

## **A bibliometric analysis of knowledge-hiding and research organizations, 2012-2023**

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### **ABSTRACT**

The purpose of this article is to analyze the evolution of research on knowledge-hiding, as we consider that this situation may be occurring more frequently than expected knowledge sharing in research organizations.

The study identified that research has been migrating from Canada, the Netherlands and Norway (2012-2013) to Asian countries such as China, India and Pakistan in recent years (2018-2022). This evolution of understanding about hiding knowledge includes: the concept of "Knowledge Management" (2018); the relationship with "knowledge sharing" (2019); the analysis of factors within the hiding knowledge construct such as: "emotional exhaustion", "organization identification", "distrust in supervisor" (2020); "relational climate", "competitive working environment", "working place bullying", "awareness" (2021); and "evasive knowledge hiding", "creativity", "diversity" (2022) among the most common terms used for the investigation of why knowledge is hidden in organizations.

**Key words:** knowledge-hiding, knowledge sharing, research organizations, individual strategy, knowledge management, creativity

## **Introduction.**

Why should we share knowledge with others? It seems like a strange thought in a world where information is so accessible through the internet. But is it really? Knowledge-hiding was defined by Connelly, Zweig, Webster, Trougakos (2012) as an individual strategy applied within an organization while interacting in a knowledge-sharing dyad. The consequences of this strategy could impact the performance of other researchers and the development of organizations.

Expressions such as I'm busy! are sometimes not so true, but can be a way of not sharing knowledge with others, or in other words hiding knowledge. Common tactics can be summarized as a) being evasive, b) playing dumb, c) rationalizing why not to share, and d) counter-questioning (Connelly et al., 2012; Connelly, Ford, Turel, Gallupe, Zweig, 2014; Jha and Varkkey, 2018).

Both knowledge sharing and knowledge-hiding involve a process internal to the individual and external factors in the organization where the researcher works and transfers that knowledge (Hernaus, Černe, Connelly, Poloski & Škerlavaj, 2018; Gagné et al., 2019; Connelly, Černe, Dysvik & Škerlavaj 2019). The conjunction of these factors is conducive to the strategy that benefits the individual or the group, or to share or hide that knowledge (Connelly et al., 2012; Černe, Nerstad, Dysvik & Škerlavaj, 2013; Al Zubi & Bani, 2022).

Results from surveys developed in Canada (2006) and China (2012) show that strategies may involve 76% of cases of knowledge-hiding from peers and 46% of cases where they withhold knowledge in their work (Connelly et al., 2012; Peng, 2013), it could be indicated that it is more common than considered. The interview and survey instruments developed have been refined from Connelly et al. (2012) through Jha & Varkkey's (2018) to Gagné et al. (2019), who include an additional concept "motivation to share knowledge" to explain the strategies of hiding or sharing knowledge.

This development motivated the development of this article to delve into how much research has been done on the concept of knowledge-hiding and how this research has evolved in academia. In general, two major blocks are observed a) psychological based on human behavior (Stover, Bruno, Uriel & Liporace, 2017; Gagné et al., 2019), and b) managerial (Anand, Centobelli & Cerchione, 2020; Israilidis, Siachou & Kelly, 2021). We believe that it is important to understand the strategies that workers in a research organization generate, because they can affect performance and collaboration among workers within it.

## **Literature review**

Sharing, hiding, and hoarding knowledge are behaviors that an individual develops in interaction with others or with the group within the organization. Where hiding knowledge can be considered discourteous behavior in the workplace (Connelly et al., 2012; Xiao & Lee, 2018).

Further studies delve into how this behavior acts on individuals and the organization, concept such as intention (Černe et al., 2013; Tsay, Lin, Yoon & Huang, 2014), motivation

(Gagné et al., 2019), strategy (Feng & Wang, 2019) and outcomes (Jha & Varkkey, 2018; Gagné et al., 2019; Israilidis, Siachou & Kelly, 2021) of knowledge hiding behavior are incorporated into conceptual models.

Among peers if there is a knowledge sharing process partially is considered knowledge-hiding according to Connelly et al. (2012), because it may lead to not completing the development of a process, creating new knowledge or product within the organization (Černe et al., 2013; Jha & Varkkey, 2018; Xiao & Lee, 2018). But, it can be an important strategy for the group or organization when interacting and competing in the market (Fong, Men, Luo & Jia, 2018; Connelly et al., 2019; Liu, Lu & Wang, 2020; Israilidis, Siachou & Kelly, 2021).

We highlight some of the works found in this literature review from 2012 to 2021. Which we can group into: a) 2012-2013, definition and direct effects on the organization (Connelly et al., 2012; Černe et al., 2013); b) 2013-2017, inclusion of "psychological" factors such as perceived knowledge hiding and psychological ownership of knowledge, competitiveness and self-reliance of the individual (Peng, 2013; Connelly et al., 2014); c) 2018- 2020, precision on theoretical concepts and inclusion of other theoretical perspectives, as well as further studies at the team and organizational levels (Fong et al., 2018; Fenj & Wang, 2019; Liu, Lu & Wang 2020); and d) 2020- 2022, knowledge hiding at the group level and knowledge sharing system in organizations (Anand, Cantobelli & Cerchione, 2020; Israilidis, Siachou & Kelly, 2021).

In summary, research has been evolving from the understanding of the concept, searching for factors that explain it from an individual point of view. Where intrinsic and extrinsic behavioral factors modify or help to take a strategy of sharing or hiding knowledge and its relationship with the performance of these researchers in the organization. Subsequent research delves deeper into the types of behaviors that exist (Connelly et al., 2012; Jha & Varkkey, 2018). Other researchers propose a new typology of the knowledge hiding construct in: a) unintentional, which depends on the situation and environment; b) motivated, related to the individual's performance and competence; c) controlled, related to the individual's perception of knowledge ownership; d) victimized, related to a hostile and abusive environment from the boss, peers and environment; and e) customary, where the organization has an identity and norms that encourage knowledge hiding (Anand, Centobelli, Cerchione, 2020).

Several quantitative studies have applied various control variables such as: age, gender, position in the organization, job status, educational level, job seniority, interdependent task, academic position, among others (Peng, 2013; Connelly et al., 2014; Fong et al., 2018).

## **Methodology**

For the present study, 79 publications were selected from Web of Science (WoS) between 2012 and 2023, related to knowledge-hiding AND research organizations. To ensure the consistency of the search process, knowledge-hiding was used accompanied by a script VOSviewer software version 1.6.18 was used for data processing. VOSviewer is a free software developed to build and visualize bibliometric maps Van Eck & Waltman (2010).

## Results

The analysis yielded 151 authors and/or co-authors who have written and studied the knowledge-hiding construct in relation to research organizations. Some of them with 3 or more papers (Amitabh Anand-3; Sasa Batistic-3; Jinlian Luo-3; Anders Dysvik-3 ; Miha Skerlavaj-5; Matej Cerne-7 ; Catherine Connelly-5).

The reviewed papers show several theoretical approaches employed: social exchange theory by Anand, Centobelli & Cerchione (2020), self-determination theory by Zhu, Gardner & Chen (2018); social capital theory by Dysvik, Buch & Kuvaas (2015); knowledge management theory by Feng & Wang (2019) and Pan, Zhang, Teo & Lim (2018); or motivational approaches by Zhang, M. ASCE & Ng (2013); or national culture by Liu, Chan, Zhao & Liu (2018). Analyses that tell us that we are still creating an understanding of how this strategy is formed and developed. Showing its effects on the performance and development of research groups within organizations. Table 1 shows the main authors (those with more than 80 citations) included in the sample.

Table 1. co-authors of articles in the sample with more than 80 citations

Author	documents	citations	total link strength
connelly, catherine e.	5	1162	14
zweig, David	2	822	4
cerne, matej	7	647	19
skerlavaj, miha	5	627	16
trougakos, john p.	1	573	3
webster, jane	1	573	3
dysvik, anders	3	340	10
luo, jinlian	3	250	9
singh, sanjay Kumar	1	167	0
jha, jatinder Kumar	1	156	1
varkkey, biju	1	156	1
bogilovic, sabina	1	146	2
cai, zhenyao	1	144	4
huo, weiwei	1	144	4
jia, ruiqian	1	144	4
men, chenghao	1	144	4
connelly, Catherine	1	141	4
hernaus, tomlav	1	141	4
vokic, nina poloski	1	141	4
hu, xiaowen	1	114	3
jiang, xuan	1	114	3
jiang, zhou	1	114	3
wang, zhongmin	1	114	3
liu, weiwei	2	110	4
zhao, hongdan	2	110	4
li, jie	1	108	3
yu, xiaoyu	1	108	3

yao, zhu	2	106	5
zhang, xianchun	2	106	5
arain, ghulam ali	1	98	3
ashraf, naeem	1	98	3
bhatti, zeeshan Ahmed	1	98	3
fang, yu-hui	1	98	3
anand, amitabh	3	89	6
cooke, fang lee	1	86	1
xiao, mengtian	1	86	1

It is worth highlighting some of the titles of the articles on knowledge-hiding are quite suggestive: "what goes around comes around: knowledge is hidden" (Černe et al., 2013); "I'm busy!..." (Connelly et al., 2014); "Are you a cistern or a channel?..." (Jha & Varkkey, 2018); "the double-edged effects..." or "Why should I share knowledge with someone else?" (Anand, Centobelli & Cerchione, 2020). Titles that alert that something is going on and we should analyze it more carefully especially in research organizations.

The initial work of Connelly, Zweig, Webster and Trougakos in 2012, complicated with the work of Černe, Nerstad, Dysvik and Škerlavaj in 2013, are the basis of most of the research articles developed on hiding knowledge from 2012 to date. Joining in a collaborative work led by T. Hernaus in 2018 entitled "Evasive knowledge hiding in academia: when competitive individuals are asked to collaborate" Connelly et al, 2012; Černe et al. 2013; Hernaus et al., 2018).

Table 2 depicts the coauthors ordered by the strength of their coauthorship relationships, opting to include those with values above 5. Figure 1 shows the visualization of the top coauthorship networks. Four authors are seen to be central to the model: cerne, connely, skelaval and dysvik.

Figure 1: Co-authorship networks

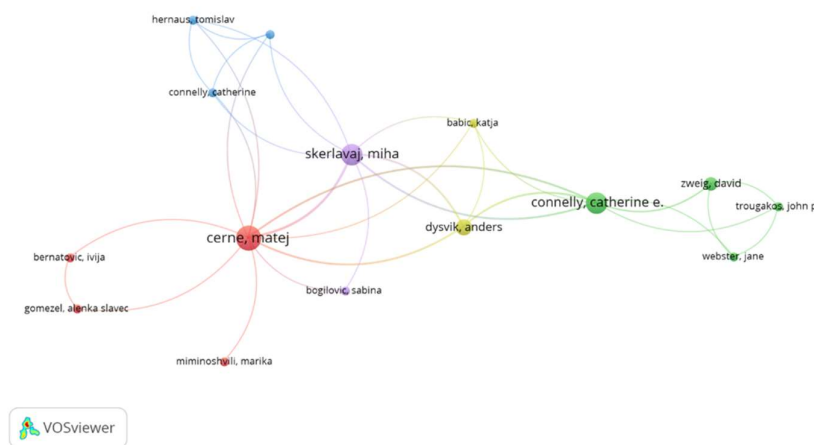


Tabla 2. coautores de artículos de la muestra según la fortaleza de sus relaciones

Author	documents	citations	total link strength
cerne, matej	7	647	19
skerlavaj, miha	5	627	16
connelly, catherine e.	5	1162	14
dysvik, anders	3	340	10
luo, jinlian	3	250	9
ayub, arslan	2	10	9
batistic, sasa	3	33	8
anand, amitabh	3	89	6
issac, abraham cyril	2	13	6
behl, abhishek	1	2	6
fischer, bruno	1	2	6
hassan, yusuf	1	2	6
laker, benjamin	1	2	6
pandey, jatin	1	2	6
pandey, jayesh	1	2	6
pereira, vijay	1	2	6

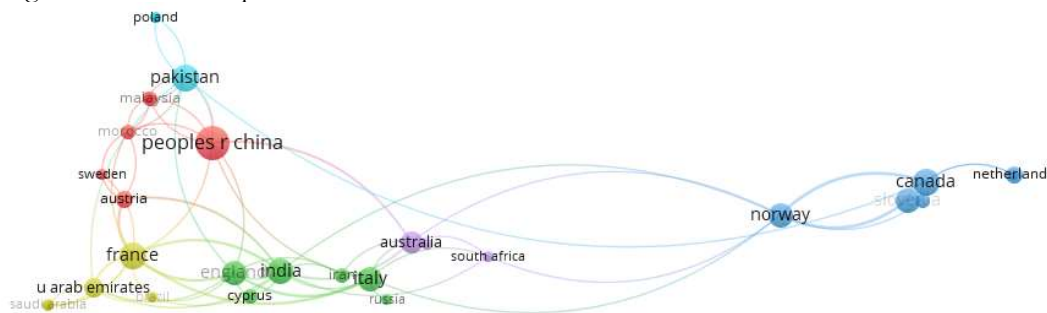
Table 3 shows the main universities of origin of the co-authors of the sample ordered by citations, including those with more than 100 citations. The relationship between countries is shown in Figure 2.

Table 3. Main universities

organization	documents	citations	total link strength
shanghai univ	3	254	1
mcmaster univ	1	249	1
univ toronto scarborough	1	249	1
tongji univ	2	190	2
abu dhabi univ	1	167	0
univ ljubljana	3	166	2
indian inst management	1	156	1
xlri xavier sch management	1	156	1
bi norwegian business sch	1	146	1

The result reveals how research organizations in the countries have been getting interested in the field of study, which may be related to the number of institutions with higher visibility in publications and scientific outputs over time. The data reveals that research has been migrating from Canada, Netherlands and Norway (2012-2013) to China, India and Pakistan in recent years (2018-2022).

Figure 2: Relationships between countries



Next in Table 4 it is possible to observe the main co-occurrence terms from the keywords, showing the 20 key terms with the highest co-occurrence. In Figure 3 we have chosen to show specifically the key terms connected to performance.

Table 4. Key terms

keyword	occurrences	total link strength
knowledge hiding	43	561
performance	20	275
antecedents	19	266
behavior	14	194
moderating role	14	189
work	14	183
knowledge sharing	13	169
management	12	164
consequences	11	138
innovation	11	156
organizations	10	154
perspective	8	110
abusive supervision	7	91
mediating role	7	98
psychological ownership	7	100
empirical-evidence	6	79
employees	6	80
knowledge management	6	76
multilevel	6	84
personality	6	83

The results suggest that studies on knowledge hiding seek to understand intrinsic factors (i.e. behavior, psychological ownership, personality) and extrinsic factors (i.e. abusive supervision, organization, management) to innovate or create, as well as to improve performance.

Figure 3: Key terms connected to performance

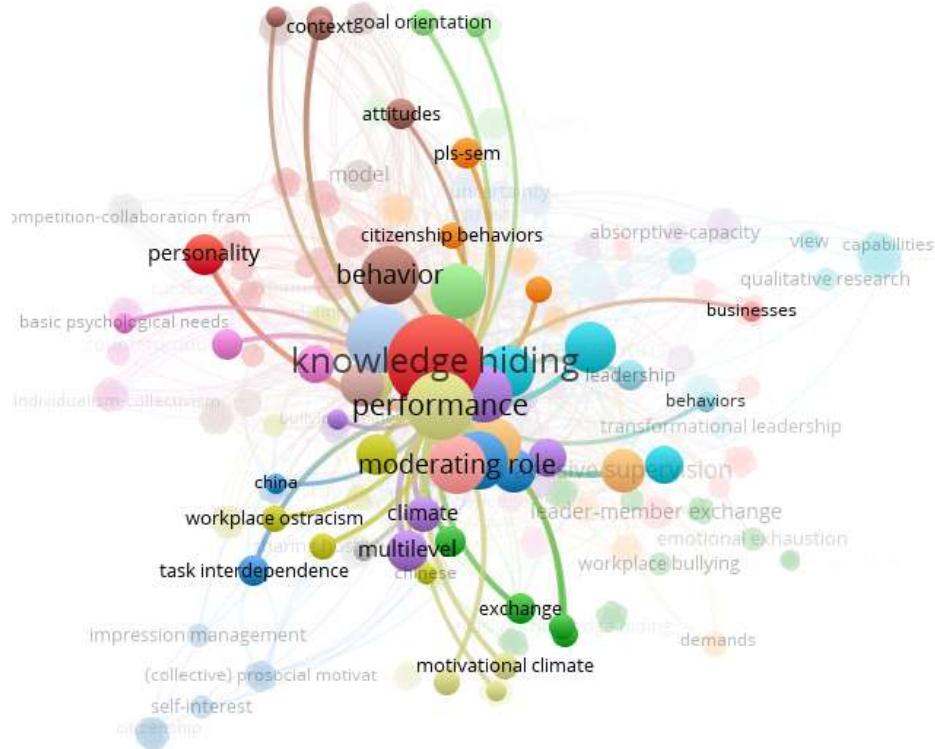
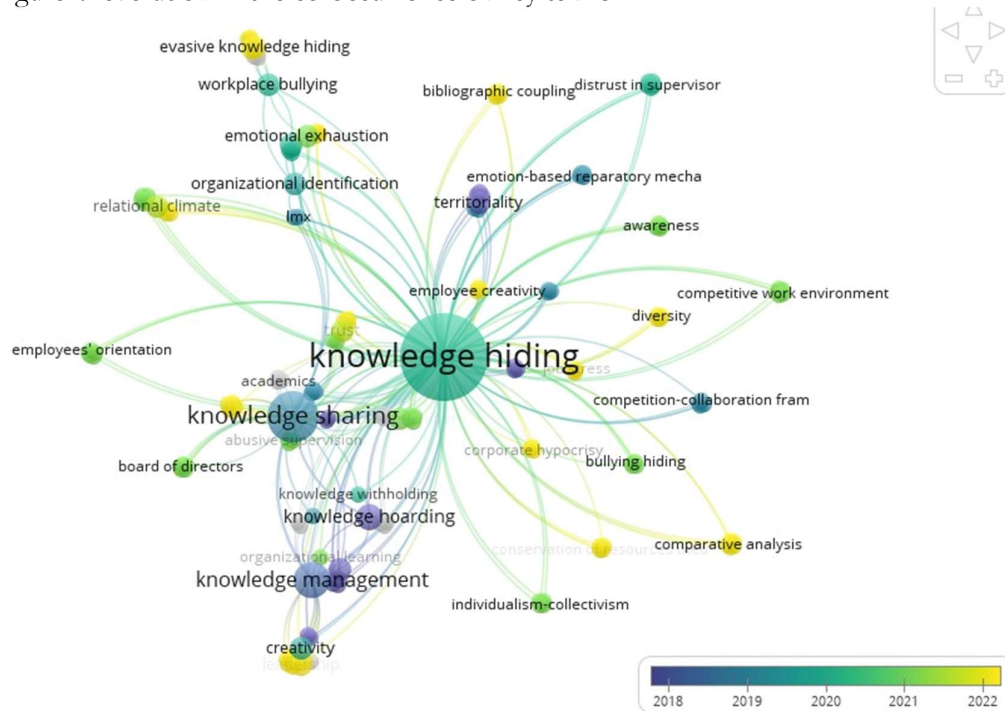


Figure 4 shows the evolution of the studies on hiding knowledge, a process that goes from the definition and review of the concept; inclusion of "knowledge management" in the understanding of how hiding knowledge impacts the organization (2018); the relationship with knowledge sharing, understanding that both are strategies (sharing and hiding) of pairs or also called "dyads", whether they are individuals, groups or organizations (2019); the analysis of the factors within the construct hiding knowledge such as: "emotional exhaustion", "organization identification", "distrust in supervisor" (2020); or "relational climate", "competitive working environment", "working place bulling", "awareness" that impact significantly in multicultural organizations, even more so in the process of virtuality (2021); deepening not only in the characteristic of the strategy of hiding knowledge "evasive knowledge hiding", in the effect of cultural diversity "diversity" and the impact on creativity "creativity" (2022) among the most common terms used for the investigation of why knowledge is hidden in organizations.

Figure 4: evolution in the co-occurrence of key terms



## Conclusions

It is observed, in the studies reviewed, that there is a temporal process from the definition of the concept hide knowledge, with the inclusion of factors that explain individual behavior. Perhaps in part from psychological research on human behavior and the inclusion of larger samples of interviews and surveys in various organizations and sectors (Stover et al., 2017; Anand, Centobelli, Cerchione, 2020). In short, more empirical evidence.

However, as indicated by Xiao et al. (2018), there is a need to delve deeper into knowledge characteristics (Connelly et al. 2014), organizational factors as well as intrapersonal (Jha & Varkkey, 2018) and work team factors (Wang, Han, Xiang, & Hampson, 2018); that are conducive to knowledge hiding behavior. Without neglecting individual and contextual factors within and outside the organization, as well as seeking further analysis in various sectors and organizations in national and multicultural culture environments (Liu, Lu & Wang, 2020; Israilidis, Siachou & Kelly, 2021).

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