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The Role of the Academic Librarian in the Sciences of Food and Health

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ABSTRACT

This study investigates the information seeking behavior of faculty and graduate students in the sciences of food and health. We compare three food science research sources through quantitative and qualitative research methods of interviews, observational studies, and surveys. We aimed to discover what motivates scientists' information seeking, how they search, what barriers they experience, and how they critically evaluate information sources. We explored faculty perceptions of literature review practice in the field and by their students, their preferences for training and best practice in order to improve research quality. Recommendations for librarians supporting food science and related departments are provided.

KEYWORDS

Information behaviour; food science; librarian; literature review; library management; information seeking

Introduction

The science of food and health is a rapidly growing area of research that covers a wide variety of topics making it multi-disciplinary (Blázquez-Ruiz, Guerrero-Bote, and Moya-Anegón 2016; Guerrero-Bote and Moya-Anegón 2015; Lê 2011).[1] Increasingly there is a demand for high quality and reliable food science information across the globe (Lê 2011). Scientists in these disciplines perform research on technology in relation to food safety and production, issues related to nutrition and health, sociological and anthropological aspects of food and a host of other inquiries. As part of their research process, food scientists consult literature databases and the ubiquitous Google, but report difficulties in navigating the information landscape to connect efficiently and easily to the most relevant sources for their topic. Multi-disciplinary research means that searching in more than one database is essential, as databases' coverage tends to be specific to one topic area or cover more than one topic but restricted to a specific field (aggregators and multi-disciplinary databases), but with limited time and resources one must create an efficient and effective research strategy.

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The study of the information needs and behavior of scientists is not new, but little attention has been paid to food scientists (Shpilko 2011). Here we draw on research done in related science areas to give some background. Information behavior (IB) is interdisciplinary and has been studied extensively in information science, in particular since Wilson presented information seeking and behavior relationships in various models (Wilson 1997, 1999). Wilson defined IB (a term that includes information seeking and the needs of the user) as "the need for information, inner processes and environmental factors affecting the individual's way of responding to the information need." (Wilson 1999) and others simply as "how people need, seek, give and use information in different contexts" (Pettigrew, Fidel, and Bruce 2001). More recent research into the theory of IB exists covering areas of how choice is made, how people feel about using resources, human interaction with information and how professionals search for and consult resources (Case and Given 2016; Fisher, Erdelez, and McKechnie 2005; Ford 2015).

Research has identified scientists can be clustered into five groups of information searchers characterized by personalities (Palmer 1991), further explored in detail by Heinström (Heinström 2000). Therefore, researchers' IB will differ depending on the personality of their information-seeking. How researchers in basic science select bioinformatics tools showed that what one group of scientists prefer to use when it comes to an interface, is not preferred by another, showing the need to develop different design and tools for different users (Bartlett, Ishimura, and Kloda 2011). Demographic, psychological, role-related, and environmental factors affect information-seeking in academic researchers (Niu and Hemminger 2012). Almost 20 years ago, faculty researchers were considered "creative, canny consumers and searchers" (Flaxbart 2001). More recent research into IB in faculty and students show that in order to be successful, researchers need to adapt to the growth of a number of publications and different technologies (Bauder and Emanuel 2012). Research in veterinary science shows that the information needs of researchers are influenced by the research environment and expectations for research output (Nel and Fourie 2016). Keeping up on research is "crucial for success", but staying current is a daunting task for scientists (De Groote, Shultz, and Blecic 2014). A study into chemists showed that a significant number of chemists are anxious about their ability to remain in control of their information needs, they "fail to develop new information seeking behaviors to remain informed and grasp developments outside their narrow field of expertise" (Gordon et al. 2018).

Researchers face challenges to locate, organize, evaluate, and use information, and chemists are "losing their information finding skills" (Baysinger 2016; Brown et al. 2007). It has been suggested that Google Scholar is now the first point of call for scholars and that habits developed searching there are translated across to other databases (Marks and Le

2016). Other challenges noted in research is that searching is complex and the selection of keywords and retrieving results is daunting (Khare, Leaman, and Lu 2014). There are great differences in the content and services of databases (Lefebvre et al. 2013) and researchers are hampered by inappropriate search strategies, time constraints, and contradictory information (Ho et al. 2016). Researchers rarely use MeSH terms or use the interface tools provided (Kim, Yeganova, and Wilbur 2016) and these tools and features often change depending on where you access the interface which will impact on how searches are conducted and the results (Lefebvre et al. 2013).

We know that new researchers are moving away from subject-specific resources towards Google (Lacović 2015; Rowlands et al. 2008) but also use faculty advisors and libraries extensively for information-seeking (Catalano 2013). In fact, students use libraries differently to that of faculty staff, showing a distinctive form of IB, in particular in how they access library resources online (Nicholas et al. 2009).

When looking at libraries, we find significant gaps in library staff perceptions of user needs (Booth 2008) and that academic libraries do not understand faculty research and therefore support is not meeting researchers' needs (Falciani-White 2016). The implications for library services in how basic science researchers seek information showed that although they have a positive attitude toward the library, they did not view its resources or services as integral to their work (Haines et al. 2010). In health sciences, research shows a need for librarians to help faculty discover and use resources and tools (De Groote, Shultz, and Blecic 2014). Most research into IB demonstrates a clear role for libraries in supporting researchers and students (Booth 2008; Freiburger, Martin, and Nuñez 2016; Gordon et al. 2018; Nicholas, Herman, and Clark 2016).

As little research has been done looking at IB in food scientists, this study examines food scientists' information seeking practices. The first part of the study consisted of a pre-questionnaire survey and an observational study with an interview of food scientists at varying stages of their careers affiliated to a university. This part of the study focussed on three sources; Food Science and Technology (FSTA), PubMed, and Google Scholar, in order to better understand what is important to them in evaluating sources and what the essential attributes of a resource are for their information seeking practice. In addition, a survey distributed to the international community of food and health science gathered details on what faculty and students see as essential to creating high-quality literature reviews as well as how we might better prepare students for conducting good research in this area. We anticipate that the results of our research will help librarians in delivering information training and other support mechanisms to this community of researchers and students.

Materials and methods

Scope of study

IFIS funded this study and is a not-for-profit academic publishing company founded in 1968. Their mission is to understand and best serve the information needs of the food community. As such they regularly fund research projects around food science information needs and behavior. The aim of this study was to listen to and document the voices of practicing food scientists about their experience of information seeking practices in food sciences, especially regarding the quality of sources returned by various databases. IFIS recruited two librarians (the authors) experienced in information needs and behavior research to refine the design of the study, undertake the interviews and analysis and report the results in a peer-reviewed paper. The results of the study are of fundamental importance to librarians, information providers, and food scientists as it uncovered challenges and consequences of information behavior.

This article will report on two investigations; interviews and observational research, and the results from an additional online survey in 2018. One of our aims was to understand how searches were undertaken and how researchers define the quality and content of FSTA, PubMed, and Google Scholar. The research is not based on any specific theory or aiming to prove any information behavior model.

Method

After a pilot interview and observation of a search, we determined that the best method to undertake this study is to ask the researchers to specifically search three databases, but we also asked them to freely discuss any other resources that they use if they wished to. By selecting three well-known food science resources, we were able to collect data and make comparisons between all the participants and resources. The decision on these three resources was made by the authors as PubMed and Google are resources we the authors (as librarians) know researchers rely on. PubMed is a well-known biomedical database that indexes food science content hosted by the National Library of Medicine (USA). Google Scholar is reputed to be used heavily by academics and students to search for content and is a web search engine which brings back what it perceives to be scholarly content. Both are free and easy to access from anywhere. FSTA is a specialist food science database, central to this study as owned by IFIS, and available by subscription.

Recruitment of study participants was as follows. IFIS, the funder, sent a preliminary email to their library customers telling them about the study and asking if there is any interest in participation at the institution. Librarians acted as mediators to seek willing participants from food science

faculty staff. All participants were affiliated with food science of health/nutrition departments at universities. The universities were subscribers to FSTA; however, participants were not necessarily familiar with using FSTA and were in varying stages of their careers ranging from postgraduate students to senior faculty staff. Those who expressed an interest in the study were followed up by the authors to make appointments and the two authors undertook all interviews dividing the participants between them (HK the UK interviews and CCB the US and Malaysian interviews). Participants were informed of ethics-related guidelines and confidentiality. They all signed informed consent forms and agreed to the interviews and observational studies to be recorded. The interviews and observational studies were held at the same time, with each individual participant in their own workplace or online via WebEx, between June and August 2018.

The interviews and observational study focused on 12 academics in the United States (n = 4), United Kingdom (n = 7), and Malaysia (n = 1). Participants were asked to choose their own search topic for the study. They were able to plan and perform their own search across the three databases by opening three tabs across their browser of choice to perform the searches at the same time and move back and forth between the results. Seven of the 12 interviews and observations were done face-to-face in the researcher's own place of work, the remaining 5 were done online via WebEx. All the interviews and searches were recorded and transcripts were signed off by all participants. All searches were saved and sent to the authors for analysis. All participants were interviewed and took part in the observational search study.

The survey was designed by the librarians together with IFIS to follow-on from the interviews, to broaden what we discovered in the interviews and to widen the participation globally to generalize our findings. A targeted online survey of the food and health science community was disseminated via IFIS to their customers via email, and a LinkedIn blog post, in order to discover more information about researchers' priorities in choosing information sources, as well as what concerns supervising faculty might have about the quality of literature reviews they were seeing from their students. We also asked about how students and faculty receive training and what their preferences. The survey was open to anyone working in food science and received eighty-five responses from four continents. The survey ran for 6 weeks from September to October.

Results

We began the research with an observational study and interviews of food science researchers in the UK, USA, and Malaysia. The interviews had set questions, but we allowed the discussion to run freely, and all the interviews

with the observational study were recorded and then written up as transcripts. These were read and signed off by the participants. Subsequently, the authors analyzed the discussion, coding up responses to the questions and held a discussion around the findings. It is clear that participants were keen to discuss the scholarly research cycle in depth, much broader than that of our questions, and so we have added some of these comments to flavor our interpretation in this part of the paper. We then followed on with a global online survey, to examine the concerns of faculty researchers further. We report these studies separately and pull together the overall findings in Discussion.

Study 1: observational study and interviews with 12 faculty researchers in the UK, USA, and Malaysia

What and how they search

Our 12 researchers were asked to select the top three resources that they use in a search in a pre-interview survey. PubMed/Medline were mentioned as a first choice by nine researchers and as a second choice by two others. Google/Google Scholar were mentioned as a first choice by two researchers and as a second choice by three others. These are the leading resources used by our respondents. FSTA was mentioned by two researchers and 'library discovery systems' by three researchers. Other resources mentioned once by seven researchers were: Cochrane Reviews, Embase, CINAHL, Scopus, Science Direct, Web of Science, and colleagues. During the interviews, additional resources were mentioned such as grey literature, organizational websites, conference websites, library discovery (e.g. SOLO), etc.

During our interviews, researchers told us that they use the resources they have been taught to use when they were doing their PhDs, regardless of the amount of databases their universities offer. Researchers most often begin with a keyword search, then narrow results using filters or additional/different keywords. Most did not make use of the FSTA thesaurus or the MeSH in PubMed. All used more than one resource, but might develop a search string in one database and then repeat that in the others. As database taxonomies and ranking algorithms are different, this method met with some frustration. Researchers may deviate from what they are used to if they are undertaking a systematic review for a funded project where several databases have to be searched, however, not many of the participants undertake such reviews. One of the participants said: "I usually go to PubMed. And if it's a systematic review […] I go to the Cochrane Library."

Why they search

Researchers report performing literature searches in order to: undertake literature reviews (n = 6), keep up to date (n = 3), keep informed on behalf of the students and for lectures (n = 2), look for observational studies related to own

work (n = 1), check PhD students' work (n = 1), for systematic reviews (n = 1), and one person starts each new project with a systematic review to understand what is been published and where the gaps may be (n = 1). Two of the faculty members no longer participate in formal literature reviews and it was stated in several of the interviews that more senior faculty members at the institution pass this task to junior researchers or graduate students, although we cannot substantiate this claim.

Browsing the journal table of contents via personal subscriptions or email list serves is a way researchers keep up to date. For those who told us that they have management responsibilities, either as a graduate student advisor or department head, browsing was a way to keep abreast of latest research and share articles with individuals in his or her department. One faculty member said that PhD students are expected to undertake a literature review as part of their training and that they are "sent off to the library" for that training.

Observational study of searching FSTA

FSTA was new to some of the researchers, even though their institution was a subscriber. Those who were trying it for the first time were impressed by the quality of results they found. Researchers found clinical reviews and high-quality results quickly, without the need to sort through thousands of titles. Several remarked that it was well-curated and included disciplines allied to food science, like agriculture, whereas PubMed does not. FSTA was praised for bringing back a higher concentration of relevant results compared with the other databases. A few examples: "The content is similar to PubMed, [but with] FSTA it's not so much irrelevant stuff"; "FSTA has more specific, higher number I'd delve into"; and "[The FSTA database] has a lot less results. But from what I can see, the quality of the research is better than the others with this search."

Only one researcher made use of the thesaurus feature in FSTA. For him, having access to a controlled vocabulary in FSTA is "the most important aspect of a database, particularly for this discipline." For all, FSTA netted fewer results than PubMed or Google Scholar. The degree of curation was a double-edged sword for some researchers, who both appreciated the focus of the database but feared they may be missing out on some studies or did not see publications they expected to see. For example, one researcher said: "I think that where you might run into trouble with FSTA again is the degree to which it is curated, but I think given the fact there are other Google Scholars and PubMeds out there specifically for our field [Food Science] I think this is a very valuable tool and I'm happy I learned about it."

Two researchers did not feel FSTA covered their topics as well as PubMed as their work touched on anthropology and public health and PubMed was stronger in those areas. Several mentioned wanting the ability to limit to

research on human or animal subjects as is found in PubMed and also liked the "Best Match" and "Find Similar" features in PubMed and Google Scholar.

Observational study of searching PubMed

PubMed, the online database from the United States National Library of Medicine, is a popular source among researchers in food and health science. Ease of access, including links to full text, the multi-disciplinary sources covered, and the sheer number of sources indexed makes it attractive to researchers in the sciences of food and health. Subjects in this study remarked on the ability to limit to a human or animal trial, limit to a clinical or systematic review, and the 'Related Articles' feature. It was one of the most familiar databases for many of the subjects and people felt comfortable using it.

The wider scope of biomedicine was considered to be a good thing by some of the participants, even if it brought back many results that may not be relevant. To illustrate this, in one interview, PubMed returned a higher number of results that were not relevant to the subject's search terms, but s/he was willing to sort through them and make decisions about what to keep. For this person, more search results led to feelings of reassurance that items were not being missed: "PubMed is not so specific as FSTA and because FSTA is more specific, it's making decisions to exclude papers for me, right? I don't want 100,000 papers and have to sort to them because I don't have that kind of time. But I don't want to be so limited that it's making the decision for me and I don't get the richness of the science that's out there." Another subject said that PubMed "hit the sweet spot" between the more limited results of FSTA and the information overload experienced in searching Google Scholar. One subject said: "…because if I go to Google Scholar … who wants to figure out what's going on for 2 million results?" |

The new "Best Match" feature was viewed by several respondents to be too restrictive. When asked what s/he felt about the option s/he said, "Not positive. It creates an opaque layer … which is frustrating. Particularly for the level of evidence [required] for my literature review."

Observational study of searching google scholar

"It's like drinking from a firehose!" said one subject, and this sentiment was echoed by most of the others. Simply "too much" was the most common refrain, but that does not mean Google Scholar is not without usefulness. Finding grey literature like conference proceedings, tracking a particular citation or discovering citations to one's own work, and chasing topics back to the original published articles to see the history of the science were all mentioned as ways researchers use Google Scholar. Researchers found the high number of results useful in generating ideas for further research or for getting a general feel of the literature surrounding a topic before heading to

a more curated database to perform the literature review. Also, when exploring new topics, Google is used frequently, and Google Scholar was mentioned as useful as a first step:

"But in terms of scholarly research, it's probably best as a starting point. So, if you're trying to look at a way to enter into the scholarly discussion, or to look for [the] original [research article], you know, initial keyword searching or look for background information, or maybe even some seminal works this tool as well as Wikipedia, I guess they are really good for that. But … once you find your entrance into the discussion, you want to be able to trace your results and explain how you arrived at them."

Overall database comparison result

This research sought to learn more about food and information science researchers' objective evaluation of three top literature review sources in their field. We found that many were very pleased with the quality of results in FSTA, but wanted broader coverage as was found in PubMed. For finding grey literature or locating a particular article, Google Scholar was the preferred tool. Asking which database performed best in terms of quality and coverage, FSTA received a majority of recommendations with 41.7% (Figure 1). All noted that each database had its strengths and weaknesses. As one subject said, "Each had pretty good results and a reasonable cross-section. No database can do it all. I have to do some work, too."

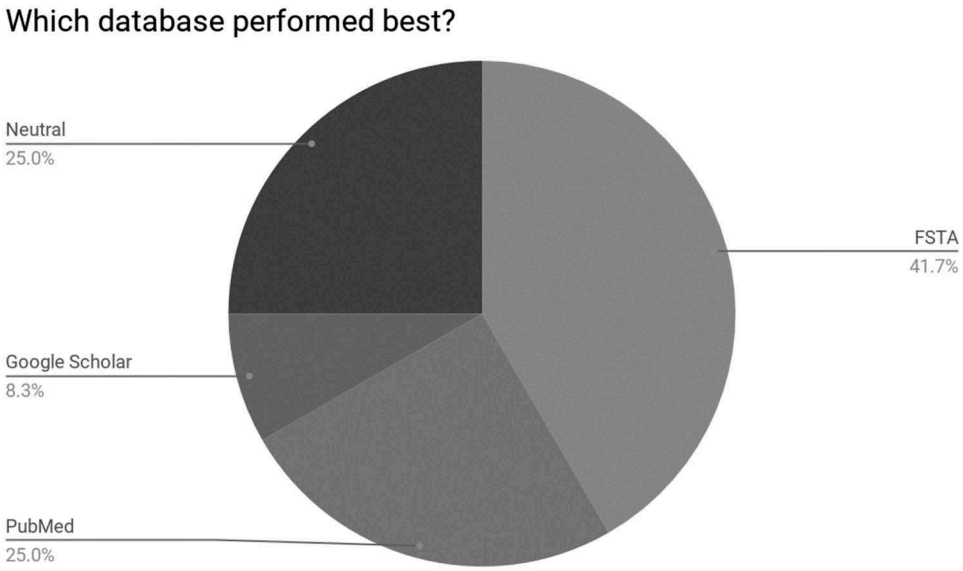

Figure 1. Which database performed best in this study in terms of quality and coverage?

Study 2: online global target survey of researchers in the sciences of food and health

As described in our methods section the interviews generated some questions in areas that needed confirmation and further investigation. The targeted survey was sent out to researchers in sciences of food and health via IFIS to their customers and via their LinkedIn account. We had 85 responses from four continents (Figure 2).

When asked about roles, respondents told us that they undertake research and receive supervision (n = 30), supervise people undertaking research (n = 51), or skipped question (n = 4).

We asked them to rank the databases that they use and consider essential and optional to their research with the following result (Figure 3).

Respondents (86%) are concerned about the quality of literature reviews performed by their students. Additional questions on the survey asked for further detail about their areas of concern with respondents stating that both the range and quality of sources included in the review were cause for worry. Additional comments illustrated this: "[There is a] misunderstanding of what they [literature reviews] are and the level of rigour needed," "[Students'] inability to distinguish between good and bad journals and good and bad science." Other concerns were related to the chronological depth of the reviews (too short) and to not fully reading the papers or not having access to the full text of a study in order to analyse it in depth. Asked about the results of literature reviews, faculty again spoke out about the quality and range of sources. Here, however, concerns about source quality is of greatest concern. Again, students'

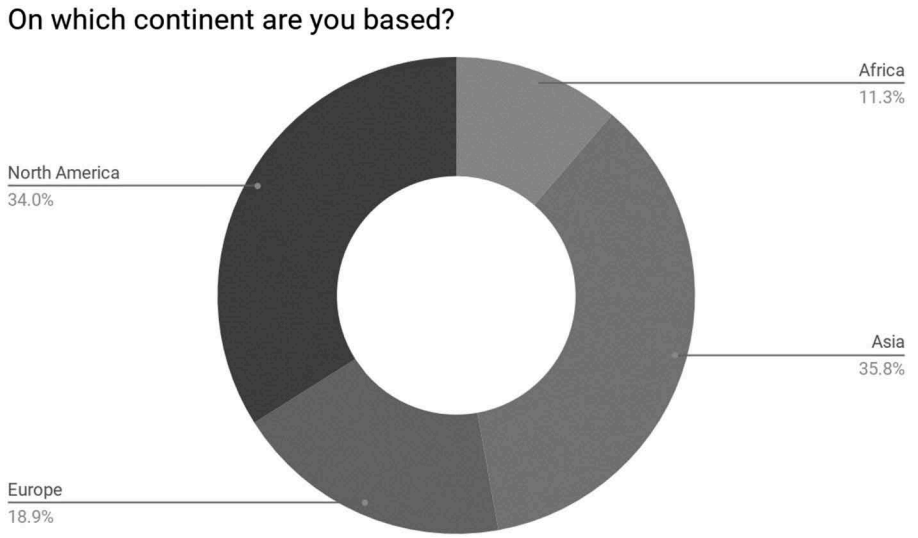

Figure 2. On what continent are you based? (2018 online survey results).

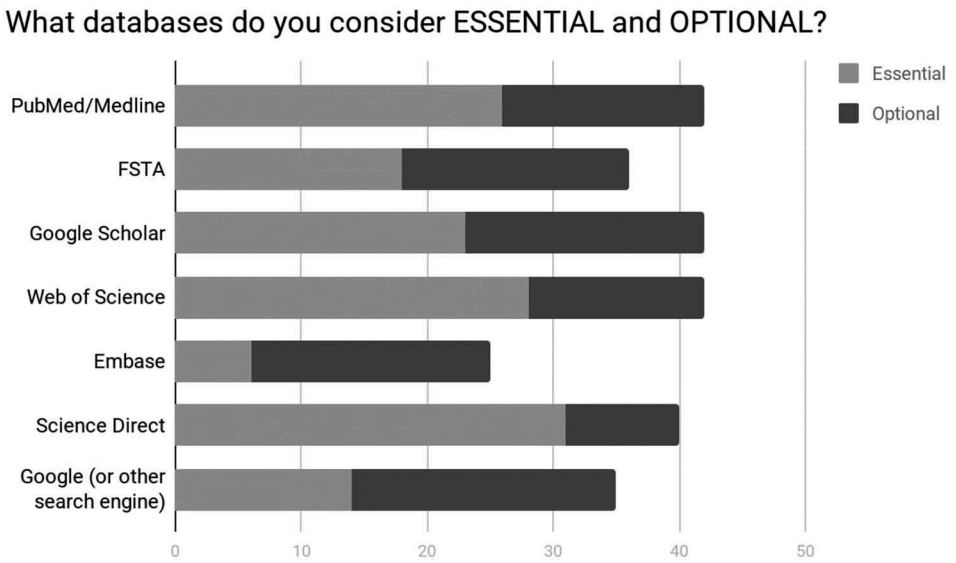

Figure 3. What databases do you consider ESSENTIAL and OPTIONAL to performing high-quality literature reviews in food science and nutrition? (responses from 2018 survey).

inexperience critically appraising the literature is an issue: "Inability to evaluate quality published research" and "There are many weak review papers that … are used by the students as facts. In many cases the information is misleading and not true, but the students do not have the skills or the knowledge to see this."

We asked who teaches literature review skills and what teaching they consider effective. Respondents could choose more than one answer, allowing the authors to see not just what practices are being used in instruction, but also if they think a particular method is effective (Figure 4).

Faculty indicate that librarians are more effective than they are in teaching information literacy skills (I teach them – effective 2.5 versus Librarians – effective 6). For those who currently have librarians teach and also feel they are effective in this role, faculty rate librarians' work nearly as high as their own mentoring efficacy in this area (16 versus 15). The gap between those who chose both "currently used" and "effective" categories for faculty-teaching is rather large, pointing to either modesty in their self-assessment or a real feeling that librarians do a better job of mentoring students in this area. In our interviews, several researchers mentioned that they seek assistance from their subject librarians in determining search strings and for teaching students.

Respondents indicated that a variety of forms of delivering teaching is currently used and considered effective, although written guidance and in-person workshops are used most and considered most effective (Figure 5).

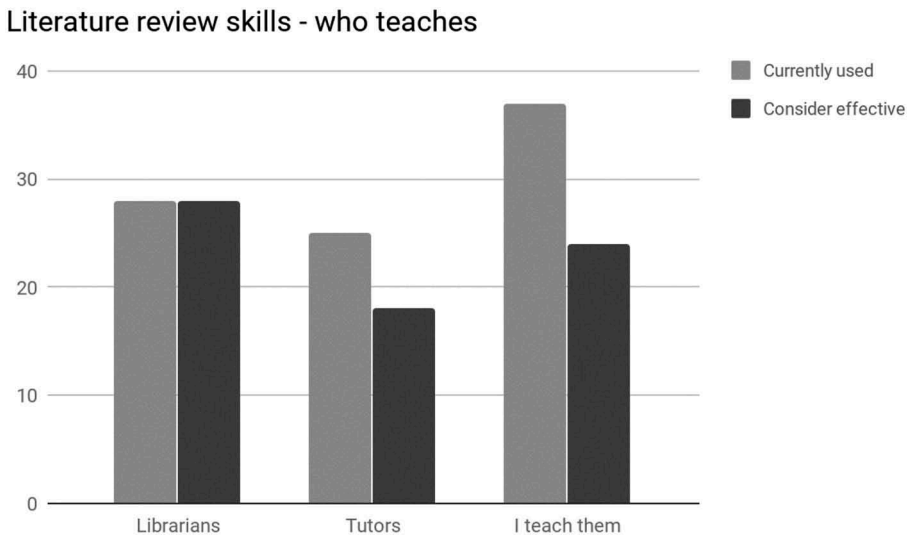

Figure 4. How are your students currently learning to do literature reviews? Which do you consider to be effective ways to learn this skill? (Results from 2018 survey).

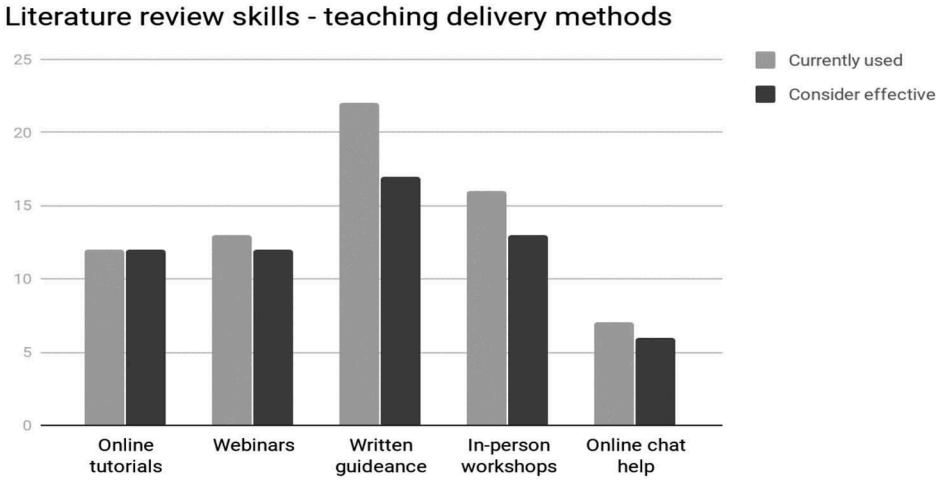

Figure 5. How are your students currently learning to do literature reviews? (Results from 2018 survey).

Discussion

When considered together, the information from the survey and interviews provides an array of quantitative and qualitative information about food and health scientists' practice, needs, motivations, and anxieties, regardless of what stage they are at in their careers. These results are likely to assist library professionals and information providers in making decisions regarding collection development, access to resources, active marketing, library-led instruction, collaborative work, and outreach. Scientists in the disciplines of

food and health are a diverse and growing community of scholars who in this study expressed a need for and are grateful for support from information professionals.

Researchers told us that they use what they have been taught to use, regardless of what sources that university library offers. But they are accustomed to using a variety of sources as 'not one database will do it all' and due to the multi-disciplinary nature of food science research.

They mentioned in the interviews getting frustrated with things such as not understanding the coverage of databases, different taxonomies, as well as library websites that constantly change or have a lot of information on them. As one researcher said, "I know our library has a lot of tools. It just takes a lot of energy to find them." Librarians can ensure high-quality sources are easy to find on the library webpage, offering the ability to access those sources from anywhere (e.g. bookmarks that embed the proxy server access within them for seamless access), and clear jargon-free linking to full-text would all reduce barriers and promote resources, making the most of the university's investment and improving the information choices for a library's users.

Transparency and control are important to researchers. Researchers are accustomed to searching for information in more than one place, yet more could be done to educate users on the suitability of a particular tool given the information need at hand. Feeling as if the database is returning results that are relevant to their search terms and that are from high-quality sources builds trust and confidence in the database brand. Understanding how databases work and how best to bring back results using advanced search options, filters, and special features like controlled vocabularies in a thesaurus or MeSH will help food and health science researchers make better-informed choices and develop more efficient and successful search strategies.

Based on the concerns researchers expressed in our discussions, researchers want training and guidance around the results ranking, coverage of databases, e.g. the strengths and weaknesses of the various resources of information. There is a need to highlight how numerically higher number of results does not equate to a higher number of relevant results. Balancing quality and quantity is a challenge for researchers. The opportunity for librarians is to educate and encourage faculty and students to make use of the subscription databases paid for by the library. Another opportunity is for librarians to use instruction to educate on searching to improve quality of their searching, the results but also the final output (e.g. a paper or thesis).

Faculty are responsible for training the next generation of food and health scientists. They have a concern about the way students perform literature review research and their ability to analyze and synthesize that information. Librarians can assist faculty with these concerns by supporting students in understanding issues around bias, dissecting and understanding what a good

scholarly journal and journal article look like, and explain and illustrate pitfalls in scholarly publishing like predatory journals. It is the authors' opinion that mentoring students in learning to detect weak or misleading claims in research is essential in creating responsible and rigorous scientists. Librarians can also show students how to find sources from reputable, comprehensive, and trustworthy indexes and how to access full text via library subscription or interlibrary loan. The areas of concern identified here are information literacy issues and, thus, part and parcel of every librarian tasked with developing information literacy skills in their students. Apart from information literacy support of students, assisting faculty staff in the process of critical appraisal and source vetting is a librarian's responsibility, not only in ensuring a better return-on-investment for the sums spent on access high-quality resources and full-text, but in order to help develop and support scientists who perform research and make discoveries that impact all of us.

We propose that faculty-librarian collaborations, as well as models where librarians offer "train the trainer" instruction to graduate students and faculty, offer good models for creating a dynamic and responsive instruction program (Gilman et al. 2017; Junisbai, Lowe, and Tagge 2016). Working together closely to improve students' information seeking and analysis skills makes the most of the faculty's subject expertise and relationship with their students and the librarian's expert knowledge of pedagogy in information literacy and details of the breadth of library resources and services offered.

Extending the librarian's reach into the classroom can also be accomplished with written guidelines such as subject guides or step-by-step instructions, online tutorials, and via office hours either in-person or via chat/email and embedded librarianship. Excellent online tutorials are offered by many vendors that can be reused in one's subject guides or linked to a syllabus or course module. This can save librarians the time and cost of producing a tutorial oneself and also provide convenient and on-demand instruction for students and faculty.

Finally, we must remember the importance of learner assessment and program evaluation. The instruction that librarians provide should meet the learning outcomes of the faculty and their students. If it does not, what can be changed to meet or exceed those expectations?

It is the authors' hope that this information will provide insight into the search strategies and barriers food and health science researchers experience as well as encouragement for librarians to reach out to departments and offer their expertise and assistance. Additionally, accessing learning assets, marketing materials, blogs, and other information created by vendors and professional bodies is recommended as a way to make the most of library purchases, keep abreast of topics and areas of interest in one's liaison areas,

and to be a part of the research activities leading to more a more authentic and informed relationship with those researchers.

Note

1. The Guerrero-Bote & Moya-Anegón study found that the world food scientific production has shown sustained growth of 145% at a rate of 9% per year, or compared with the rest of worldwide scientific production it is a relative of 35%.

Acknowledgments

As a non-profit educational charity, IFIS (The food science and health database publisher) funded this research in order to determine food and health science researchers' information seeking behaviors, priorities, and to gain insight on strengths and weaknesses of research sources including their own database, FSTA (Food Science and Technology Abstracts). This information will improve understanding and assist IFIS and others in better supporting the community.

Thank you to all the participants of our interviews and observational study for their Food Science expertise and valuable contribution to developing information literacy. CCB and MHK designed the study in collaboration with IFIS. CCB and MHK undertook the observational studies and interviews for this paper and analyzed the results. CCB analyzed the interview data from the international targeted survey. CCB and MHK both drafted and edited his paper.

Disclosure Statement

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