Teachers' information-seeking on accomplishments of academic tasks: A systematic review

Rayhan Musa Novian (iD)

Department of Library Science, Faculty of Arts, Chulalongkorn University, Thailand

Abstract

Background of the study: Teachers have a vital role in education, which includes educating and guiding students, developing teaching materials, preparing lesson plans, and performing student evaluations. Therefore, individuals need information in order to complete their educational objectives.

Purpose: This review aims to systematically examine the three constituent elements of information-seeking behavior, with a particular emphasis on their application within the teaching field.

Method: The systematic literature evaluation in this study was guided by the PRISMA approach. The study's data collecting phase spanned a period of twenty years, specifically from 2003 to 2023. The study's results encompassed an extensive review of 25 research papers about the information-seeking behavior shown by educators. This review employed an inductive approach to data analysis.

Findings: Teachers demonstrate a preference for selecting information sources that encompass digital, printed, and interpersonal types. Teachers prioritize information sources that are familiar, user-friendly, and have a well-designed interface. Teachers have several barriers when seeking information, which can be attributed to both internal and external constraints.

Conclusion: This study draws on studies related to teachers' information behavior published in the last 20 years. Our goal is to comprehensively understand the information sources teachers use, their awareness of these sources of information, and the constraints they encounter when information-seeking.

Keywords: information-seeking behavior; sources of information; teachers; education

Introduction

Teachers have a crucial impact on the education system, and their ability to successfully complete their job responsibilities depends significantly on their access to relevant information. Teachers, as one of the information users, need information to fulfill their work tasks. Teachers' information needs are intended to assist in all academic activities they engage in, including teaching and learning tasks. Teachers have an important role in the field of education as they share knowledge and develop positive principles in students. Teachers have multiple responsibilities, and as professionals, they are expected to demonstrate a high level of dedication in their work (Brandshaug, 2021). The primary responsibility of the teacher is unquestionably to provide instruction and facilitate learning for the student (Franklin & Harrington, 2019). Their responsibilities encompass the creation of instructional exchanges, the enforcement of discipline, and the guidance of students in the process of learning (Arifin, 2020; Dirsa et al., 2022).

Teachers have specific information needs that are directly related to their job responsibilities, including preparing lesson plans, instructional materials, and evaluating students. Teachers' information-seeking activity is crucial for obtaining resources, knowledge, and materials that aid their teaching practices, curriculum creation, and other educational responsibilities. Teachers' information-seeking behaviors are influenced by their work roles and tasks (Bitso & Fourie, 2012), and they use various information sources such as the web, books, and interpersonal sources (Laltlanmawii & Verma, 2016). Awareness of teachers' information sources is a crucial aspect of their information-seeking activity. Teachers encounter constraints while seeking information to complete their academic responsibilities.

There has not been a previous study about teachers' information-seeking regarding sources of information, their awareness of information sources and constraints encountered while information-seeking in accomplishing their academic tasks. Nevertheless, there are several works of literature on three related areas: academic information-seeking behavior, teachers' information-seeking in terms of selecting information sources, teachers' awareness of information sources, and constraints encountered by teachers while seeking information. In the academic context, a study conducted by Niu and Hemminger (2011) found that information sources such as journals, web pages and personal communication between scientists are considered the primary sources of information for Factors that influence the information behavior of scientists such as psychological factors, environment and disciplines. Yadamsuren and Raber (2007) scholars select journals as their source of information, followed by textbooks and monographs. They relied on academic libraries to obtain information sources, and they preferred to purchase books privately or borrow from the library. Laltlanmawii & Verma (2016) also revealed that academics select formal information sources such as journals and books as their information sources for teaching and research. They also select informal information sources such as social networking, discussion forums, and personal contacts as secondary information sources.

Moreover, a specific study on teachers' information-seeking behavior by Khan et al. (2014b) revealed that teachers prefer a repository containing textbooks for their information sources. In the study conducted by Tanni (2012a) in preparing lesson plans, teacher trainees used six sources of information: personal collection, web, interpersonal resources, library, observation, and training. They found these sources of information by searching for necessary information, surveying the topic, monitoring incidental encounters, and determining the information provided to them. In Bitso & Fourie (2012) study, they broadly identified the information needs of teachers in general. The study further revealed the sources of information used and the channels they chose to obtain these sources of information. The study conducted by Silvana et al. (2019) has similarity with Bitso & Fourie's study. However, they emphasized

aspects of the information needs of teachers in completing their work tasks, such as designing lesson plans, creating teaching materials, strategies in learning methods, and selecting media as learning resources. Teachers use journals, e-books, e-libraries, and social media to obtain information and fulfil their information needs in these four areas.

Based on several previous studies, no one has integrated the findings regarding the sources of information used, awareness of information in selecting information sources, and the obstacles encountered when teachers seek information. This review intends to integrate the most recent research findings on teacher information-seeking in accomplishing their educational work tasks, specifically their sources of information, their awareness regarding to the information sources and constraints while information-seeking for accomplishing educational tasks. Therefore, the objectives of our review include: to discover source information used by the teacher, to identify their awareness of information sources, and to find out the barriers while information-seeking.

Method
Search strategy
An electronic search was conducted in November 2023 through SCOPUS, with the combination of the following terms: ("information seeking behavior" OR "information seeking behaviour" OR "information seeking" OR "information-seeking" OR "information-seeking behavior" OR "information-seeking behaviour") AND ("teacher" OR "teachers"). We decided to conduct an extensive literature analysis on teacher information-seeking by focusing on articles published during the past twenty years, specifically from 2003 onwards (2003-2023).

Inclusion and exclusion criteria
Full published papers that investigate teacher information-seeking in terms of accomplishing their academic task responsibilities. The relevance was evaluated using the following criteria:
1. The article should (at least partially) have an aim or a result regarding teacher information seeking;
2. The article discusses schoolteachers or pre-teacher schools;
3. The article is a research article or proceedings article.

The articles were excluded if they were classified according to any one of the following criteria:
1. The article focuses on university teacher/lecturer information-seeking;
2. The article is not written in English;
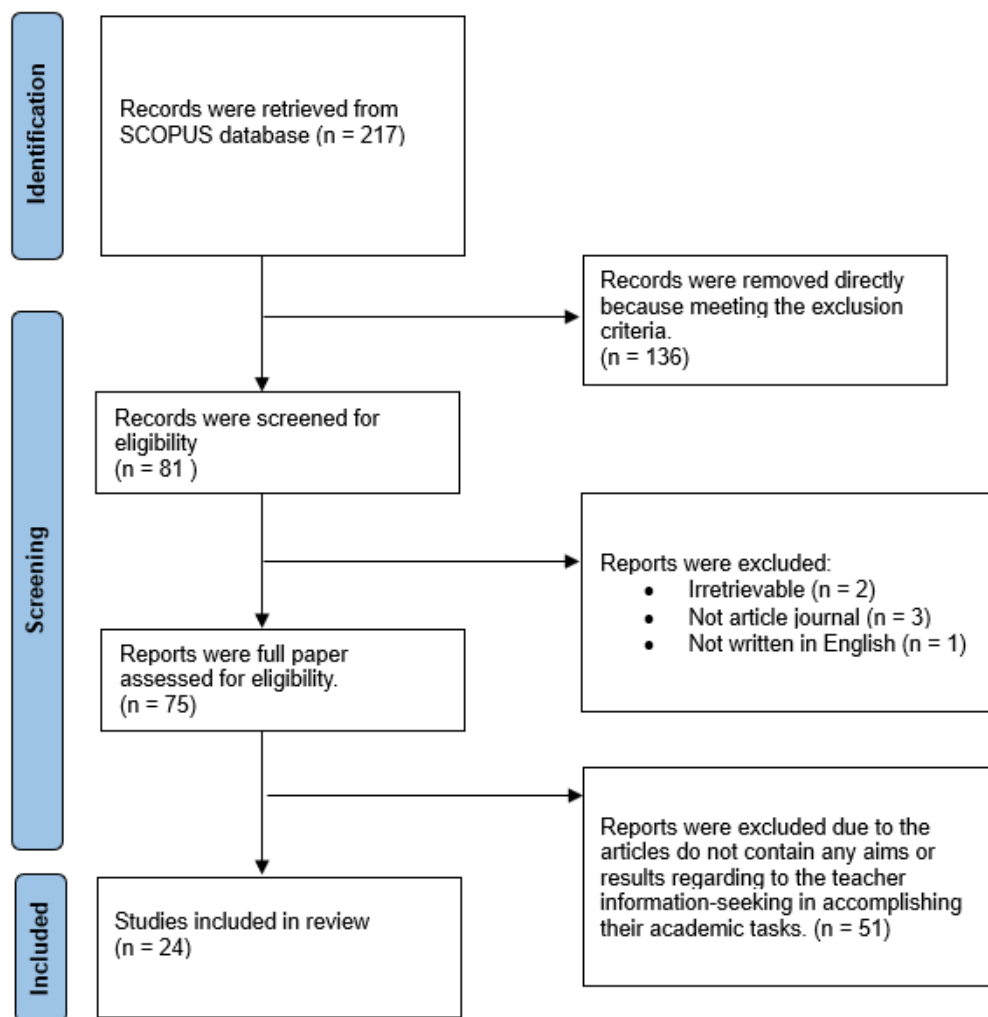3. The article is a review.

Figure 1. PRISMA Guideline

The titles and abstracts of the searched articles were carefully read by investigators. Based on the selection criteria as presented in Section 1, among 217 articles from the search results, 81 final articles were confirmed to meet the selection criteria through abstract screened. Furthermore, investigators downloaded and read the full papers of 81 articles from the screening results. When downloading the file, there were six articles that were excluded because they did not meet the criteria. Upon thorough examination of the whole articles and careful analysis of the data, the investigators excluded 51 publications incompatible with this study's specific purpose, which linked to the information-seeking behavior of teachers in accomplishing academic assignment tasks. Therefore, a total of 24 papers were used for this research. Subsequently, the researcher utilized Nvivo 12 for data analysis.

Result and Discussion

Teachers' sources of information.

Various sources of information are used by teachers to assist them in designing lessons and learning activities. In this review, a study conducted by Limbers & Sundin (2006) found that in the teaching process, there was interaction between teachers and students. In the teaching process, teachers suggested that students use databases and search engines for information

sources, but they also suggested that students also use Wikipedia as an initial source (Nygård et al., 2020). In Perrault's (2007) study of teachers' use of specific online information sources, 90% of the teachers used search engines, and 89% used specific websites as their information sources. However, only 20% used digital libraries, and 24% used online databases as their information sources. Hunter & Hall (2018) stated that teachers use YouTube (Tsai & Yang, 2018), online newspapers, and Pinterest as sources of information, in addition to databases and websites. Olaniran (2020) mentioned that pre-service teachers use electronic books, online videos, and radio broadcasts. Library catalogs are also classified as information sources (Garoufallou et al., 2016b; Stričević & Rubinić, 2023; Virkus & Mathiesen, 2019).

Apart from electronic resources, teachers also use printed sources as sources of information. Teachers use magazines and newspapers as learning resources for students (Nygård et al., 2020; Putman & Crossley, 2022; Yagnasridevi & Jeyshankar, 2019). Then, teachers also use textbooks as their source of information (Ekstrand et al., 2020; Putman & Crossley, 2022; Tanni, 2012; Yagnasridevi & Jeyshankar, 2019; Zinn et al., 2016; Bitso & Fourie, 2014;Gunasekera & Balasubramani, 2020). Ultimately on printed sources, the encyclopedia was used by teachers in the study (Zinn et al., 2016). Aside from printed sources, teachers also use personal file databases that have been compiled by their teachers colleagues at school (Diekema & Olsen, 2012). Then the teachers also inquire the librarian as their source of information (Stričević & Rubinić, 2023).

Awareness of information sources

Teachers' awareness of information sources is influenced by factors such as source novelty, familiarity, friendliness or interface, relevance, timeliness, and trust in information sources. Teachers select information based on its novelty, as indicated by Wu & Chen (2008) and Garoufallou et al. (2016a) who found that teachers prioritize current material and consult the most recent sources. Teachers also select information that they are familiar with (Bitso & Fourie, 2014; Ekstrand et al., 2020; Khan et al., 2014; Limbers & Sundin, 2006; Nygård et al., 2020; Perrault, 2007; Putman & Crossley, 2022; Stričević & Rubinić, 2023; Tanni, 2012). Teachers also select information with which they are more familiar (Wu & Chen, 2008; Bitso & Fourie, 2014; Ekstrand et al., 2020; Khan et al., 2014; Limbers & Sundin, 2006; Nygård et al., 2020; Perrault, 2007; Putman & Crossley, 2022; Stričević & Rubinić, 2023; Tanni, 2012). Furthermore, the teachers also prefer the information due to the packaging and interface, as in Wu & Chen (2008) study because the teachers consider it to be fun and easy to use. Awareness of information source of teachers is also based on the relevance of the information to their needs, this is found in the studies of (Wu & Chen, 2008; Garoufallou et al., 2016b; Gunasekera et al., 2019; Khan et al., 2014; Putman & Crossley, 2022; Stričević & Rubinić, 2023; Tanni, 2012).

Ease of access to information is an awareness of the information sources chosen by teachers. In a study conducted by Perrault's (2007) found that teachers selected easily accessible information such as websites to save time. This finding is also similar to Wu & Chen (2008) study which states that teachers use advanced search to locate information to save time. According to Garoufallou et al. (2016) study, teachers favor sources of information that are easily accessible and user-friendly. A few studies indicate the ease of use in getting information from electronic sources is related to velocity. In the other hand, Bitso & Fourie (2014) discovered that teachers prefer printed information due to its simplicity and reliance on additional resources. On their study also, teachers are knowledgeable about reliable sources of information.

Garoufallou et al. (2016) study states that teachers prefer information sources that they think are trustworthy such as library catalogs or verified websites, otherwise they feel anxious.

There are also teachers who use indexed repositories such as databases indexed by SCOPUS (Stričević & Rubinić, 2023). Moreover, some teachers verify the credibility of information sources by evaluating the content of books before adopting them into the curriculum (Khan et al., 2014). Teachers show an awareness of relevant sources of information, seeking information utilized by other teachers (Diekema & Olsen, 2012).

Constraints in information-seeking

The teachers experienced constraints on their information seeking to obtain learning resources. The constraints on teachers' information seeking from this review have several causes, which the researchers divided into two types, these are internal and external constraints. In this review, the researchers divided internal constraints into two, which are affective and cognitive. In cognitive constraints, teachers when information-seeking for learning resources feel they are not proficient in using computer devices (Perrault, 2007; Zinn et al., 2016), do not understand foreign languages (Gunasekera & Balasubramani, 2020), and, cannot evaluate information critically (Garoufallou et al., 2016; Perrault, 2007; Putman & Crossley, 2022; Virkus & Mathiesen, 2019; Chinenye & Chibuike, 2021).

Affective constraints to teachers' information seeking include feelings of discomfort and anxiety by teachers (Wu & Chen, 2008; Perrault, 2007; Putman & Crossley, 2022). Furthermore, they feel that their high workload as teachers means they do not have time to seek information (Bitso & Fourie, 2014; Gunasekera et al., 2019; Gunasekera & Balasubramani, 2020). The next constraint is that teachers feel that high-quality information costs money and is fee-based, hence they cannot access the information (Ekstrand et al., 2020; Olaniran, 2020). The external constraints occur outside of the teachers' personal seeking of information. There are several external constraints in this review. Several studies mention that teachers are constrained by facilities such as inadequate school library resources, such as non-renewable collections, that make them unable to find the appropriate information (Gunasekera et al., 2019; Gunasekera & Balasubramani, 2020; Chinenye & Chibuike, 2021). Teachers encounter constraints such as restricted internet access (Garoufallou et al., 2016; Gunasekera & Balasubramani, 2020; Perrault, 2007; Olaniran, 2020). Teachers encounter constraints in obtaining information due to the absence of computer facilities or other technology that could enhance literature searches (Gunasekera & Balasubramani, 2020). Additionally, external limitations are unrelated to facilities, such as uncooperative school librarians (Gunasekera & Balasubramani, 2020).

Discussion

The main phase in addressing teachers' academic needs is a thorough evaluation of information sources, as this directly impacts the effectiveness of information provision (Zhang, 2014). The process of selecting information sources is intricately linked to individuals' awareness of those sources. This activity might be seen as a parallel between the awareness of information sources, the use of information sources, and obstacles encountered in seeking information. The level of information literacy possessed by teachers is closely linked to their awareness of the sources of information they use. Internal elements, such as the teacher's degree of study (Chen et al., 2023), contribute to the awareness of information sources. In addition, teacher information awareness in selecting information sources can be influenced by external variables such as facilities and environments (Chen et al., 2023).

From that information awareness, teachers decide on their sources of information. Based on the results of this review, it discovered that there are three main reasons teachers' information awareness leads them to choose information sources: familiarity with information sources, relevance of information sources to tasks, easy access to information sources, and good

information packaging. Information awareness is basically a person's ability, directly or indirectly, to perceive an information source (Leckie et al., 1996). Therefore, an individual's information literacy is closely related to this information awareness (Browne & Martzoukou, 2022).

The utilization of digital or electronic information sources is prevalent due to its convenient accessibility (Kim et al., 2011, 2021). Additionally, social media platforms serve as an important source of information (Kim et al., 2014; Zhou et al., 2020). Nevertheless, there exists a particular group of teachers who continue to utilize printed sources of knowledge, primarily due to their convenient accessibility and the availability of services inside the school library (Kammer et al., 2021; Koh et al., 2022; Lewis, 2021). The utilization of information sources from other teachers is also influenced by factors such as familiarity and the perception that these sources are more relevant due to their prior usage or previous evaluation by teachers. Agarwal (2011) categorizes information sources into two distinct types: interpersonal or relational sources, which encompass individuals such as friends, coworkers, supervisors, and experts. The second category consists of impersonal or non-relational sources, occasionally referred to as non-human sources. The non-relational sources of information comprise different forms such as documents, journals, books, libraries, repositories, and other similar sources. The findings of this study indicate that teachers use these two sources of information when completing their educational tasks.

This analysis identifies several constraints that teachers face while seeking information. They were separated into two main categories by the researchers: internal and external. Lack of instruction in digital and information literacy might lead to internal constraints. Cost and other affective problems are also a constraint for teachers. In principle, the process of information-seeking has three important aspects: physical, cognitive, and affective (Wilson, 1997). Therefore, these two internal components are very influential on an individual's information seeking behavior. Lopatovska & Arapakis (2011) emphasizes that the information search process is characterized by the association of emotions with various characteristics. Searches can be triggered by anxiety and uncertainty, leading to emotional responses in individuals towards search results. Furthermore, external factors like the school library and librarians who lack support turn into constraints. In study of Tan et al. (2023) it is also mentioned that the obstacles experienced by a person in the process of searching for information come from that person (internal) and from external factors.

Conclusion

This study draws on studies related to teachers' information behavior published in the last 20 years. Our goal is to comprehensively understand the information sources teachers use, their awareness of these sources of information, and the constraints they encounter when information-seeking. This study has limitations in that it only considers aspects of information sources, awareness of information, and obstacles to seeking information. It also examined teachers' academic tasks as the basis for teachers' information needs; thus, it is considered too general. In this review does not explore the factors that influence teachers' information awareness. This review only retrieved studies that used quantitative or qualitative primary data. This review also found that there are still a few studies that discuss in detail these three aspects or only discuss one of the three objects of this review. In the future, studies are expected to discuss these components of professional work tasks in detail.

Authors' Contributions

All authors have contributed to the final manuscript. The contribution of all authors: conceptualization, methodology, formal analysis, writing original draft preparation, writing review, and editing. All authors have read and agreed to the published version of the manuscript.

Conflict of Interest

All authors have no conflict of interest related to this study.

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