (Kim *et al.*, 2012). Regarding KCX, the lack of support for H3 might underline the "characteristics" of the respondents – millennials and the conditions of competing in a both competitive and cooperative setting. Millennials present a different cost-benefit analysis (Cabrera and Cabrera, 2002). They do not feel frightened by sharing complex knowledge that contributes to the progress of others. Thus, they do not perceive the loss of their competitive advantage in the organization, which is in contrast to Andolšek and Andolšek (2015).

c) SATS occurs when KS exists and the FLP is absent. The SEM supports H5 in which KS relates positively to SATS and H6 in which the FLP relates negatively to SATS. The fsQCA configuration in Table VIII shows that a combination of high levels of KS and low levels of the FLP provides a high level of SATS. This evidence shows that satisfaction with sharing knowledge results from a positive individual's evaluation and affective response to KS and a feeling of pleasure based on personal expectations (Chiu *et al.*, 2011). It is also associated with altruism in helping others, which is a motivation for KS (Lo and Tian, 2020). Additionally, and since knowledge is a way to ensure power in organizations, there is a FLP (Iheukwumere-Esotu and Kaltungo, 2020; Smaliukienė *et al.*, 2017) that is not associated with satisfaction or joy. So, individuals restrain themselves from sharing what they know (Evans *et al.*, 2015; Silva de Garcia *et al.*, 2020), and they share less and consequently feel less satisfied about sharing.

The introduction of diversity by using two different samples from Portugal and Poland brings to the discussion the importance of the cultural background and the generation traits related to KS. The results indicate that millennials behave in a similar way when the issue is KS despite the two different cultural backgrounds. Such results clarify the concerns of Luring (2009) on the real effect of national culture dimensions on the discussion of KS in a context of international diversity. Millennials behave uniformly on Europe's western and eastern ends.

The theoretical implications of our quantitative study emerge from the specificity of the results on a particular generation: the millennials. Their behaviors show a generational social change as they have different behavioral options. Complex knowledge positively and significantly relates to both KS and the fear of losing power. While the impact of complex knowledge is stronger than the fear of losing power, the millennials keep sharing it. Millennials dare to do what they want (KS), despite the fear that comes with it. Therefore, the results of our research model show that the theory of reasoned action needs to be revised regarding millennials.

Practical implications regard the consequences of engaging in KS related routines and paying attention to the type of knowledge used in organizations. Managers should create knowledge repositories that individuals feel comfortable using and adding to. Reducing the fear of losing power and increasing the KS of millennials is a way managers can provide satisfaction to these workers in knowledge intensive organizations. Our results suggest that it is possible to adopt universal KS related practices in organizations with multicultural millennial employees. Such managerial uniformity supports the perceptions of internal equity in the treatment of employees and eases

the implementation of generalized practices that may generate positive consequences for performance. Social implications regard the effect managers can generate on organizational climate by increasing their millennials' satisfaction through KS. Managers may use knowledge management tools to facilitate KS.

We acknowledge the limitations due to the use of a small sample and the cross-sectional data that prevent us from suggesting causality, despite the cross-country database used and a double approach to the data. Future research should develop longitudinal studies to address the dynamics of building SATS over time. Additionally, we invite colleagues to check if employees in other age segments also react to the same antecedents that influence the satisfaction with KS for millennials.

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References

- Ahmad, F. and Karim, M. (2019) "Impacts of knowledge sharing: A review and directions for future research", *Journal of Workplace Learning*, Vol 31, No. 3, pp 207–230.
- Andolšek, D.M. and Andolšek, S. (2015) "Knowledge sharing in an organization from the perspective of the individual", *International Journal of Cognitive Research in Science, Engineering and Education*, Vol 3, No. 2, pp 65-76.
- Andriani, M., Christiandy, A., Wiratmadja, I. and Sunaryo, I. (2022) "Knowledge management effectiveness model in facilitating generation differences". *Knowledge Management Research & Practice*, Vol 20, No. 6, pp 947-959.
- Arain, G.A., Bhatti, Z.A., Ashraf, N. and Fang, Y.H. (2020) "Top-Down Knowledge Hiding in Organizations: An Empirical Study of the Consequences of Supervisor Knowledge Hiding Among Local and Foreign Workers in the Middle East", *Journal of Business Ethics*, Vol 164, pp 611–625.
- Argote, L. and Ingram, P. (2000) "Knowledge transfer: a basis for competitive advantage in firms", *Organizational Behavior and Human Decision Processes*, Vol 82, pp 150-169.
- Autor, D., Levy, F. and Murnane, R. (2003) "The skill content of recent technological change: an empirical exploration", *Quarterly Journal of Economics*, Vol 118, No. 4, pp 1279–1333.
- Bagozzi, R. and Yi, Y. (1988) "On the Evaluation of Structural Equation Models". *Journal of the Academy of Marketing Science*, Vol 16, No. 1, pp 74-94.
- Cabrera, A. and Cabrera, E. F. (2002) "Knowledge-sharing dilemmas", *Organization Studies*, Vol 23, No. 5, pp 687-710.
- Chen, C.S., Chang, S.F. and Liu, C.H. (2012) "Understanding Knowledge-Sharing Motivation, Incentive Mechanisms, and Satisfaction in Virtual Communities", *Social Behavior and Personality: An International Journal*, Vol 40, No. 4, pp 639-647.
- Chiu, C.-M., Wang, E.T.G., Shih, F.-J. and Fan, Y.-W. (2011) "Understanding knowledge sharing in virtual communities: An integration of expectancy disconfirmation and justice theories", *Online Information Review*, Vol 35, No. 1, pp 134-153.
- Clark, T.D., Jones, M.C. and Armstrong, C.P. (2007) "The dynamic structure of management support systems: theory development. research focus, and direction", *MIS Quarterly*, Vol 31, No. 3, pp 579-615.
- Creswell, J.W. and Plano Clark, V.L. (2011) *Designing and Conducting Mixed Methods Research* (2nd ed.). Sage Publications, Thousand Oaks, CA.
- Curado, C., Henriques, P., Oliveira, M. and Martins, R. (2021) "Antecedents of knowledge sharing in NGOs: The role of organizational culture", *Knowledge Management Research & Practice*. Ahead-of-print.
- Davidavičienė, V., Al Majzoub, K. and Meidute-Kavaliauskiene, I. (2020) "Factors affecting knowledge sharing in virtual teams", *Sustainability*, Vol 12, No. 17, pp 6917.
- Evans, J.M., Hendron, M.G. and Oldroyd, J.B. (2015) "Withholding the ace: the individual- and unit-level performance effects of self-reported and perceived knowledge hoarding", *Organization Science*, Vol 26, No. 2, pp 494-510.
- Fiss, P.C. (2011) "Building better causal theories: a fuzzy set approach to typologies in organization research", *Academy of Management Journal*, Vol 54, No. 2, pp 393-420.
- Foss, N.J., Husted, K. and Michailova, S. (2010) "Governing knowledge sharing in organizations: levels of analysis, governance mechanisms, and research directions", *Journal of Management Studies*, Vol 47, pp 455-482.
- Galdames, S. and Guihen, L. (2022) "Millennials and leadership: A systematic literature review", *Total Quality Management & Business Excellence*, Vol 33, No. 1–2, pp 146–162.
- Gamlath, S. and Wilson, T. (2020) "Dimensions of student-to-student knowledge sharing in universities", *Knowledge Management Research and Practice*, Ahead-of-print.
- Hair, J.F., Black, W.C., Babin, B., Anderson, R. and Tatham, R. (2009) *Análise Multivariada de Dados*. Bookman, Porto Alegre.
- Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019) "When to use and how to report the results of PLS-SEM", *European Business Review*, Vol 31, No. 1, pp 2-24.

- Hair Jr., J.F., Howard, M.C. and Nitzl, C. (2020) "Assessing measurement model quality in PLS-SEM using confirmatory composite analysis", *Journal of Business Review*, Vol 109, pp 101-110.
- Henriques, P.L., Curado, C., Oliveira, M. and Maçada, A. (2019) "Publishing? You can count on Knowledge, Experience, and Expectations", *Quality & Quantity*, Vol 53, No. 3, pp 1301–1324.
- Hofstede, G. (2021) "Design a culture", [online], <https://www.hofstede-insights.com/country-comparison/poland,portugal/>.
- Hooff, B.V.D. and Ridder, J.A.D. (2004) "Knowledge sharing in context: the influence of organizational commitment, communication climate and CMC use on knowledge sharing", *Journal of Knowledge Management*, Vol 8, No. 6, pp 117–130.
- Iheukwumere-Esotu, L.O. and Kaltungo, A.Y. (2020) "Assessment of barriers to knowledge and experience transfer in major maintenance activities", *Energies*, Vol 13, pp 17-21.
- Iqbal, S., Toulson, P. and Tweed, D. (2015) "Employees as performers in knowledge intensive firms: Role of knowledge sharing", *International Journal of Manpower*, Vol 36, No. 7, pp 1072–1094.
- Kankanhalli, A., Tan, B.C.Y. and Wei, K.-K. (2005) "Contributing knowledge to electronic repositories: an empirical investigation", *MIS Quarterly*, Vol 29, No. 1, pp 113-140.
- Kim, K.K., Shin, H.K. and Lee, M.H. (2010) "The influence of partner knowledge complementarities on the effectiveness of IT outsourcing", *Journal of Organizational Computing and Electronic Commerce*, Vol 20, No. 3, pp 213-233.
- Kim, K.K., Umanath, N.S., Kim, J.Y., Ahrens, F. and Kim, B. (2012) "Knowledge complementarity and knowledge exchange in supply channel relationships", *International Journal of Information Management*, Vol 32, No. 1, pp 35-49.
- Kock, N. (2015) "Common method bias in PLS-SEM: A full collinearity assessment approach", *International Journal of e-Collaboration*, Vol. 11, No. 4, pp 1-10.
- Koufteros, X.A. (1999) "Testing a model of pull production: a paradigm for manufacturing research using structural equation modeling", *Journal of Operations Management*, Vol 17, No. 4, pp 467-488.
- Kuo, F.-Y. and Young, M.-L. (2008) "Predicting knowledge sharing practices through intention: A test of competing models", *Computers in Human Behavior*, Vol 24, No. 6, pp 2697–2722.
- Lam, A. and Lambermont-Ford, J.P. (2010) "Knowledge sharing in organizational contexts: a motivation based perspective", *Journal of Knowledge Management*, Vol 14, No. 1, pp 51-66.
- Lauring, J. (2009) "Managing cultural diversity and the process of knowledge sharing: A case from Denmark", *Scandinavian journal of management*, Vol 25, No. 4, pp 385-394.
- Lo, M.F. and Tian, F. (2020) "How academic leaders facilitate knowledge sharing: a case of universities in Hong Kong", *Leadership and Organization Development Journal*, Vol 41, No. 6, pp 777-798.
- Molina-Azorin, J.F., Bergh, D.D., Corley, K.G. and Ketchen, Jr., D.J. (2017) "Mixed Methods in the Organizational Sciences: Taking Stock and Moving Forward", *Organizational Research Methods*, Vol 20, No. 2, pp 179-192.
- Oliveira, M., Curado, C. and Henriques, P.L. (2019) "Knowledge sharing among scientists: a causal configuration analysis", *Journal of Business Research*, Vol 101, pp 777-782.
- Pettersen, L. (2019) "Why artificial intelligence will not outsmart complex knowledge work", *Work, Employment and Society*, Vol 33, No. 6, pp 895–912.
- Ragin, C.C. (2008) *Redesigning Social Inquiry: Fuzzy Sets and Beyond*, University of Chicago Press, Chicago, IL.
- Rihoux, B. and Ragin, C.C. (2008) *Configurational Comparative Methods: Qualitative Comparative Analysis (QCA) and Related Techniques*, Vol 51, Sage Publications, Thousand Oaks, California.
- Silva de Garcia, P., Oliveira, M. and Brohman, K. (2020) "Knowledge sharing, hiding and hoarding: how are they related?", *Knowledge Management Research and Practice*, Vol 20, No. 3, pp 339-351.
- Smaliukienė, R., Bekešienė, S., Chlivickas, E. and Magyla, M. (2017) "Explicating the role of trust in knowledge sharing: a structural equation model test", *Journal of Business Economics and Management*, Vol 18, No. 4, pp 758-778.
- Subramaniam, M. and Venkatraman, N. (2001) "Determinants of transnational new product development capability: testing the influence of transferring and deploying tacit overseas knowledge", *Strategic Management Journal*, Vol 22, pp 359-378.
- Wang, S. and Noe, R. (2010) "Knowledge sharing: A review and directions for future research", *Human Resource Management Review*, Vol 20, No. 2, pp 115-131.
- Wu, W.L. (2013) "To share knowledge or not: dependence on knowledge-sharing satisfaction", *Social Behavior and Personality: An International Journal*, Vol 41, No. 1, pp 47-58.
- Yao, Z., Yang, Z., Fisher, G. J., Ma, C. and Fang, E. (2013) "Knowledge complementarity, knowledge absorption effectiveness, and new product performance: The exploration of international joint ventures in China", *International Business Review*, Vol 22, No. 1, pp 216–227.
- Yuen, T.J. and Majid, M.S. (2007) "Knowledge-sharing patterns of undergraduate students in Singapore", *Library Review*, Vol 56, No. 6, pp 485-494.