

Research Map And Visualization Of Knowledge Sharing

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Abstract

This study aims to provide an analysis of knowledge sharing by highlighting its development from before the pandemic to after it. Furthermore, this study provides insights into the significance of knowledge sharing. This study analyzed 997 articles that have been published in the Publish or Perish database over a five-year period, namely from 2018 to 2023. Furthermore, the 997 articles were processed using VOSViewer software, and bibliometric analysis was carried out. The results found 79 items with 4 interrelated clusters. Furthermore, this study highlights various variables related to knowledge sharing, so it is expected to provide insight into knowledge sharing. The results of this study can also create shadows that can be used by other researchers or related parties.

Keywords: *knowledge sharing, bibliometric analysis*

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I. Introduction

Knowledge Sharing (KS) is a vital process in organizations. Before the pandemic, KS was driven by individual initiatives to share their knowledge [1]. However, the crisis situation due to COVID-19 has changed employee behavior, so they may be reluctant to share knowledge or even behave counterproductively towards KS, which can ultimately hinder organizational performance [2], [3]. Knowledge sharing is the exchange of information and knowledge between individuals with the aim of completing tasks that have been set in an organization [4], [5], [6]. The process of knowledge sharing is not only limited to verbal communication but also includes the exchange of physical artifacts, coordination of unwritten skills, and understanding of knowledge structures within the organization [7], [8], [9]. As competition increases, organizations are increasingly seeking to facilitate knowledge sharing among their employees in an effort to increase productivity and competitiveness [10], [11]. Knowledge sharing is key to continuing to grow and improve organizational performance, as it allows us to learn from each other's experiences [12]. This encourages employees to be more active participants, improves the quality of decision-making, prevents the loss of valuable knowledge, triggers the birth of new ideas, and ultimately improves individual performance and the overall competitive advantage of the organization [13], [14], [15]. After the pandemic that forced everyone to do all activities online until the term "work from home" was created, technology continues to develop until now. The rapid development of digital technology can also be felt as a new medium or means of sharing knowledge [11], [16]. Although digital technology makes it easy to share knowledge [11], it often causes the boundaries between work and personal life to become unclear. As a result, the conflict between the two increases and has a negative impact on employee productivity [17], [18]. This study will analyze knowledge sharing using bibliometric analysis through VOSViewer, which will take data from publish or perish software in the last five years (2019-2023) and obtain 997 articles that have been published so that they will be used in this study. The purpose of this study is to provide a broader picture of knowledge sharing and find gaps that are expected to be useful in the future.

II. Methodology

This study collects information about knowledge sharing from the Google Scholar database through the Publish or Perish software. The data collected comes from articles from the last five years from 2019 to 2023,

with a special emphasis on "knowledge sharing" articles in the article title, abstract, and keywords. From these results, 997 articles have been published with 958,093 citations over the last 5 years.

The research method used is bibliometric analysis. Bibliometric analysis can help in understanding the development of a field of science quickly and efficiently. By analyzing data from many publications, it can identify gaps in research, find new trends, and build a strong foundation for further research [19]. With this method, it can indirectly provide a clearer picture of a field of research and make better decisions related to further research [20].

Articles that have been published in the publish or perish software with the keyword "knowledge sharing." There are 997 articles, which are then processed using VOSViewer software, and bibliometric analysis is carried out as the main objective of this study. Bibliometric analysis measures various indicators such as the number and growth of publications, citation rates, popular research topics, and collaboration patterns of authors and institutions from various countries [21]. VOSviewer is a software that allows us to see the overall picture of a research field by visualizing the relationships between articles through a network based on metrics such as citations, references, and co-authorship [22].

III. Results And Discussion

A total of 997 articles on "knowledge sharing" were found to have been published from 2019 to 2023. In table 1, it is known that 2020 was the year with the most articles published on knowledge sharing compared to the other 4 years, which was 363 articles. Every year, the articles published experienced a significant decline. However, from 2019 to 2020 there was an increase of 33 articles and then from 2021 to 2023 there was another decline.

Table 1 Number of Paper

| Year | Number of Paper |
|------|-----------------|
| 2023 | 42 |
| 2022 | 72 |
| 2021 | 190 |
| 2020 | 363 |
| 2019 | 330 |

Then 997 articles from the publish or perish database will be analyzed to see the most citations and then processed using VOSViewer. The results of VOSViewer will later display three visualizations, namely network visualization, overlay visualization, and density visualization. In addition, VOSViewer will also display clusters with their respective keywords.

Table 2 Top Citation

| Citation | Author | Title | Year |
|----------|-------------------------------------|--|------|
| 33816 | LT Smith | Decolonizing methodologies: Research and indigenous peoples | 2021 |
| 29793 | T Berners-Lee, J Hendler, O Lassila | The Semantic Web: A new form of web content that is meaningful to computers will unleash a revolution of new possibilities | 2023 |
| 17524 | P Feyerabend | Against method: Outline of an anarchistic theory of knowledge | 2020 |
| 15376 | SB Merriam, LM Baumgartner | Learning in adulthood: A comprehensive guide | 2020 |
| 14772 | J Tidd, JR Bessant | Managing innovation: integrating technological, market and organizational change | 2020 |

Table 2 shows the authors with the most citations since the beginning of publication. Of the top five most citations, 2020 appears three times in a row, and 2021 takes first place with 33,816 citations with the title "Decolonizing methodologies: Research and indigenous peoples," written by Linda Tuhiwai Smith. Number two is filled by Tim Berners-Lee, James Hendler, and Ora Lassila (2020) with the research title "The Semantic Web: A new form of web content that is meaningful to computers will unleash a revolution of new possibilities," and the number of citations obtained is 29,793.

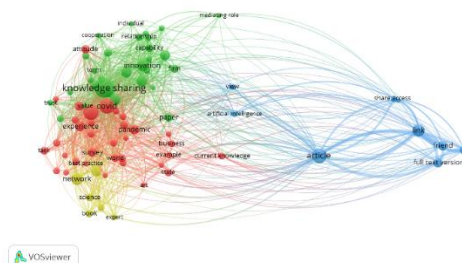


Fig 1 Network Visualization

The network visualization in Figure 1 aims to understand the relationships between keywords. From the 997 articles, 79 items or keywords were found, organized into 4 clusters that have been assigned different colors to distinguish between them. The details of the keywords in each cluster can be seen in Table 3. In the network visualization, it can also be observed that the keywords knowledge sharing, COVID, and sharing are the most researched topics, indicated by the larger circles compared to other keywords. The three keywords are also interconnected, linked by lines. Knowledge sharing is also widely implemented in all organizations, but since the emergence of COVID or the pandemic, the way this sharing is delivered has changed and requires readjustment for all parties involved.

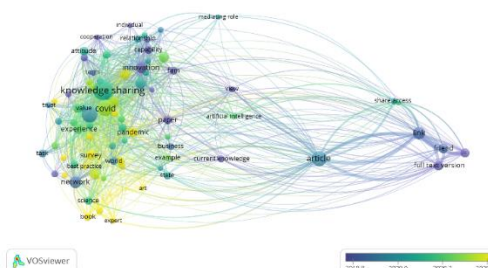


Fig 3 Overlay Visualization

The next visualization is the overlay visualization, which aims to illustrate each keyword based on the year of publication. The brighter the color of each keyword, the more recently that keyword has been used. Conversely, the darker the color of the keyword, the longer it has been published.

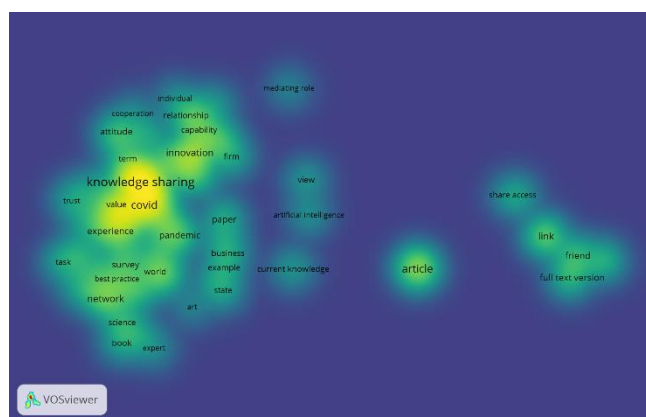


Fig 4 Density Visualization

The latest analysis presented by VOSViewer is density visualization. In this visualization, only the keywords are displayed along with a colored background that represents the updates for each keyword in a research study. Bright-colored keywords indicate frequently used keywords, while increasingly faded or darker colors represent keywords that are rarely used in research related to knowledge sharing. In Table 4, a mediating role was found, with artificial intelligence, blockchain, knowledge graph, prior knowledge, and art identified as variables that are rarely used in research on knowledge sharing. These variables indicate gaps and opportunities that future researchers can explore further.

Table 1 Clustering by Bibliometric Analysis

| Cluster | Keyword |
|----------------------|--|
| 1 (Red) | Art, Attitude, Best Practice, Business, Communication, Community, Company, Country, COVID, Current Knowledge, Example, Experience, Field, Group, Idea, Information Sharing, Interaction, Knowledge Graph, Language, Need, Pandemic, Part, Prior Knowledge, Researcher, Share Knowledge, Sharing, Source, State, Survey, Task, Transfer, User, World, Year. |
| 2 (Green) | Ability, Benefit, Blockchain, Capability, Collaboration, Context, Cooperation, Employee, Environment, Firm, Impact, Individual, Industry, Innovation, Knowledge Management, Knowledge Sharing, Mediating Role, Organization, Paper, Perspective, Process, Relationship, Research Agenda, SMEs, Systematic Literature Review, Systematic Review, Technology, Term, Trust, Value |
| 3 (Electric Blue) | Article, Artificial Intelligence, Colleague, Friend, Full Text Version, Link, Share Access, Version, View. |
| 4 (Olive) | Book, Expert, Expertise, Network, Platform, Science |

The bibliometric analysis from VOSViewer produces four clusters, each with its own relationships among the keywords. Cluster 1 is represented in red with 34 keywords that emphasize the presence of COVID affecting the knowledge sharing process. In this cluster, there is also a connection between current knowledge and prior knowledge, where both keywords are rarely used in research related to knowledge sharing. This cluster also identifies keywords such as best practice, community, sharing, transfer, group, and business, which can be concluded that knowledge sharing can be conducted individually or in groups, and engaging in knowledge sharing is considered a best practice for advancing the business of an organization.

Next, cluster 2 is marked in green with 30 keywords. In this cluster, we find literature where knowledge sharing can also play a mediating role and has not been extensively researched. It turns out that knowledge sharing is not only necessary in large organizations but is also essential for SMEs. The presence of knowledge sharing fosters trust in the minds of customers because, through knowledge sharing, customers can feel trusted and recognized, and their existence and opinions are valued.

Cluster 3 is marked with electric blue and contains nine keywords. In this cluster, knowledge sharing is not directly related, but several keywords serve as complements to the presence of knowledge sharing. The last cluster, or cluster 4, is marked with olive and contains six keywords. This cluster, like the previous one, shows that knowledge sharing is not directly related; however, cluster 4 highlights media or skills related to knowledge sharing, such as network, platform, and book. Knowledge sharing is also the knowledge possessed by each individual that can subsequently be shared with others as new knowledge or information.

IV. Conclusion

This research aims to provide an analysis of knowledge sharing by highlighting its development from before the pandemic to after the pandemic. In addition, it serves as information about the importance of knowledge sharing from various perspectives and viewpoints. This study uses bibliometric analysis as a research method, drawing from the Google Scholar database available in Publish or Perish over the last five years, from 2019 to 2023. A total of 997 articles published in the last five years were found. The data was then processed using VOSViewer for analysis. From the analysis conducted, it is known that the year 2020 had the highest number of publications compared to the other four years, totaling 363 papers. It was also found that the frequency of articles from 2020 to 2023 experienced a drastic decline.

This study concludes that Knowledge Sharing (KS) plays a crucial role in the sustainability of organizations amid the uncertainties caused by the COVID-19 pandemic. This finding indicates that KS is not only an integral component of knowledge management (KM), but also a determining factor for organizational

success in crisis situations. Facilitating cross-border Knowledge Sharing (KS) should be a top priority in crisis management. Research in the fields of Knowledge Sharing (KS) and Knowledge Management (KM) shows a tendency for individuals to be unwilling to share knowledge, and even to hoard information during times of crisis. To address this, efforts to promote KS behavior at the individual level need to be enhanced in order to prevent the occurrence of counterproductive activities.

This study presents significant findings and insights; however, there are still some limitations and gaps that can be addressed in future research. This study presents a bibliometric analysis to understand research trends on knowledge sharing. Future research can also utilize samples from other databases such as Scopus, Web of Science, and others to uncover deeper insights and generate new findings that can enhance knowledge. In addition to knowledge sharing, upcoming studies can identify other knowledge behaviors, such as comparing current knowledge and prior knowledge in knowledge sharing activities, knowledge hoarding and knowledge hiding, and examining other research trends based on gaps presented in previous studies. Future research needs to pay more attention to crisis management studies, particularly how organizations can adapt their existing Knowledge Management (KM) infrastructure to maintain business continuity.

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