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OhioLINK Librarians and Google Scholar Over Time: A Longitudinal Analysis of Attitudes and Uses

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OhioLINK Librarians and Google Scholar Over Time: A Longitudinal Analysis of Attitudes and Uses

This study provides a longitudinal analysis of the opinions and uses of Google Scholar by members of the OhioLINK consortium of libraries. Using survey data collected in 2007, 2014, and 2019 via the OhioLINK Listserv, this study explores how librarians use and promote Google Scholar within their library instruction sessions and how Google Scholar and its Library Links feature are promoted on library websites. This information is then analyzed across the three date ranges. The results of this research suggested that there were significant changes in the use and opinions of Google Scholar between 2007 and 2014 with more normalization of uses and opinions occurring between 2014 and 2019.

Google Scholar Background

The beta launch of Google Scholar™ a little over fifteen years ago introduced a new resource into the world of academic search tools. If academic librarians would embrace this upstart as a worthy and welcome complement to existing discovery methods -- or not, and whether they would ultimately help their users understand its strengths and weaknesses, were questions posed early and often in the literature.

A Google engineer, Anurag Acharya, initially conceptualized GS as a one-stop place to find scholarly information across disciplines and languages (Giles, 2005). Since its inception in 2004, Google Scholar (GS) has claimed to provide "a simple way to broadly search for scholarly literature" across disciplines so as to locate "articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other web sites" (Google, 2020a). Since 2004, both the popularity and the number of indexed materials within GS have continued to grow (Cothran, 2011; De Winter, Zadpoor and Dodou, 2014; Harzing & Alakangas, 2015; Fagan, 2017; Cole, Davis, Eyer and Meier, 2018;

Gusenbauer, 2018; Oh & Colón-Aguirre, 2019). The amount and quality of documents within GS

is often equal to or better than that of the well-known scholarly subscription databases that

many academic libraries subscribe to such as Scopus, Web of Science, and Compendex (De

Winter, Zapdoor, & Dodou 2014; Wu & Chen, 2014; Harzing & Alakangas, 2015).

GS also allows libraries to make their electronic resources discoverable and accessible

through the GS interface. This means that a library's subscription resources can be searched,

located, and linked to via the GS interface. Such library search software is typically referred to

as a discovery layer. Researchers have observed that GS provides more or equally salient

search results as other proprietary systems such as Ex Libris Primo and Summon (Zhang,

2013; Namei & Yang, 2015).

Since 2005, OhioLINK has shared its link resolver information with GS. OhioLINK is a

consortium of over one hundred university and college libraries located among 88 member

institutions in the State of Ohio. The State of Ohio Library is the only non-academic library within

OhioLINK. OhioLINK membership includes 16 public university libraries, 51 independent college

libraries, 23 two-year college libraries, 16 regional campus libraries, 8 law school libraries, and 5

medical school libraries. (OhioLINK, 2019b.) This study presents longitudinal research that

examines the opinions and uses of GS by OhioLINK librarians[1]. It seeks to understand how

librarians and their institutions teach, promote, and view GS. Furthermore, it looks to understand

how these factors have changed over time. This data was collected through a mixed

quantitative and qualitative survey of OhioLINK librarians that was sent out on the consortium

listserv in 2007, 2014, and 2019. Although there have been numerous studies that examine the

efficacy of GS, there is a lack of longitudinal research regarding librarian opinions and uses of

GS.

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[1] We are using the term librarians to refer to members of the OhioLINK listserv who responded to the invitation to complete the survey. The survey did not ask for job title, function, or rank, so responses likely came from both librarians and staff members at OhioLINK libraries.

Literature Review

Google Scholar (GS) was introduced in 2004 as an open research database that

indexes scholarly abstracts, research articles, law reviews, gray literature, books, materials

within institutional repositories, and more through Google's search interface (Giles, 2005;

Zhang, 2013, Google, 2020b). The number of documents indexed by GS is unclear, but

researchers have estimated the number to be above 160 million records across all languages

and disciplines (Orduna-Malea et al., 2015; Gusenbauer, 2018). In 2020, the quantity and scope

of indexed materials within GS compares favorably to subscription databases such as

Compendex (Cusker, 2013; Cole, Davis, Eyer and Meier, 2018), Web of Science, (De Winter,

Zadpoor, Dodou, 2014; Harzing and Alakangas 2015; Martin-Martin, Orduna-Malea, Thelwall,

Lopez-Cozar; 2018), and Scopus (Harzing and Alakangas 2015; Martin-Martin, Orduna-Malea,

Thelwall, Lopez-Cozar; 2018).

Librarian Reception of Google Scholar

In the immediate years following the release of GS, librarians' opinions were often mixed

(Cathcart and Roberts, 2005; York, 2005; Kesselman and Watstein, 2006; Pomeranz, 2006;

Taylor, 2007; Giglierano, 2008; Antell, Strothmann, Chen, & O'Kelly, 2013). In Cathcart and

Roberts' (2005) evaluation of GS, the authors voiced enthusiasm that GS could be an easy to

use and monetarily free research tool but they also feared that GS could lure students away

from library resources.. According to Cathcart and Roberts' (2005), this was especially troubling

because GS did not provide their indexing methodology. This sentiment was echoed by

Kesselman and Watstein (2006) who valued GS's easy to use interface and lack of subscription

cost but were also concerned that GS would be the only place students would go to find

research. Donlan and Cooke (2005) also noted that GS lacked transparency regarding data

retrieval and display, but they also stated that GS has the potential to be a popular and useful

tool. In Giglierano's (2008) survey of fifty OhioLINK librarians, respondents typically stated that

they were concerned that users would abandon the library's subscription resources for a

platform that was inferior. Ashmore and Grogg (2006) opined that the commercial nature of Google and the subsequent growth of GS may change the way libraries provide information in unforeseen ways.

Many librarians did show enthusiasm for GS during the early days. Much of that enthusiasm was generated by GS's quest to index an unprecedented scope of materials to go along with their easy-to-use search interface (Tenopir, 2005; Friend, 2006; Norris, 2006; Pomeranz, 2006; Arendt, 2008). Tenopir (2005) noted that that GS "has real potential to provide easy, one-stop access to articles in both subscription journals and items in institutional repositories, open access journals, and e-print servers (p. 32)." Friend (2006) posited that GS would encourage more open-access content while simultaneously indexing unprecedented amounts of materials. Giles (2005) noted that GS is a multilingual and multidisciplinary repository that may assist researchers from around the world. Cathcart and Roberts (2005) noted that although GS does have its flaws, the articles returned within their searches compared favorably to PubMed.

Today, GS is often viewed by librarians as one useful research resource among many (Antell, Strothmann, Chen, & O'Kelly, 2013; Karlsson, 2014; Namei & Young; 2015). Librarians' acceptance of GS corresponds to the tremendous growth in research regarding the platform. Such research has demonstrated that GS has continued to grow their indexed materials and work on metadata problems while maintaining their familiar search interface (Cothran, 2011; De Winter, Zadpoor & Dodou, 2014; Harzing, 2014; Harzing & Alakangas, 2015; Waltman, 2016; Fagan, 2017; Cole, Davis, Eyer, & Meier, 2018; Gusenbauer, 2018; Oh & Colón-Aguirre, 2019). Furthermore, GS has introduced popular features such as research impact indicators and citation alerts, which continue to make GS one of the top resources for researchers across all levels and disciplines (Cothran, 2011, Wu & Chen, 2014, Waltman, 2016, Thoma & Chan, 2019; Google, 2020c).

Although GS indexes many open-access resources, many other resources require a subscription. Martín-Martín, Orduna-Malea, and Ayllon (2016) observed that about 40 percent of the resources they collected were freely available via GS. The open-access content that is available within GS has been observed to fall across a broad spectrum of scholarliness. This spectrum includes peer-reviewed journals and conference proceedings as well as non-scholarly materials found in academic and disciplinary repositories and elsewhere (Haddaway, Collins, Coughlin, & Kirk, 2015; Fagan, 2017).

Google Scholar Library Links Integration

Beginning in February 2005, Google introduced GS Library Links. Library Links utilizes a library's OpenURL link resolver (such as Ex Libris' SFX or EBSCO's Link Source) to allow users to discover and access their library's subscription resources (Oder, 2005; Ashmore & Grogg, 2006; Friend, 2006; Google, 2020d). If the user is on-campus such access through GS is typically automatic. If the user is off-campus, they must either access GS through their library's custom portal or they must set their GS settings to recognize their participating library.

Librarian opinions of GS Library Links within the first few years of its inception were mixed. Some assessed that Library Links returned unsatisfactory search results when compared to other discovery layers (Donlan & Cooke, 2005; Friend, 2006; Jacsó, 2008; Asher, Duke, & Wilson, 2013). Other librarians saw the potential and benefits of GS Library Links. For example, some librarians observed that users using GS Library Links had higher satisfaction than when using other library resources to link to journal articles (Dixon, Duncan, Fagan, Mandernach, and Warlick, 2010; Wang and Howard, 2011). Librarians also noticed an increase in the library's web traffic when implementing Library Links (Ashmore & Grogg, 2006; Dewan, 2012). More recent research has suggested that GS's link resolver provides equally salient search results when compared to traditional discovery layers, such as Ex Libris Primo (Wang and Howard, 2011; Zhang, 2013; Namei & Young, 2015; Oh & Colón-Aguirre, 2019).

One way to observe the changes in opinions of GS by libraries over time is through changes regarding how libraries promote GS on their website (Mullen & Hartman, 2006; Neuhaus, Neuhaus, & Asher, 2008). This is because a library providing links to GS is, in a sense, endorsing its use (as libraries typically do not intentionally provide links to low-quality databases on their websites). Researchers during the first five years of GS observed that the majority of academic libraries did not have links to GS anywhere on their websites (including on their subject guides and alphabetical database list) (Mullen & Hartman, 2006; Giglierano, 2008; Neuhaus, Neuhaus, & Asher, 2008). Hartman and Bowering Mullen (2008) analyzed 113 academic library homepages and observed that between 2005 and 2008, the number of links to GS from library web pages, as well as the number of libraries utilizing Library Links, more than doubled. Hartman and Bowering Mullen (2008) noticed a significant rise in GS links on the alphabetical databases lists during this period (from 24 percent to 68 percent), subject database lists (from 14 percent to 32 percent), subject guides (from 12.5 percent to 38 percent), and directly on their library homepage (from 5 percent to 11 percent). There have not been more recent studies examining where, and how often, libraries provide GS links on their websites.

Google Scholar in Library Instruction

Early opinions on providing assistance with GS within library instruction sessions were also mixed (Ettinger, 2008; Giglierano, 2008; Jacsó, 2008). Giglierano (2008) observed that among libraries in the OhioLINK consortium surveyed, 58 percent of respondents stated that they did not mention GS in undergraduate instruction sessions, and 62 percent said they did not mention GS in graduate instruction sessions. Often the reasons for not providing resources regarding GS within library instruction classes were that GS was flawed or that there were too many other, stronger resources to cover (Giglierano, 2008; Ettinger, 2008). Currently there is a lack of research regarding how GS is utilized and promoted within library instruction sessions.

Early on, Cathcart & Roberts (2005) posited that GS that it was a resource worth teaching within information literacy classes due to its ease of use, large index, and lack of a paid

subscription. Since then, studies have continued to show the desire of researchers of all levels

to use and learn about GS (Cothran, 2011, Wu & Chen, 2014, Waltman, 2016, Thoma & Chan,

2019). Such popularity is due to the ease of use and how it compares favorably to many

subscription databases (see De Winter, Zapdoor, & Dodou 2014; Wu & Chen, 2014; Harzing &

Alakangas, 2015; Fagan, 2017) as various discovery layers (Wang and Howard, 2011; Namei &

Young, 2015; Oh & Colón-Aguirre, 2019). Because GS has continued to grow its index while

addressing metadata and other problems, GS may continue to be a popular platform among

researchers. Such popularity may increase as libraries face budgetary shortfalls, due in large

part to the COVID-19 pandemic, which may force them to cancel subscription databases and

pay more attention to GS as a resource.

Although GS has been the subject of much research, no recent studies have examined

longitudinal opinions and uses of GS from within one group. Therefore, this research project

examines the opinions and uses of GS by OhioLINK consortium library respondents over three

time periods: 2007, 2014, and 2019. This project builds upon Giglierano's (2008) original study.

Methods

This research project was a longitudinal study in which OhioLINK librarians were invited

to participate in an identical survey in 2007, 2014, and 2019. OhioLINK is a consortium of 116

private and public academic libraries and the State Library of Ohio (OhioLink 2019a; OhioLink

2019b). The institutional sizes of OhioLINK schools vary considerably. Schools range from a

total enrollment of only a few hundred students. to universities such as The Ohio State

University with tens of thousands of students. The scope of colleges and universities in

OhioLINK also vary ranging from theological schools, art, and design institutions, two-year

community colleges, technical schools, and agricultural institutes, small liberal arts colleges,

mid-sized universities, and Research I institutions. The OhioLINK consortium began in 1992 and

began sharing link resolver information with GS in 2005. The invitation to participate in the

survey was posted on the OhioLINK listserv, ohiolink@lists.ohiolink.edu, which is open to all

staff at OhioLINK member libraries (OhioLINK, 2019c).

The survey contained seven questions. Six of those questions were multiple choice (with

a chance to write in more elaborate answers) and one question was a short answer prompting

respondents to share their comments regarding the promotion of GS. None of the questions

were required, and not all respondents answered every question. The survey was administered

via SurveyMonkey in July 2007 (n=50) and November 2014 (n=65) and in July 2019 via Google

Forms (n=58). It was the intention that the 2014 data be analyzed at the time but it was not due

to other work demands.

In the 2019 data set, a survey with an error in the second question was distributed for

two days. In that survey, respondents could not select more than one answer from a multiple-

choice list. Because of this error, twelve surveys were discarded, and a new, corrected, survey

was distributed to the list. The data sets were then compared to analyze trends in how, why,

and where OhioLINK librarians provided GS resources within their institutions. Qualitative

responses were evaluated using thematic analysis.

Results

Increase and standardization in libraries linking to Google Scholar

Over the fifteen-year period, the survey results show the percentages of libraries linking

to GS from their websites had flipped (Table 1). Although the percentage changes from 2007 to

2014 were dramatic, they were relatively minimal between 2014 and 2019. In 2007, 36.4

percent of those responding said there were links to GS on their library's website; which rose to

58.5 percent in 2014; and remained a relatively stable 60.3 percent by 2019.

Table I.

In the 2007 results, GS links were most often provided on the library home page, in an

internet resources or other search engines list, in an alphabetical database list or a subject

database list, or in other unspecified locations (Table 2). Between 2007 and 2014, the

percentage of reporting libraries providing links to GS via their alphabetical database list (often called A-Z Databases) more than doubled (from 18.8 percent to 38.9 percent). These percentages are nearly identical between 2014 and 2019 (from 38.9 percent to 39.6 percent). Table II.

Springshare LibGuides were new to the library landscape in 2007; when survey respondents stated that their libraries listed GS links in "other resources," none of these links were reported to be on research or library guides. Since that time, LibGuides have become a prevalent platform for libraries wishing to create online guides that promote their research resources (Bushhousen, 2009; Springshare, 2020a; Springshare 2020b). Responses to the 2014 and 2019 surveys reflect such popularity, indicating that GS links were shared almost entirely within research/library guides after 2007 (Table 3).

Table III.

Reasons for not Promoting Google Scholar via Online Library Resources

Overall, there were several reasons given by librarians who stated that their library did not link to GS. Such responses were written in by the respondents and could be easily grouped into one of four overarching themes (Table 4). By far, the main reason for not linking to GS, over all time periods, was due to a belief that such promotion would interfere with providing support for better, typically subscription, research resources (88.4 percent in 2007; 73.9 percent in 2014, 81.2 percent in 2019).

Table IV.

Some of the written responses that typified this belief include a 2007 respondent who stated, "I'm not sure it's been seriously tabled for discussion to include Google Scholar on our web site, but it seems to be the general consensus amongst our staff that Google Scholar does not really compare to the versatility and access provided by our subscription databases." In 2019, a respondent stated that they "assume the idea is to teach students to use other resources with more tools for finding peer-reviewed and evidence-based material."

Although the belief that providing links to GS takes away from promoting better

resources (or GS is simply too flawed to promote) was the most common written response for

respondents whose libraries did not promote GS on their website, other themes did emerge.

Between 2007 and 2014, some respondents stated that their libraries had not considered, or

had just begun considering, promoting GS (3.8 percent in 2009 and 17.3 percent in 2014). By

2019, no respondent stated that their libraries had either not considered promoting, or had just

begun considering, promoting GS on their website.

Other respondents stated that they did not know why their library did not promote GS on

their website. Such responses are an indication of the many different roles and responsibilities

of the respondents on the OhioLINK listserv. For example, a respondent in 2019 stated, "I am

not on the web team and couldn't answer that."

In 2019, ten out of twenty-four written responses pointed out flaws with GS or stated that

it took away from providing better resources. By 2014, the idea emerged that GS can be one

useful tool among many. For example, one respondent stated:

> We don't promote it so much as mention it as one of several "most reliable" tools - EDS,
>
> the library's catalog, Journal Finder (A-Z), databases, Google Scholar. To our librarians
>
> and most of our students, it is a tool for finding full text when other resources have not
>
> provided it rather than as a preferred tool for search/research.

A similar theme was echoed in 2019:

> I encourage triangulation of research strategies including Google Scholar when
>
> appropriate. However, I give preferences to subscription databases. In my experience,
>
> once students overcome the initial hurdle of using a new interface, they got much better
>
> results than they would from Google Scholar, and they prefer the subscription
>
> databases.

Still, others see the value of GS as a standalone tool or even a resource that could

potentially replace some of the costlier subscription resources. In 2014, a respondent stated that

"Google Scholar is one of the better engineering content databases. With the cancellation of Compendex, I am mentioning it more and more." Another respondent in 2019 stated, "I love google scholar and use it in my own research. It's far better than any library catalog or database I've ever used."

A few responses fell into the "other" category. In 2014, a respondent stated, "[there is an] assumption that people know about it, I guess." In 2019, a respondent stated that it was most likely the website design that was preventing the library from providing links to GS on its website.

Most Libraries Do Not Provide Resources for Setting up Google Scholar Library Links

One way that libraries promote and utilize GS online, and a powerful way libraries can integrate their content into GS, is by making it available via GS Library Links (Google, 2020d). By setting up GS Library Links, users can locate and access their library's subscription resources within the GS interface (while simultaneously utilizing all of the other aspects of GS).

Although such library integration within GS may be automatic when on campus, it must be set up by the user when off campus. GS Library Links usually only need to be configured once, but it does require several steps that may not be intuitive. GS does not provide a guide to doing this so libraries often provide personalized guides for integrating their content (see The Ohio State University, 2020; Tiffin University, 2020).

The majority of the responses indicate that respondents' libraries did not include instructions or assistance regarding the setting up of GS Library Links (Table 5). In all surveys, over half of libraries did not provide assistance to setting up GS Library Links (68.2 percent in 2007; 60.0 percent in 2014; and 56.4 percent in 2019).

Table V.

Google Scholar within the Undergraduate Classroom

The survey also asked if GS was routinely mentioned in undergraduate instruction classes (Table 6). It was at the respondent's discretion as to how they interpreted "routinely."

Unfortunately, the researchers do not have a sense regarding how the term routinely was

interpreted by respondents. Between 2007 and 2014, there was an increase in respondents

who discussed GS with their undergraduate classes (from 23.3 percent to 38.1 percent), but

that percentage decreased between 2014 to 2019 (from 38.1 percent to 29.3 percent).

Additionally, there was a steady decrease of respondents who did not regularly mention GS to

their undergraduate classes (58.1 percent in 2007; 34.9 percent in 2014; and then to 25.9

percent in 2019).

Table VI.

The written responses regarding the reasons that respondents did not routinely mention

GS in undergraduate classes were grouped into one of five mutually exclusive themes (Table

7). For those respondents who did not routinely mention GS in undergraduate-level instruction

classes their reasons for not doing so were overwhelmingly because they viewed GS negatively

and/or it was not worth the limited time to mention in a class (71.4 percent in 2007; 45.0 percent

in 2014; and 53.8 percent in 2019).

Table VII.

In 2007, twenty-one of twenty-nine written responses mentioned that either they do not

promote GS because they, or other faculty, had a negative view of GS. One respondent stated,

"We use GS sometimes in helping students do research, but we do not do any promoting of it.

We still find that GS is still weak in providing current articles and information." Another

respondent in 2007 seemed to sense the usefulness of GS, even if it was not widely accepted

by faculty or other librarians, stating:

> I have used Google Scholar with students during a reference transaction. I don't promote
>
> it regularly because many of the faculty have advised their students "not to use Google."
>
> ...I think for Google Scholar to be successful locally, our faculty have to buy in that it is a
>
> valuable resource.

By 2014, only nine out of twenty-nine written responses mentioned that GS was either flawed or took away from time that could be better allocated teaching other resources. One respondent stated:

> I have a limited time to explain to students on how to effectively research. I want to spend most of my time in the classroom teaching the resources we have through the library. In reality, Google Scholar is a great tool but it is much more effective to go straight to the source. Additionally, I spend a lot of time teaching subject searching and this is not possible with Google Scholar.

The newness of GS in 2007 and the subsequent time that has passed since seems to be reflected within the data. For example, a 2007 respondent stated that their reason for not mentioning GS within their undergraduate classrooms was that "(GS) has yet to prove itself as a viable pedagogical tool." 2007 was also the only year that any respondents stated that their reason for not routinely mentioning GS within undergraduate classes was that they did not know enough about GS to teach it (9.5 percent of responses).

Another theme that emerged from the written responses was that whether to mention GS or not varied from class to class with 2007 being the only year that there were no responses (0 percent in 2007; 15.0 percent in 2014; and 15.4 percent in 2019). For example, a 2014 respondent wrote that "some mention it...others do not. It depends on the needs of the class being taught."

Finally, some respondents stated that they either did not know if GS was being taught within undergraduate classes or that the question was not applicable to the respondent's institution. For example, one respondent in 2014 stated, "I'm a cataloger. I virtually have no idea if any of the reference staff mentions Google Scholar." This seems reflective of the OhioLINK consortium listserv, where membership is open to different types of academic institutions as well as different job classifications.

Google Scholar Within the Graduate Classroom

In answering if GS is routinely mentioned within graduate-level classes, it was at the respondent's discretion as to how they interpreted "routinely" on the survey. Unfortunately, the response rates to this question were very low, which may have had significant effects on the results (Table 8). One of the main reasons for such a low response rate was that many respondents were from institutions that did not have graduate programs.

Table VIII.

With regard to if GS was routinely mentioned in graduate-level classes, there was a substantial increase in those stating that they did mention GS from 2007 to 2014, which stabilized by 2019 (from 18.6 percent in 2007; to 36.5 percent in 2014; to 33.8 percent in 2019). Interestingly, there was a dramatic decline among those who said that they did not routinely mention GS to graduate-level classes (from 62.8 percent in 2007; to 41.3 percent in 2014; to 10.7 percent in 2019). There was also an increase in respondents who did not know if GS was routinely mentioned to graduate-level classes (from 18.6 percent in 2007; to 22.2 percent in 2014; to 30.4 percent in 2019). Such uncertainty could, once again, be reflective of the many potential roles and positions of those on the OhioLINK listserv.

Respondents once again had the opportunity to write a reason that librarians did not routinely mention GS within graduate-level classes (Table 9). These responses were easily grouped into one of four themes. For many, the question was simply not applicable to the respondent's university or instruction sessions (58.8 percent in 2007; 59.0 percent in 2014; and 16.8 percent in 2019). As with previous responses, a popular theme given for not routinely mentioning GS within graduate-level classes was that the time would either be better spent examining other research resources or that GS was too flawed to discuss. The percentages of such responses remained relatively consistent over the surveys with the caveat that only six responded to the question in 2019 (from 35.2 percent in 2007; to 31.8 percent in 2014, to 16.6 percent in 2019).

Table IX.

By 2014, more responses demonstrate a positive, or at least a not so negative, view of GS. They also mention faculty and graduate assistants promoting GS to students. For example, one respondent stated that "we think Google Scholar represents an interesting half-way house between Google search and scholarly resources. It also represents another opportunity to teach evaluation." Another respondent from 2014 asserted that:

I typically do not promote Google Scholar, but students come in for research

help and say they started with Google Scholar because that is what their

professor told them. I think some faculty (particularly graduate assistants that

teach introductory courses) use Google Scholar a lot so they show their

students how to use it outside of the library instruction session.

Some respondents did not know if others were using GS within their graduate-level classes (0 percent in 2007; 4.5 percent in 2014; and 50.0 percent in 2019). Although there is a dramatic jump in the percentages, this might be explained due to the low response rate for this question as well as the varied roles of librarians on the OhioLINK listserv. Within each of the three surveys there was one response that fell into the "other" category. In 2007, a respondent stated that "the instructions for linking from GS to OhioLINK were recently posted, so we will include this information in future graduate instruction classes." In 2014, a respondent stated that the reason "depends entirely on the librarian and discipline." In 2019, a respondent stated, without any context, that the reason for not routinely mentioning GS within graduate-level classes was simply "institutional inertia."

Discussion

The purpose of this research was to ascertain the level of acceptance, over time, of the new discovery tool, Google Scholar, among members of an academic library consortium: To determine if, and how, attitudes of librarians and other library staff changed toward promoting it to their users on library websites and by teaching it in undergraduate and graduate classes. Though we do not know how many, if any, of the same individuals responded to each of the

different survey invitations, the percentages of positive and negative responses to the same

questions, along with the qualitative comments, provided the insight we sought.

In his foreword to a recent book on resource discovery in twenty-first-century libraries,

Lorcan Dempsey outlines three broad trends in the current information ecosystem: "discovery

often happens elsewhere"; the library collection is not necessarily the central, nor the first used,

part of the library's information universe; and, researchers expect library resources to fit into

their workflows, which now include many additional resources within the information network.

He includes a graphic showing the evolution of library services, from "owned" and "licensed"

collections -- materials purchased and stored -- to "facilitated" collections, including external

resources such as Google Scholar, free e-books, open access, and web resources, which meet

research and learning needs in the best way (Dempsey, 2020).

The responses in the three surveys provide an interesting juxtaposition to these trends,

conveying the viewpoints of individuals currently working in the rapidly evolving information

universe within a consortium made up of a diversity of types of academic libraries. This research

shows a consistent mix of attitudes toward GS over the years of its existence. Many people

responded in each survey that they did not promote or tell users about GS because they wanted

them to use the resources their libraries paid for (Dempsey's "licensed" collection). There were

also those with a profound distrust of anything Google. Others embraced GS, seeing it as a tool

that could be better for many types of research, and that could be integrated with their libraries'

link resolvers to meet their users where they were (Dempsey's "facilitated" collection). GS is far

from universally accepted by OhioLINK librarians, even if the faculty and students they work

with often start with it and find it perfectly fits their needs. This mix of attitudes was not entirely a

surprise, given the independent thinking characteristic of librarians when it comes to the quality

of resources. However, it is somewhat surprising how many respondents cling fiercely to the

idea that the sources their institutions pay for are most worthy of teaching and promoting, and

have not moved to more of the facilitated collection mindset.

Opinions regarding GS from librarians have changed since 2007, with more librarians seeing the benefits of using GS (either as one of several research resources or as a standalone resource). Despite these changes in opinions, many continue to believe that GS takes away from time that would be better spent promoting other, often subscription, research resources.

Limitations of the Study

Respondents were not asked for the type of library where they work or to identify their position within their libraries, which necessarily limits the conclusions that can be drawn from the survey responses. In retrospect, limiting the sample to instruction librarians or faculty librarians might have yielded more meaningful results. However, the trends noted in the survey results concur with the gradual incorporation of GS into the research routines of today's students and faculty, and the willingness of many libraries to leverage its capabilities.

Additionally, this project did not evaluate the uses and opinions of librarians using GS at the reference desk. By providing this information it would be easier to understand the uses and opinions of librarians about GS.

Conclusion

This research project examined how librarians at OhioLINK institutions viewed and used GS over three times, 2007, 2014, and 2019. Overall, the results indicate that between 2007 and 2014 there was still much experimentation, if not apprehension, regarding GS from librarians. By 2014, GS seems to be more accepted as a research resource by librarians. There were no significant changes between 2014 and 2019 regarding the uses and opinions of GS by librarians.

For example, between 2007 and 2014 there was more experimentation regarding if, how, and where to provide links to GS within library websites when compared to 2014 to 2019. In 2007, the majority of respondents stated that their libraries did not provide links to GS from their websites. By 2014, the majority of libraries were providing links to GS from their website. Those percentages remained relatively consistent from 2014 to 2019.

Although there was a significant increase in the number of library websites that provided links to GS after 2007, the number of libraries that provided online assistance to their users regarding setting up GS Library Links did not change significantly. Over the three surveys, the percentage of libraries that provided assistance to users regarding setting up GS Library Links was between 20.5 percent and 26.2 percent. It is unclear as to why there was never an increase, but it may reflect a belief that paid subscription resources are better curated and less confusing to novice researchers.

The results of the three surveys also suggest that as time went on, more librarians were mentioning GS within both undergraduate and graduate-level classes. Between 2007 and 2019, the percentage of respondents who did not mention GS within either their undergraduate or graduate-level instruction classes declined precipitously. In 2014, written responses indicated librarians see GS as a useful research resource when utilized alongside other resources, echoing findings of other researchers (Antell, Strothmann, Chen, & O'Kelly, 2013; Karlsson, 2014; Namei & Young, 2015).

Starting in 2014, there appears to be a less overt cynicism regarding GS. Such changes in opinion are reflected within the written comments of the survey and may have been caused by the respondents' increasing familiarity with GS as time went by, the large number of studies that have evaluated GS, the indexing and metadata improvements made to GS since 2007, and the increase of materials indexed within GS (See Harzing, 2014; De Winter, Zadpoor & Dodou, 2014; Orduna-Malea et al., 2015; Fagan, 2017). Another factor in play could be the perspectives of newer librarians who grew up with GS as a fixture in the research environment.

Although librarians may view GS with less suspicion than when the product was new, there remains a dominant opinion among librarians that teaching GS does take away valuable time and resources that would be better spent promoting other, typically subscription, research resources. Looking toward the future, it will be interesting to see if opinions and uses of GS

change as more libraries face budget setbacks which may force them to cancel some of their

subscription research resources.

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Appendix

Survey Instrument:

1. Does your library's web site link to Google Scholar?

2. If yes, please select as many as applicable from the following:

[Link from library home page]

[Link from alphabetical databases list]

[Link from subject databases list(s)]

[Link from Internet resources or search engines list]

[Widget on page]

[Other] If other, please specify

3. If you do not link to Google Scholar from your library's web site, why not?

4. Does your library's web site include instructions about setting up preferences so Library Links

will show in Google Scholar results? (See https://bit.ly/2xYEanT for information on Library

Links.)

5. Do instruction librarians at your library routinely mention Google Scholar in undergraduate

instruction classes? If no, please explain

6. Do instruction librarians at your library routinely mention Google Scholar in graduate

instruction classes?   If no, please explain

7. Please share any other comments you have about your library's decision to promote Google

Scholar to your users, or not to do so.

Table I. Does your library's website link to Google Scholar?

Year	Yes	No	Don't know	n=
2007	36.4%	63.6%	0%	44
2014	58.5%	40.0%	1.5%	65
2019	60.3%	32.8%	4%	58

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Table II. **If your library does link to GS from its web site, where is that link located?**

Users selected all answers that are applicable

Year	Library homepage	Alphabetical database list	Subject database list	Internet resources or other search engine list	Other resources (See Table 3)	n=
2007	31.3%	18.8%	18.8%	31.3%	56.3	16
2014	25.0%	38.9%	25.0%	25.0%	47.2%	36
2019	10.3%	39.6%	15.5%	17.2%	15.5%	58

Table III. Other resources mentioned by librarians as linking to Google Scholar

Year	LibGuide/Research Guide	Discovery Layer/Link Resolver	Other	n=
2007	0%	0%	100%	9
2014	66.6%	9.5%	23.8%	21
2019	70.0%	0%	20.0%	12

Table IV. **Self-reported reasons that libraries did not link to Google Scholar from their websites**

Year	It takes away from promoting other resources and/or GS is too flawed	I do not know why GS is not promoted	Our institution had not considered, or only beginning to consider promoting GS	Other reason	n=
2007	88.4%	3.8%	3.8%	0	26
2014	73.9%	4.3%	17.3%	4.3%	23
2019	81.2%	12.5%	0	6.2%	16

Table V. **Does your library's website include instructions about setting up preferences so Library Links will show up in Google Scholar results?**

Year	Yes	No	Don't know	n=
2007	20.5%	68.2%	11.4%	44
2014	26.2%	60.0%	13.8%	65
2019	25.5%	56.4%	18.2%	55

Table VI. Do instruction librarians at your library routinely mention Google Scholar in undergraduate instruction classes?

Year	Yes	No	Don't know	n=
2007	23.3%	58.1%	18.6%	43
2014	38.1%	34.9%	27.0%	63
2019	29.3%	25.9%	37.9%	54

Table VII. Reasons stated that instruction librarians do not routinely mention Google Scholar in undergraduate classes

Year	GS is viewed negatively and/or it takes away time that would be better devoted to other resources	The respondent or institution did not know enough about GS to teach it	The respondent did not know if others were utilizing GS	Question not applicable to the respondent's university or instruction sessions	Depends on particular class	n=
2007	71.4%	9.5%	4.7%	14.2%	0	21
2014	45.0%	0	13.0%	25.0%	15.0%	20
2019	53.8%	0	23.0%	7.6%	15.4%	13

Table VIII. Do instruction librarians at your library routinely mention Google Scholar in graduate instruction classes?

Year	Yes	No	Don't know	n=
2007	18.6%	62.8%	18.6%	43
2014	36.5%	41.3%	22.2%	63
2019	33.9%	10.7%	30.4%	32

Table IX. Reasons stated that instruction librarians do not routinely mention Google Scholar in graduate-level classes

Year	Focus on other information resources and/or GS is flawed and not worth the effort	The respondent did not know if others are utilizing GS	The question was not applicable to the respondent's university or instruction sessions	Other Reason	n=
2007	35.2%	0	58.8%	5.8%	17
2014	31.8%	4.5%	59%	4.5%	22
2019	16.8%	50%	16.8%	16.8%	6