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**Information Seeking in Information Management Practices:
A systematic literature review**

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Abstract

Information Seeking is one of the elements of Information Management Practices. Many authors use Information Seeking terms in various fields, such as health, medicine, business management and information management. This paper will provide insight into the research related to information seeking based on various studies in online databases. The main goal of this paper is to provide a systematic literature review of Information sought from the previous research from the year 2015 to the year 2020. The selected database consists of Emerald Insight, Science Direct and ProQuest. The search was done by using the keyword "information seeking".

Keywords: Information Seeking; Information Management Practices; Systematic Literature Review

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1.0 Introduction

Information Management Practices (IMP) refers to the capability of managers to manage the Information throughout the lifecycle, such as sensing, collecting, organizing, processing and maintaining. IMP focuses on the manager's ability to effectively manage the use of information to support their task/role in planning, organizing, coordinating, commanding and controlling the organization (Hwang, 2016). This practice involves the active seeking and scanning of information in external environments. Properly organizing information enables managers and employees to process information for different decisional contexts. Companies that know what information to process and how to maintain it will save their time and resources by effectively avoiding irrelevant information or re-collecting the same information. The IMP of an organization is vital to the quality of the daily decision-making activities which are carried out to satisfy an often-embryonic demand from customers. Consequently, to remain competitive, the quality of disseminated information cannot fall below that of business competitors, making it of great importance for an organization to engage in external information sensing to make explicit the IMP of competing organizations (Patrick, 2016).

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Information seeking is one of the elements of IMP. Information seeking detects, identifies, becomes aware of, or states things in a person's organizational environment. During this phase, the manager must continuously identify events, trends and changes in business conditions and make sense of them to define their information needs before collecting appropriate information to support daily tasks such as developing new strategies or making decisions. Generally, information seeking is also an activity related to scanning, noticing and interpreting Information in the external environment (Choo, 1998). Moreover, they were again perceived as 'sensemaking' to create and identify recurring events to stabilize their environments and make them more predictable. It is an essential element in IMP because information seeking is the first step in identifying information for any organization worldwide.

This paper will provide a systematic literature review on information seeking in information management practices. This paper also would like to explore the definition of information seeking in other disciplines and even in the field of information management.

The main goal of this paper is to provide a systematic literature review of Information sought from the previous research from the year 2015 to the year 2020.

This paper will describe the methodology used for the systematic literature review. The remainder of this paper is structured as follows. Section 2.0 describes the research methodology. Section 3.0 presents the results and discussion, and finally, section 4 includes a conclusion and future research directions.

2.0 Methodology

This study investigates the definition of information seeking and which databases have been the most published article about information seeking. We conducted a comprehensive literature review for it using the methodology outlined in Kitchenham (2007) and Okoli, Schabram (2010), and Chernet (2018). The method used to choose, evaluate, and assess papers is rigorous. When used in a particular field, it makes it possible to spot research trends and gaps.

Research question

We establish the research aims or objectives that will direct our review before we begin our systematic literature review. These ought to be precise, unambiguous, and related to the goal of our investigation. They provide the framework for finding pertinent studies and doing our analysis.

Research identification

To find pertinent studies, we create a methodical and thorough search strategy at this step. In order to find papers relevant to our research objectives, we must choose the right databases, journals, and other sources.

Study selection

We will next go on to screen the search results after doing our queries. The first step is to check the titles and abstracts to see if they meet our inclusion and exclusion criteria which we will go into more detail about below. The initial screening will be followed by a more thorough evaluation that includes reading the complete texts of studies that appear relevant.

Inclusion and exclusion criteria

Include criteria are requirements that a study must meet in order to be considered for our evaluation. On the other side, exclusion criteria are things that would make a study be excluded. By using these criteria, we can make sure that the studies we include are both up to par and directly address our research objectives.

Quality Assessment

The validity and quality of the included studies are evaluated at this step. The criterion for judging quality may be related to elements like methodology, data analysis, sample size, and general rigor. By evaluating quality, we can make sure that the studies we include add trustworthy and credible data to our review.

Data Collection

After choosing research that fit our requirements, we will extract pertinent information from them. The authors of the studies, the year of publication, the research methodology, the main findings, and any other facts pertinent to our research questions could be included here.

Data Analysis

We will analyze the data once you have gathered the required information. This analysis may involve categorizing and arranging the data, looking for trends, contrasting the outcomes of other research, and making judgements based on the body of evidence. The Chernet et al. (2018) systematic literature review technique may have special elements or methods that set it apart from other systematic reviews. A specialized framework, custom inclusion and exclusion criteria, targeted search tactics, unique data extraction and analysis procedures, cutting-edge quality assessment standards, or particular reporting and synthesis methodologies are a few examples of these distinctions. These variations might result from the methodology's emphasis, the study's topic, or the authors' originality. The basic goal of any systematic literature review is to thoroughly assess and synthesize current research to answer particular research questions or aims. This goal does not change, despite any potential variances.

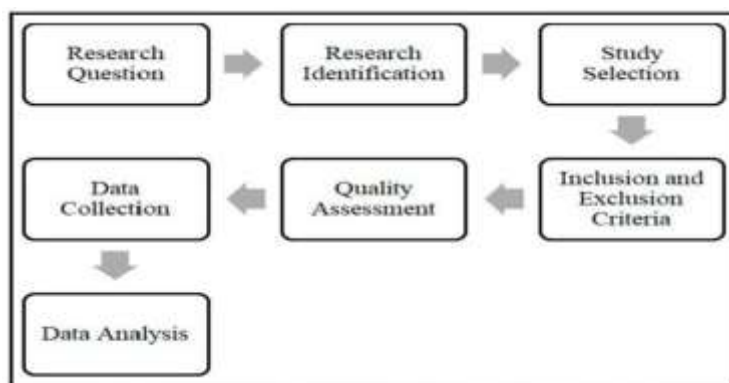


Figure 1: Systematic literature review method adopted from Chernet et al., 2018

This paper will explore Information seeking based on a systematic literature review guideline (Figure 1).

2.1 Research Question

The following research questions in this paper are as follows:

1. What is the definition of Information seeking based on the previous literature review?
2. Which databases have been the most published article about information seeking?

Table 1: Research Question

| NO | Research Question | Motivation |
|-----|--|--|
| RQ1 | What is the definition of Information seeking based on the previous literature review? | Identify the definition from the various field in the past literature review. |
| RQ2 | Which databases have been the most published article about information seeking? | Identify the most published article from three databases: Science Direct, Emerald Insight and Pro Quest. |

2.2 Research Identification

This step helps to examine and evaluate research on Information seeking based on the above research questions (step one).

2.3 Study Selection

This step is to determine the selection criteria. It is a critical phase where the selection criteria are as follows:

1. The paper should focus on information seeking
2. The paper must be published and written in English.
3. Open access

2.4 Inclusion and Exclusion Criteria

This phase is the criteria selected and excluded in each database's search options to narrow the search result.

Table 2: Inclusion and Exclusion

| No. | Databases | Inclusion | Exclusion |
|-----|---|--|---|
| 1. | Science Direct | Year: 2015-2022 Source Type: Journal Article Access Type: Open Access Language: English Limit to: Research Article | Type: Encyclopedia, Book chapters, Conference info, News, Video articles etc... |
| 2. | Emerald Insight | Year: 2015-2022 Source Type: Journal Article Access Type: Open Access Language: English Limit To: Journal Article | Type: Earlycite article, bookpart |
| 3. | ProQuest Dissertation & Theses Global | Year: 2015-2022 Source Type: Master's Theses & Doctoral Dissertation Access Type: Open Access Language: English Subject: Management, Business administration, computer science, social research, information technology Limit to: Full text | Type: Author, Advisor, University/Institution, Index Term (Keyword). |

2.5 Quality Assessment

This step helps to check and evaluate the accuracy and reliability of the selected articles or papers—the evaluation criteria are based on the continuity of the above criteria, which are inclusion and exclusion.

2.6 Data Collection

The data is extracted from reliable sources to respond to the research queries above. The data is fetched from the sources. The database is selected based on the use of library science students and provided by Universiti Teknologi MARA PTAR's library for free.

2.7 Data Analysis

This phase applied descriptive analysis to give brief information about the articles and determine the future directions of the research.

3.0 Result

By using the searching key term of information seeking, based on steps one above, the result showed as below:

Table 3: Keyword search without inclusion and exclusion criteria

| No. | Database | Search keyword | Search Result | Date |
|-----|---------------------------------------|---------------------|---------------|-----------|
| 1. | Emerald Insight | Information Seeking | 160,939 | 15/9/2022 |
| 2. | Science Direct | Information Seeking | 846,415 | 15/9/2022 |
| 3. | ProQuest Dissertation & Theses Global | Information Seeking | 1,167,156 | 15/9/2022 |

Table 2 shows that ProQuest is the highest search result of publication with the search keyword. Second, followed by Science Direct publication, and the last is Emerald Insight, with the lowest hit of results for both keyword searches.

The reason why this study starts from 2015 is because it allows us to focus on recent research and developments in the field of information seeking and management, ensuring alignment with current trends and technologies. This approach captures emerging concepts, addresses the impact of technological advancements on information practices, and considers a time frame where published research has had time to mature. By limiting the scope, we strike a balance between in-depth exploration and managing the volume of available literature, all while reflecting the dynamic nature of information management in the digital age.

As the results above show, ProQuest Dissertation & Theses Global has the highest hits. It is because they are the most extensive, multidisciplinary, full-text database available in the market today. This resource provides access to 47 of ProQuest's complete databases, with various content types across over 175 subjects, making this the broadest single research resource in the world. Moreover, ProQuest features many scholarly journals and professional journals in all social and political sciences fields with complete resources such as Education Database, Library Science Database, Political Science Database, Social Science Database, and Sociology Database. A few definitions are selected from the result, which can be used for Information seeking.

Next are the search queries with the advanced option, in which we have to use the inclusion and exclusion criteria in our search. Table 3 shows the result from 3 databases using the inclusion and exclusion criteria. ProQuest Dissertation & Theses Global is the highest number of hits, followed by Science Direct and Emerald Insight. After inserting the inclusion and exclusion criteria, the result is narrowed down and focused on the more relevant and accurate article.

Table 4: Keyword search with inclusion and exclusion criteria

| No. | Database | Inclusion & Exclusion | Criteria | Search Keyword Result |
|-------|--------------------------------|-----------------------|------------------|-----------------------|
| | | | | Information Seeking |
| 1. | Emerald Insight | Inclusion | | 3,470 |
| | | Year: | 2015-2022 | |
| | | Source Type: | Journal Article | |
| | | Access Type: | Open Access | |
| | | Language: | English | |
| | | Limit To: | Journal Article | |
| | | Exclusion | | |
| Type: | Books Part, Earlycite Article, | | | |
| 2. | Science Direct | Inclusion | | 50,465 |
| | | Year: | 2015-2022 | |
| | | Source Type: | Research Article | |
| | | Access Type: | Open Access | |

| | | | | |
|----|---------------------------------------|--------------|---|---------|
| | | Language: | English | |
| | | Limit To: | Research Article | |
| | | Exclusion | | |
| | | Type: | Encyclopedia, Book chapters, Conference abstract, News, Video articles. | |
| 3. | ProQuest Dissertation & Theses Global | Inclusion | | 192,551 |
| | | Year: | 2015-2022 | |
| | | Source Type: | Master's Theses & Doctoral Dissertation | |
| | | Access Type: | Open Access | |
| | | Language: | English | |
| | | Limit to | Full text | |
| | | Exclusion | | |
| | | Type: | Author, Author, Advisor, University/Institution, Index Term (Keyword). | |

Table 4 shows for keyword search with inclusion and exclusion criteria. Emerald Insight hit the lowest with only 3,470 hits, followed by Science Direct with 50,465 hits and the highest hit is ProQuest Dissertation & Theses Global with 192,551 hits.

Table 5: Number of hits of Science Direct database with exclusion and inclusion criteria

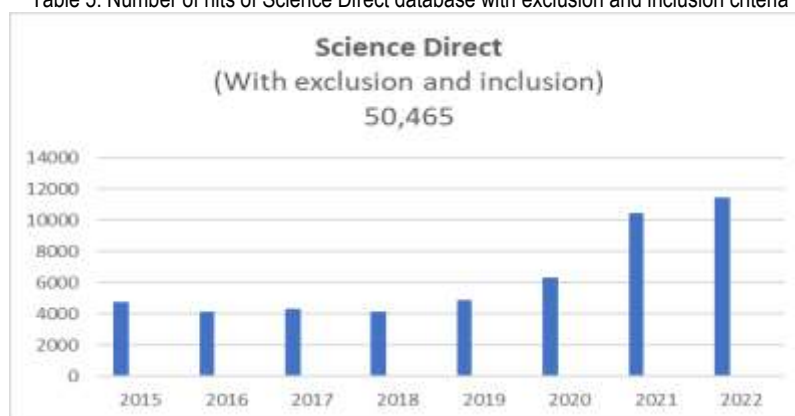


Table 5 shows for number of hits of Science Direct database with exclusion and inclusion criteria. For year of 2015 until 2019, the number of hits is around four thousand until five thousand hits, while starting 2020, it is starting to exceeds six thousand and 2021 until 2022 exceeds ten thousand to eleven thousand hits.

Table 6: Number of hits of Emerald Insight database with exclusion and inclusion criteria

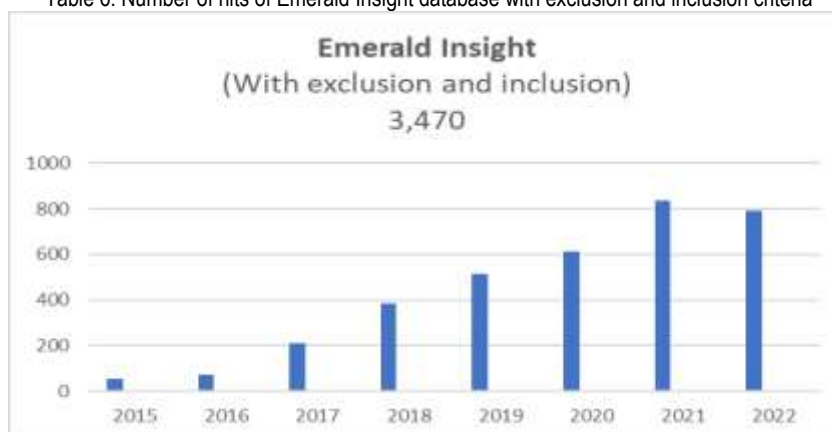


Table 6 shows for number of hits of Emerald Insight database with exclusion and inclusion criteria. For year of 2015 until 2017, the number of hits is around one hundred to two hundred, while starting 2018, it is starting to exceed three hundred. In 2019, it is increased around five hundred. For 2020, it is exceeding 600. In 2021, it is reached the highest with eight hundred and decreasing to under eight hundred in the year of 2022.

Table 7: Number of hits of ProQuest database with exclusion and inclusion criteria

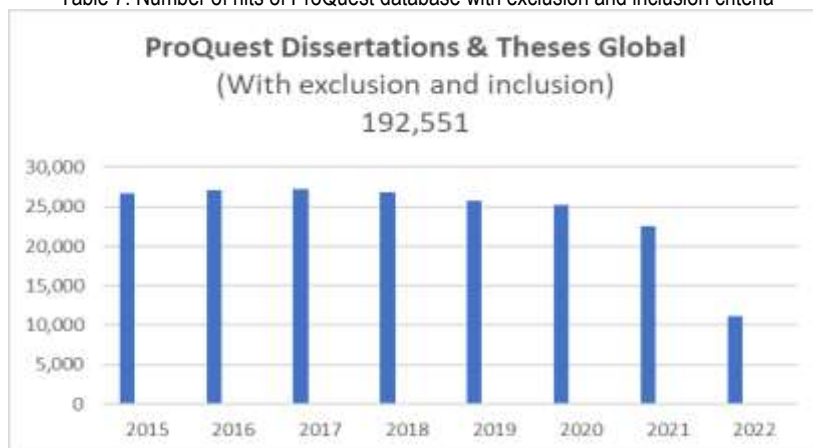


Table 7 shows for number of hits ProQuest database with exclusion and inclusion criteria. For year of 2015 until 2020, the number of hits is around twenty five thousand, while starting 2021, it is starting to decreased under twenty five thousand. For 2022, it is decreased until eleven thousand hits.

3.0 Result

This section discusses the result based on the research question of this paper.

RQ 1 *What is the definition of Information seeking based on the previous literature review?*

Information seeking is widely used in many subjects, such as Information Management, Business and Administration, Sociology, etc. Other than that, many terms refer to Information seeking, such as Information Behavioral Model by Wilson in 1981, Information Seeking by Wilson in 1999, Information Searching by Ellis in 1989 and Kulthau and Information Searching and Retrieval (in automated environments) in 1996.

Wilson's model had its start in 1981. The fundamental goal of this endeavor was to describe interrelationships between concepts rather than to create models (Wilson, 1981). According to this paradigm, the information-seeking process has 12 components (Aina, 2004). Wilson concluded that the satisfaction of a user's demand for information is the driving force behind their actions. Requests for official or informal sources/services are made to meet the perceived demand for information, with varying degrees of success.

According to Krikelas (1983), a user perceives a need in the context of their situation. The person sees a gap in their knowledge that must be filled to deal with a problem, directing the consumer to various sources of information to find answers. These could be human sources, information systems, or any other data source type. An information requirement is defined as a person's knowledge of the presence of ambiguity in their personal or professional life. Krikelas further splits data into specifics to find short-term urgent and long-term postponed requirements. The effort to meet a perceived need leads to information-seeking behavior. According to Krikelas, however, unconscious needs do not always lead to intervention (1983).

Ellis defines the various information-seeking activities as 'characteristics' rather than phases. By rejecting the term "staging," he implies that acts do not constantly occur in the same order; instead, the special conditions of the information seeker's information-seeking operation influence the pattern followed at that particular point in time (Ellis, 1989). The following characteristics have been identified:

- 1) Beginning: the method for beginning a search for information
- 2) Chaining: following footnotes and quotations in previously published material or 'forward' chaining through citation indexes from previously published objects
- 3) Browsing: semi-structured or semi-directed searches
- 4) Differentiating: Using known disparities in information sources as a filter to reduce the amount of data collected
- 5) Monitoring: Keeping the knowledge hunt current and up to date.
- 6) Extracting: finding relevant content in a stream of data selectively.
- 7) Verification: ensuring the accuracy of data.
- 8) Concluding: tying together loose ends with a final mission (Järvelin & Wilson, 2003).

Despite the fact that Ellis does not subscribe to a sequenced set of phases, Wilson (1999) indicates that a particular pattern is ingrained in the process. For example, 'starting' and 'ending' signal the beginning and end of a quest, respectively, and verifying should be the last phase. The other steps, on the other hand, could be completed in any order that corresponds to the knowledge quest. In their critique of Ellis's approach, Järvelin & Wilson (2003) point out that while it explains conduct-seeking knowledge, it does not justify it in terms of probable external triggers.

In contrast to Ellis, Kuhlthau divides an individual's knowledge search into distinct periods. She has outlined six phases, which are followed in order: initiation closure/presentation, selection, discovery, formulation, collecting, and quest (Kuhlthau, 1991). Instead of only mechanically searching for information, this paradigm incorporates the affective (feelings), cognitive (thoughts), and physical (actions and techniques) (Hayden n.d.). According to Kuhlthau's paradigm, the quest is an active process that involves the knowledge seeker's cognitive processes. 'A process of incremental refinement of the problem area, with the search for information of one kind or another while refinement takes place,' Wilson (1999) defines this way of discovering information. However, Hayden (n.d.) points out that this paradigm does not address information manipulation, such as data analysis, digestion, organization, synthesis, and evaluation.

Ingwersen's (1996) paradigm highlights the importance of the cognitive process in information-gathering. It also incorporates Information Retrieval (IR) technologies as potential information collection approaches. This suggests an information-searching model should include a framework that directs the searcher to potentially relevant knowledge items (Järvelin & Wilson, 2003). Like most other information-seeking models, this model concerns the active quest for information. Ingwersen identifies three elements that influence information retrieval: cognitive space, objects of information, and the retrieval environment. With each attribute, he implies that the searcher's behavior is influenced by implicit or explicit models related to their topic of interest. As a result, implicit job tasks, information needs, issue-solving, or task-oriented models that can be clarified drive search activities (Ingwersen, 1996). This model is significant because it mixes concepts with IR system design difficulties relating to information behavior and needs (Järvelin & Wilson, 2003, p. 8). Järvelin & Wilson identified a potential vulnerability in that additional information activity other than information retrieval is not evaluated.

Wilson's later work focuses on explaining information's general behaviors rather than just information-seeking behavior (Wilson, 1997). Wilson discusses how people need prompt information-seeking behavior, source choice and why some achieve a target more effectively than others using concrete ideas borrowed from other areas such as psychology, decision-making, creativity, health communication and market analysis (Case et al., 2005). The model includes 'passive' methods of searching for information, such as 'passive search,' in which unintentional searching contributes to the acquisition of relevant information, and 'passive attention,' in which no deliberate search for information is done, but the information is obtained unintentionally by listening to the radio or watching television (McKenzie, 2002; Mostert, 2004).

Choo et al. (1999, 2000) created a two-dimensional model by merging Ellis' information-seeking features, Wilson's four information-seeking modes (1996), and environmental scanning literature (Choo and Auster in McKenzie) (2002). The result is a flexible knowledge model that attempts to explain systemic variations in search mode as a person progresses (McKenzie, 2002). Choo et al. (1999, 2000) offer four modalities that can be utilized to represent the search and acquisition process in businesses. The modes closely associated with the behavior that Wilson (1997) identified in the quest processes are undirected viewing, conditioned viewing, formal search, and informal search. Informal searching entails seeking information to broaden and expand one's understanding of a topic. This unstructured endeavor determines whether or not a corporation desires intervention (Choo, Detlor and Turnbull, 2000).

Urquhart and Rowley (2007) proposed a model for portraying students' information-seeking behavior, particularly when using internet resources. They have identified macro and microelements that influence students' information-seeking behavior in their approach. According to Urquhart and Rowley, the micro factors are variables connected with the student's personality, such as search technique, data awareness, pedagogy, discipline, information literacy, etc. The design of information resources, infrastructure for information learning technology, organizational awareness and culture, regulations and funding, and so on are all macro variables (Urquhart & Rowley, 2007).

Information seeking, according to Fourie, is a dynamic process of interactive, social, and communicative behavior. Wilson characterizes it as the purposeful search for information to meet such goals (2002), while Johnson explains it as the intended acquisition of data from designated information carriers in 1997. Case (2002) describes it as a purposeful endeavor to acquire information in response to a need or gap in one's understanding. Information seeking to extract meaning from information, according to Kuhlthau (1991), is a proactive attempt by a user to broaden their awareness of a given issue or topic.

Meanwhile, Information seeking, according to White (2016), is a basic human behavior frequently carried out through interactions with automated search systems. He discussed how machine learning, cloud and mobile computing, and extensive data mining would change the search landscape in the next ten years and beyond. He discussed how next-generation search systems must support higher-order search activities, including learning, task completion, and decision-making. Some studies explained that Information Seeking refers to the active acquisition of information rather than passive access to information (Chang et al., 2020).

In contrast, Case (2016) describes information seeking as actively gathering Information related to individuals' work behavior and performance. Information seeking is critical in the workplace, where people "rely extensively on information for their competent performance" (Hertzum & Simonsen, 2019). Some studies explained that Information Seeking refers to the active acquisition of information rather than passive access to information (Chang et al., 2020). It is well established that active information seekers do not rely on a single source (Huff et al., 2014; Statista, 2020) and instead consult various sources (Nelson, 2018). Workers "rely substantially on information for their effective performance in the job," information seeking is crucial (Hertzum & Simonsen, 2019). Actively acquiring information on individuals' work behavior and performance is defined as information seeking in the workplace (Ashford & Tsui, 1991; Case & Given, 2016; RussellRose, Chamberlain & Azzopardi, 2018)

Other than that, in 2022, Nilufer stated information seeking as the ability of individuals to acquire accurate and reliable information in line with its purpose in a vast and growing mass of information, and to operate different cognitive processes like questioning, making decisions, and assessing during the information-seeking process, enhances the necessity of employing cognitive and metacognitive methods in online settings. He also stated that information-seeking could be characterized as a sophisticated cognitive activity whereby information-seeking techniques are used to conduct an effective search. Online information-seeking tactics are one of the crucial elements in effective and efficient internet use.

Generally, based on the past literature review, it can conclude that the definition of Information Seeking in terms of Information Management Practices is the ability to identify and recognize useful information which has value for the organization and stakeholders that impact the business.

RQ2 Which databases have been the most published article about information seeking?

As we can see from the result in table 3, it shows that ProQuest is the most published article about Information seeking without any inclusion and exclusion mentioned before. The finding that ProQuest has more articles about information seeking published than Science Direct and Emerald Insight may be attributable to ProQuest's extensive database coverage, which spans a variety of subjects and publishing formats. This wide-ranging coverage, together with the inclusion of historical information and a variety of sources, could result in more articles.

While after the inclusion and exclusion, ProQuest is still the most published article about information seeking. Even after applying inclusion and exclusion criteria, there are still a number of reasons why ProQuest has more articles regarding information searching than Science Direct and Emerald Insight. ProQuest's comprehensive multidisciplinary coverage, which includes a wide range of media including academic journals, magazines, newspapers, and reports, may help to represent works on the subject more broadly. ProQuest may also incorporate material from a larger range of publishing years and geographical areas, which can result in a higher total count. The nature of ProQuest's search algorithms and indexing techniques may also be important because they may capture more articles on information searching.

This showed that the researcher could refer to ProQuest to get Information about Information seeking in many fields and various definitions. Other than that, the nature of the database that focuses on Information Management and Social Science contributes to the article about information seeking.

4.0 Conclusion

This paper has shown a systematic literature review of information seeking. Based on the personal opinion of this paper, other researchers can know where to find the information they need in Information seeking by definition and also be aware of the database that provided the most publication in 5 years, from 2015 to 2020. They need to have the latest Information for information to keep their research up to date. As we known from the result, it is shown that ProQuest database is the highest hit without or with the inclusion or exclusion criteria, compared to Science Direct and Emerald Insight database. Lastly, information seeking is actually being used in many subjects. This systematic literature review can help them find the term more specifically and use it for the right field of their research when they use the ProQuest, ScienceDirect and Emerald Insight databases. Moreover, this study only uses three online databases (Emerald insight, Ebsco Host & ProQuest Theses and Dissertation Global) as references platform. Therefore, for future researchers, it may be helpful to contribute to a few aspects which did not cover in this study, such as expanding the search of the database, enhancing the quality assessment and considering the different criteria of searching to seek different angles of results.

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