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# Information sources, methods and challenges: perspective of first year undergraduate students of University of Cape Coast, Ghana

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**For the University of Cape Coast first-year students, research is an important step in determining the knowledge that best suits their needs. This study investigated the purpose of searching for information, major sources of information, information search strategies, and the challenges in information search, using the quantitative descriptive survey design. The sample size was 486, with 48.8% of the respondents aged between 21 to 30. Firstly, the results indicated that the main purpose of searching for information was 'knowledge enables a student to articulate a current theory in their own words'. Secondly, Google was the major source of obtaining information for students. Thirdly, students indicated that the main method used for information search was through browsing the internet. Lastly, low internet speed was identified as the major challenge to information seeking by students at the University of Cape Coast. The Internet of Things has made information access easier for students. Libraries are also essential sources of information that can help students make independent choices, take personal and group actions, write down ideas in different ways, and solve academic, socio-economic, and political challenges. To enhance group discussions and knowledge exchange, the Sam Jonah Library of the University of Cape Coast should provide adequate information sources through the use of Knowledge Commons, Social Learning Commons, and Development Information Commons.**

**Keywords:** Information search, Information sources, Methods, Challenges, University of Cape Coast.

## INTRODUCTION

Selecting and using information sources for academic work is very important in every sphere of education. First-year undergraduate students at institutions of higher learning often struggle to choose the best sources of information for their learning. When deciding what to study for a course, students may be unsure of which sources to utilize. Most often, they become confused about how they can access and use the information for their university work (Henderson et al., 2017). Data is processed information and students could obtain such information from various sources, including websites or books. Information sources are the various methods used

to record information for usage by students. Similarly, information sources might come from events, speeches, papers, individuals, images, and organizations. Sources of information can be found in print, non-print, and digital media. Utilizing the internet, peer groups, lecturer notes, textbooks, and publications are some of the common sources of information (Anshari et al., 2017). According to Chugh and Ruhi (2018), teachers and friends are the university students' most popular sources of information. Students now choose the internet as a source of information over other media, such as television, the press, and radio. Information can be sourced from either primary, secondary, or tertiary sources. University libraries are using online resources to expand the range of available information resources within the library, and to add value to the content by making it accessible through digital means, enabling students, researchers, and the entire university community to access information anytime and anywhere (Daramola, 2016).

To ensure they select the most appropriate material for their degree program, students must undertake an information search (Martin and Bolliger, 2018). The increased use of ICT has resulted in a decreased reliance on traditional sources of information such as textbooks, dictionaries, encyclopedias, and journals. Nowadays, most universities in the world are investing in their educational resources electronically, and all students are expected to use online services and resources to enhance their educational outcomes (Jethro et al., 2012). These online resources can include applications, matriculation, orientation for prospective students, online teaching and learning, graduation, and many others, all of which are done electronically. Additionally, access to information via database searches for material authored by multiple writers is also made possible through the use of the internet in education. Moreover, the World Wide Web (WWW or Web, in short) provides access to a huge variety of different sorts of information, from text to pictures, music, and video is made possible through the World Wide Web (WWW or Web, in short). First-year undergraduate students at the University of Cape Coast use the internet to access web-based resources, databases, and other library resources (Yebowaah and Owusu-Ansah, 2020). There is an increasing amount of research on students' use of databases or the Web in higher education (Wertz et al., 2013).

Researchers have been urged to modify their approaches to teaching and learning away from face-to-face information exchange and toward promoting students' development as autonomous learners (Rapanta et al., 2020). Students must be able to independently research and gather information from reliable sources to satisfy their learning needs. They must also be able to critically assess information sources before using them (Tohara, 2021). To complete their university assignments, group projects, presentations, quizzes, exams, and

research projects, first-year undergraduate students are often expected to conduct online research (Gamage et al., 2020). The University of Cape Coast provides information resources that are effective teaching and learning materials. The internet offers a platform for information accessibility around the globe and gives students access to a wealth of knowledge. Information sources give students the ability to disseminate knowledge and communicate via email, online discussion forums, and distance learning options. Although students can now obtain information more independently than ever before, they still require teacher guidance throughout the learning process because the majority of information sources that undergraduate first-year students locate online are not peer-reviewed.

Despite the abundance of information, there are few high-quality online information sources (Kim et al., 2014). For instance, since access to some sites is restricted owing to differing user rights, students will find it challenging to complete their assignments and research. As a result, individuals are restricted to the knowledge that their instructors impart. According to Guzmán-Simón et al. (2017), undergraduate students do not frequently use internet information resources. This is because students' information literacy skills and habits can have a good or negative impact on how they search for information. The research objectives are:

1. Examining the purpose of searching for information by first-year undergraduate students,
2. Identify the major sources of obtaining information by first-year undergraduate students,
3. Examine methods used for information search by first-year undergraduate students and
4. Examine challenges encountered in information seeking by first-year undergraduate students.

The University of Cape Coast's administrative staff, departments, and library can all greatly benefit from the findings of this study in determining what resources are most beneficial for students. To improve access to and use of the resources that the university library provides to undergraduate first-year students, this study suggests practical solutions (Nikolopoulou and Gialamas, 2011).

## METHODS

This section of the research focuses on the methodological issues of the study. The research design, study setting and population, sample size and sampling technique, instrumentation, data collection procedure, and data analysis procedure were considered as the methodological issues of the study.

## Research design

The descriptive survey research design was used in this study to ascertain the relationship between the variables of the study. The

quantitative research approach, according to Creswell (2014), evaluates a theory by defining specific hypotheses, collecting data to support or disprove the hypotheses, and then analyzing the data using statistical techniques and hypothesis testing. The process of gathering and interpreting numerical data is known as quantitative research. It can be used to identify trends and averages, formulate hypotheses, examine causality, analyze relationships between variables, and extrapolate findings to larger populations.

**Study setting and population**

The University of Cape Coast, located in the Central Region of Ghana, served as the site of the study. Founded in 1962, the university has grown to become one of the country's leading institutions, with an estimated 25,000 students enrolled, including regular students (graduate and undergraduate), distance learners, and sandwich learners. The target group for the study was the university's undergraduate students, though all first-year undergraduate students taking the information literacy course at the university were also included in the accessible population. There were 5,841 freshmen for the academic year 2021–2022. The sample for the study was taken from this accessible population.

**Sample size and sampling technique**

The pool of first-year undergraduate students taking the information literacy course was used as the study sample. A sample size of 486 was arrived at using the simple random sampling procedure, which targeted a total of 936 students. Using simple random sampling, every member of the target population had an equal opportunity of participating in the study. The majority of the respondents (48.8%) were within 21 to 30 years. There were more male students (67.7%) than female students. 39.1% of respondents were associated with the College of Education Studies, compared to 41.4% who were associated with the College of Agriculture and Natural Sciences.

**Instrumentation**

The instrument used for the study was a questionnaire developed by the researchers based on previous empirical research. The questionnaires included sections that assessed respondents' socio-demographic characteristics, the purpose of information search, sources of information, methods used in information and finally, the challenges of information seeking. Items that assessed the purpose of the information search were adapted from Irving et al. (2017). Items for the sources of information search were adapted from Grønflaten (2009). The items that assessed methods of information search were adapted from Xie et al. (2020), while the items related to the challenges of information search were adapted from Reddy et al. (2008). The reliability analyses of the research instruments were performed using Cronbach's alpha coefficient. The reliability coefficients were 0.85, 0.92, 0.77, and 0.83 for the purpose of information search, sources of information search, methods of information search, and challenges of information search respectively.

**Data collection procedure**

The researchers used the opportunity to talk to the student about the study and sought their informed consent for the data collection. Consent and confidentiality were strictly observed, and participants were made aware of the study's aims and objectives. Participants were assured that their participation was voluntary and that they had the freedom to leave at any moment without fear that doing so would negatively impact their course of treatment or result.

Informed consent forms were given to the patients or relatives to sign indicating their voluntary participation. The questionnaire was converted into a web-based (online) survey using Google Forms. Google Forms is an internet-powered platform that allows an individual to create and share questionnaires or surveys for online data collection. After creating the online questionnaire, a link was generated and shared with the students. Online data collection has been applied in several empirical studies and has been considered a reliable and valid method of data collection (Moises Jr, 2020). As respondents answered the questionnaire, the data were directly collated on the Google Platform, which was then retrieved by the researcher via email. This procedure eliminated the need for a face-to-face meeting with the respondents, as there was no requirement for such a mode of distribution of the questionnaire. There was no identification information on the online questionnaire, thus the questionnaires were filled out anonymously by the participants. The nature of the data collection procedure automatically ensured the protection of the identity of these workers. Participants took between 25 and 35 min to complete the questionnaire. Data collection took a total of two months.

**Data analysis procedure**

After the data collection, the individual question items on the questionnaire were coded into IBM SPSS Statistics version 26. Data cleaning was done to check for any errors that occurred during the entry of the data. Statistical analyses were conducted with the JASP Software. Data on the four objectives that guided the study were analysed using means and standard deviations. Results from the statistical analyses were interpreted and discussed.

# RESULTS

The results of the study were captured under the various objectives of the study, thus, the Purpose of searching for information, major sources of obtaining information, methods used for information search, and challenges encountered in information seeking.

## Purpose of searching for information

Research objective one sought to explore the reasons why first-year undergraduate students need information. Data on this research question was analysed with means and standard deviation. From the results, the items with the highest means were interpreted as the main reasons why first-year students need information. The results of research question one are presented in Table 1. From the results presented in Table 1, the item "Knowledge enables a student to articulate a current theory in their own words" obtained the highest mean of 4.24 (SD= 0.91). This was followed by "The student's active participation in class or during a group discussion" (*M*= 4.17, *SD*= 0.94), "Students prefer using the internet to find information" (*M*= 4.15, *SD*= 1.03). The item "Internet resource discovery is simpler for students than browsing library bookshelves for stuff" obtained a mean of 4.13 (SD= 1.07), while the item "The capacity of a learner to express their opinions and ideas regarding the range of topics discussed in class" obtained a mean of 4.12 (SD=

**Table 1.** Purpose of searching information.

| Items | Mean | SD |
|---|---|---|
| Knowledge enables a student to articulate a current theory in their own words. | 4.24 | 0.91 |
| The student's active participation in class or during a group discussion. | 4.17 | 0.94 |
| Students prefer using the internet to find information. | 4.15 | 1.03 |
| Internet resource discovery is simpler for students than browsing library bookshelves for stuff. | 4.13 | 1.07 |
| The capacity of a learner to express their opinions and ideas regarding the range of topics discussed in class | 4.12 | 0.99 |
| The learner's ability to remember information or facts | 4.07 | 0.86 |
| Ability to distinguish between facts and opinions | 4.07 | 0.83 |
| Ability to recognize and communicate value. | 4.05 | 0.94 |
| Aid with competence and assurance in assimilating acquired responses into routine tasks. | 4.01 | 0.98 |
| Paying close attention in class to the lessons | 4.01 | 1.05 |
| Aids in putting sensory data to use in practical activities | 4.00 | 0.96 |
| After answering some previous questions with confidence, students can solve exam problems. | 3.96 | 1.04 |
| Encourage students to type more quickly when using a computer | 3.94 | 1.09 |
| The capacity to combine many materials or ideas to create a solid pattern or structure that contributes to the establishment of new meaning | 3.88 | 0.92 |
| Choosing the selected career path over potential options | 3.84 | 0.98 |
| The ability of a student to create a workable model out of common materials after learning numerous underlying theories. | 3.83 | 0.971 |
| Ability to locate and use the most cost-effective production techniques to boost earnings while maintaining a strong competitive advantage | 3.75 | 1.02 |
| Virtual library services are excellent. | 3.69 | 1.06 |
| Valuing one's academic achievements over their social interactions | 3.54 | 1.16 |
| On the UCC campus, internet access is excellent. | 3.23 | 1.22 |

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Source: Authors

0.99) were the highest. However, the least purpose of searching information was "Virtual library services are excellent" which obtained a mean of 3.69 (SD=1.06), "Valuing one's academic achievements over their social interactions" obtained a mean of 3.54 (SD=1.16), and "On the UCC campus, internet access is excellent" obtained a mean of 3.23 (SD=1.22). From the findings, the main reason undergraduate students need information is to: be able to participate in class and group discussions; understand existing theories; be able to find information on the internet relatively easily; prefer using the internet to find information; and be able to express their opinions on pertinent topics.

## Major sources of obtaining information

This section considers how students obtain information for their academic work. Means and standard deviations were used to analyze the data for this research question. The items with the highest means were identified as the main information sources for first-year undergraduate students based on the results. Table 2 lists the findings for research question one. Table 2 shows the various

information sources for first-year undergraduate students. From the results, the major information sources included: Google (M= 4.38, SD= 0.83), Android/Smartphones (M= 4.36, SD= 0.84), YouTube (M= 4.24, SD= 0.94), Computers (M= 4.21, SD= 0.96), Textbooks (M= 4.16, SD= 0.96) and lecture notes/ handouts (M= 4.14, SD= 0.88). Meanwhile, Family members (M= 3.38, SD= 1.16) and CD-ROMs (M=3.26, SD=1.21) were not considered as major sources of information among first-year undergraduate students. The results indicate that undergraduate students are more likely to obtain information from readily available materials like Google, smartphones, YouTube, laptop or computers, and lecture-related materials. The high usage of Google, smartphones, YouTube, and laptop or computers could be due to the research-intensive nature of tertiary education.

## Methods used for information search

Research objective three aimed at identifying the methods first-year undergraduate students used in their search for information. Data on this research question

**Table 2.** Major sources of information.

| Information sources | Mean | SD |
|---|---|---|
| Google | 4.38 | 0.83 |
| Android/Smartphones | 4.36 | 0.84 |
| YouTube | 4.24 | 0.94 |
| Computer/Laptop/ Desktop/ IPad | 4.21 | 0.96 |
| Textbook(s) | 4.16 | 0.91 |
| Lecture Notes &amp; Handout | 4.14 | 0.88 |
| Coursebook(s) | 4.14 | 0.89 |
| Lecturers | 4.14 | 0.96 |
| Dictionaries/Encyclopedias | 4.13 | 0.95 |
| WhatsApp, Facebook, FacebookLive, YouTubeLive, LinkedIn, Instagram, Twitter, Flickr, etc. | 4.05 | 0.99 |
| Google Scholar | 4.01 | 1.02 |
| E-Books | 3.94 | 1.09 |
| Self | 3.91 | 1.07 |
| Project work | 3.88 | 1.01 |
| Librarians | 3.78 | 1.12 |
| Friends/Colleagues/Mates | 3.75 | 0.92 |
| E-Journals | 3.70 | 1.15 |
| Print Journals-Newspapers, Magazines | 3.68 | 1.11 |
| Pen drive/External drive | 3.65 | 1.12 |
| Academic databases. Examples; Emerald, Elsevier, SAGE, etc | 3.63 | 1.12 |
| E-Newspapers | 3.63 | 1.17 |
| E-Images | 3.63 | 1.13 |
| Thesis/Dissertation | 3.61 | 1.12 |
| Ask.com | 3.57 | 1.24 |
| TV Stations | 3.56 | 1.16 |
| FM/Radio Stations | 3.53 | 1.16 |
| Bing.com | 3.46 | 1.26 |
| Yahoo.com | 3.42 | 1.18 |
| Community Information Centers | 3.41 | 1.20 |
| Photocopy of peer notes | 3.39 | 1.11 |
| Family members | 3.38 | 1.16 |

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Source: Authors

was also analysed with means and standard deviations. Thus the item with the highest mean was deemed as the main method students used in their search for information. Table 3 shows the results of research question three. From Table 3, the main methods of searching for information among first-year undergraduate students include browsing the internet (M= 4.38, SD= 0.85), using Google and google scholar (M= 4.35, SD= 0.82), reading required textbooks (M= 4.18, SD= 0.92), inquiry from lecturers (M= 4.13, SD= 0.93) and searching electronic databases (M= 3.99, SD= 1.02). On the other hand, asking referencing librarian (M= 3.67, SD= 1.12) and searching the manual catalogue (M= 3.59, SD= 1.11) were the least used methods of searching for information among first-year undergraduate students. The results support research objective two, which shows that

students use internet-supporting electronic devices as their source of information search. This indicates that students use the internet often to obtain information for their academic work.

**Challenges encountered in information seeking**

As stated, research objective four examined the various challenges first-year undergraduate students face in their search for information. Data on this research question was also analysed with means and standard deviations. This procedure helped to identify the most pressing challenges first-year undergraduate students encounter in searching for information. The results from the analysis of data on this research question are presented in Table

**Table 3.** Methods of information search.

| Items | Mean | SD |
|---|---|---|
| Browse the Internet | 4.38 | 0.85 |
| Use Google and Google Scholar | 4.35 | 0.82 |
| Reading the required textbooks | 4.18 | 0.92 |
| Inquire from lecturers | 4.13 | 0.93 |
| Search electronic databases | 3.99 | 1.02 |
| Use Online Public Access Catalogue (OPAC) | 3.87 | 1.04 |
| Accessing journal articles | 3.79 | 1.06 |
| Ask students/Mate | 3.77 | 1.00 |
| Search books from the shelf | 3.76 | 1.14 |
| Ask the reference librarian | 3.67 | 1.12 |
| Search the manual catalogue | 3.59 | 1.11 |

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Source: Authors

**Table 4.** Challenges in information seeking.

| Items | Mean | SD |
|---|---|---|
| Low internet speed | 3.90 | 1.31 |
| Internet connection instability | 3.88 | 1.31 |
| Password requirements for accessing information | 3.58 | 1.45 |
| Information overload (Too much information) | 3.55 | 1.22 |
| Inadequate computers | 3.48 | 1.37 |
| Lack of time | 3.39 | 1.28 |
| Inadequate search skills | 3.39 | 1.21 |
| Restrictive opening hours | 3.29 | 1.23 |
| Experience frustrations, anxieties &amp; disappointment in  searching | 3.20 | 1.28 |
| Have no idea how to use the online resources | 3.17 | 1.29 |
| Inadequate information materials | 3.16 | 1.30 |
| Outdated library materials | 3.13 | 1.31 |
| Frequent electricity power outages (cuts) | 3.12 | 1.33 |
| Computer viruses | 3.10 | 1.31 |
| Insufficient library personnel to consult | 2.79 | 1.35 |
| The negative attitude of library staff (Not helpful, Rude, Unfriendly) | 2.59 | 1.36 |

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Source: Authors

4. Per the results presented in Table 4, the major challenges related to information seeking among first-year undergraduate students included low internet speed (M= 3.90, SD= 1.31), Internet connection instability (M= 3.88, SD= 1.31), password requirements for accessing information (M= 3.58, SD= 1.45), information overload (M= 3.55, SD= 1.22) and inadequate computers (M= 3.48, SD= 1.37). However, insufficient library personnel to consult (M= 2.79, SD= 1.35) and negative attitudes if library staff (M= 2.59, SD= 1.36) were not regarded as challenges to information seeking by the participants involved in the study. The result indicates that although students use the internet as their primary information source, they do have difficulty with internet speed. This is likely to affect the timeliness of information made available to students.

**DISCUSSIONS**

The results revealed four goals and provided definite conclusions. The first research goal was to investigate the information needs of the University of Cape Coast first-year undergraduate students. According to the study's findings, students need the expertise to describe an established idea in their terms. This  corroborated

findings made by Ugwu and Orsu (2017) in a study evaluating the goals of information sources for students. Increasing their knowledge through training is one of the main reasons why students seek out information from numerous sources. This suggests that choosing how to approach an academic subject depends on the knowledge that students have acquired. Improving knowledge acquisition and application would help to lessen incorrect decisions, which is one of the greatest ways to prevent making them. Individual access to and utilization of information sources helps people understand ideas and concepts in a variety of academic disciplines much better. According to Yamson et al. (2018), 57% of the 134 students surveyed preferred to use print resources for their academic work (student learning). 76% of first-year undergraduate students look for material online when completing a university project, on average (Nikolopoulou and Gialamas, 2011). The knowledge and experiences of the students are a factor in how actively a student participates in class, group discussions, and idea exchange. Investigating the primary information sources used by the University of Cape Coast first-year undergraduate students was the second research objective. You can obtain information through people, the Internet, libraries, and archives, among other sources. For academic objectives, one needs dependable, pertinent, and helpful information. The librarians help students locate their material in print and electronic formats. It is crucial to note that this study is consistent with a related investigation of undergraduate students' information-seeking behaviors. The results showed that, with 76% of respondents saying they look online "frequently" or "constantly," it appears to be the main source of information. These results concur with earlier research conducted by Mizrachi and Bates (2013) and Wertz et al. (2013). A sizable portion of the students (34.7%) expressed a significant preference for online sources. According to Mizrachi and Bates (2013) research, first- and fourth-year undergraduate students' top three information sources were books, lecture notes, and websites. The Internet was the most frequently used information source in this survey. Students engage in internet searching more frequently than database searching. The vast majority of students use Google when looking for information among the many search engines. Since not all of the information could be obtained through Google, this has ramifications for undergraduate students. Machimbidza and Mutula (2020) found that the internet use, proficiency, and strength of senior high school students all significantly influenced their information literacy abilities. Higher Internet usage proficiency at the second cycle level may result in improved performance in a variety of learning activities during the first year of university. For instance, Machimbidza and Mutula (2020) found that in the Web-based learning test, students with higher internet self-efficacy outperformed those with lower levels because

they used better information-searching tactics.

The third research question sought to define the techniques first-year college students employed to find knowledge. It was found that students tended to rely on Google, Google Scholar, and YouTube to read their assigned textbooks and listen to lectures for information, rather than using low levels of database searching. In order to make the most of internet sources, students need to be equipped with the necessary information literacy abilities to find, use, and evaluate the information they get from the internet. Furthermore, according to a study, most academic libraries in Ghana subscribe to institutional repositories, which offer a variety of electronic databases, although students' access to the information is constrained. Koch-Weser et al. (2010) also found that, although Web activities for first-year undergraduate nursing students are a supplement to face-to-face instruction, students still required help to improve their Web searching abilities. However, the authors thought it was intriguing that students also used their classmates to get information for their everyday lives. For instance, people look at factors like website popularity, how frequently friends use it, the content's author, its currency, and its scope of coverage to assess the quality of information from websites. The Internet is a vast computer network that enables user-to-user communication and the sharing of data files among connected computers. Users at any one computer can, with permission, access information from any other computer via the Internet; a global system of computer networks. The World Wide Web (WWW) also offers the tools required for navigating the Internet. The World Wide Web is a method of gaining access to information via a web address, also known as a Uniform Resource Locator (URL). Information might be found using a variety of techniques, such as Boolean operators, phrase searches, truncation symbols, the phrase in quotation marks, words with hyphens, etc. According to a survey done with high school students, the students' knowledge of the veracity and dependability of information sources on the internet was insufficient (Ajuwon et al., 2011). Similar to van Deursen and Van Diepen (2013), who discovered that students used the internet as their main information source but had difficulty determining whether the data they searched for and obtained was worthwhile to employ. On some computers, passwords have been required in specific circumstances to access information. Additional difficulties included inadequate computers, a lack of time, and poor search abilities.

**Conclusions and Recommendations**

The study concludes that the majority of the material for the University of Cape Coast first-year students came from the Internet, colleagues or peers, professors, and informational resources in the library. Today's "Internet of

Things" has made it possible for pupils to effortlessly access information around the clock. Libraries are one of the venues where students can receive the information they need to make independent decisions, act individually and collectively, express ideas creatively, and solve academic, socioeconomic, and political challenges. First-year students prefer electronic knowledge to printed materials in this era of IT. Including undergraduate students' information-seeking habits among first-year students at various levels is important for future research. Based on the findings, the paper recommends that deepening the information literacy skills among first-year students will assist them to seek knowledge to help students to explain concepts or principles in their own words. Students will become critical thinkers. Also, apart from the internet being the major information source for students, they can depend on peer-to-peer sources for their information. Current print materials should be purchased by the library for students to support the online materials. The methods first-year undergraduate students used in their search for information should also be improved. Using few search engines and limited search terms affects their search results. They need to consult the various institutional repositories for more information. Additionally, one of the major challenges related to information seeking among first-year undergraduate students is the low internet speed. To address this challenge, the university and library need to boost the internet's bandwidth for students. Furthermore, the library must provide student access to computers and internet connectivity so they can access academic databases online and a wider range of online resources beyond just Google.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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