

Google Scholar Through the Eyes of Academics

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ABSTRACT

Known and used extensively worldwide, Google Scholar is an search engine offered by Google that specifically enables academics and students alike to conduct academic and scientific research. In this sense, it is important that we investigate how researchers and academics view Google Scholar, as well as look not only how they use it and the issues that they face when using it, but also obtain their feedback in terms of how it could better be improved. Hence, this study aims to evaluate Google Scholar through the lens of their viewpoints. In order to reach our objective, we examined and disclosed how academics viewed Google Scholar in general, how they used it, both the benefits that they felt they had received from, alongside the kinds of issues that faced while using it. We also had asked the participants for feedback as to how Google Scholar could better be improved upon. Our research was qualitative in nature due to the fact that it set out to assess people's personal opinions. We likewise used criterion sampling in order to establish our sample population. Hence, those interviewed included 15 academics employed at a Turkish university between 2018 and 2019 during its spring semester. First, we used semi-structured interviewing to collect the target data. We then examined that data using descriptive analysis. Finally, we then presented our findings in accordance with the objectives outlined in study.

Keywords: Google Scholar, Academic search, Scientific research, Academic search engine

INTRODUCTION

A Middle English term borrowed from Latin via French, the word 'literature' (in the academic context) refers to all research conducted and documented within all branches of the sciences. Likewise, a literature review can be defined as the detailed process of researching and examining all studies that have been previously conducted on a particular topic (Dinçer, 2018). Likewise, it is effective when it is done in a planned way. Instead of going to libraries and spending hours searching for sources, one can now make use of their time in a more efficient manner as well as access whole libraries online thanks to the help of numerous search tools (Köroğlu, 2015). Furthermore, the widespread use of Internet-based technology and the rapid increase in information on the internet has rapidly brought with it a whole host of methods that allow one to access that information. Given the fact that the internet, as an open environment, at times makes the act of accessing specific information more difficult and more complex for its users, means that there is a need to refine that (Ay & Seferoğlu, 2017). In this sense, it is important for us to know how and with what strategies academics access the information they need within an online environment as well as where they access that information from (Olçay, 2003). What they indeed search for shows tremendous variety. This can include scholarly articles, theses, notices, reports, periodicals, books, and abstracts, among other things. The researcher thus may rely on keywords alongside academic-oriented search engines in order to gain time when scanning for sources online.

However, the overwhelming amount of content on World Wide Web thus can be a double-edged sword for the researcher, in that it can make their process both easier as well as more complicated. Search engines in turn present users with content as well as try to locate those websites that will be of potential benefit to them. In other words, they scan the entire Internet on behalf of the user and dig up what the user is looking up in a relatively swift manner. Beyond just words, search engines also are able to retrieve a whole host of different media, such as video clips and photographs (Aktay, 2017). Nevertheless, academics prefer academic search engines (Ortega, 2014) in order to carry out their work due to the fact that they focus specifically on scholarly sources. Such search engines, at the same time, not only help academics conduct more meaningful literature reviews, but they also are able to shape the course of future research as well. Hence, Google Scholar, which serves that very purpose, entered the world of academia, both in order to provide academics more direct online access to scientific research (Zientek, Werner, Campuzano & Nimon, 2018) as well as to cater to their objectives.

Released in 2004 as a free application, it is a search engine that essentially indexes a broad range of scientific literature in multiple disciplines and through multiple databases. Google Scholar helps you access a whole host of academic research spanning books, articles, and dissertations to abstracts, court opinions, and technical reports, all at the click of a mouse. Harzing (2017) states that it would be a mistake for one to assume that Google Scholar contains every single thing there is on the Internet, citing that it only indexes scholarly sources. She adds that Google Scholar works in collaboration with those who publish academic sources in order to in turn

index them. Google Scholar also allows you to discover different authors from different disciplines, keep track of citations of individual articles, and create a public researcher profile. It moreover offers other services as well, such as enabling you to sort through articles by date, access those articles in full, and keep abreast with new research via e-mail (Google Scholar, 2019; Zientek et al. 2018; "What is Google Scholar", 2018).

When we examine the available literature, we come across numerous articles that discuss Google Scholar's pros and cons (Jacso, 2005) alongside those that compare and contrast its depth and breadth versus other databases (Neuhaus, Neuhaus, Asher & Wrede, 2006). We also encounter studies that examine Google Scholar's range of citations (Jacso, 2006), and those that weigh its potential benefits when it comes to scanning literature (Zientek et al. 2018).

In turn, this study aims to evaluate Google Scholar from the perspective of those who use it, by means of looking at how they view it in general, why they use it, what they feel they have gained from it, and the issues that they have encountered when using it. In order to provide our study with more focus, we framed it within the following questions:

- What do academics/academics think about Google Scholar?
- What do they use it [Google Scholar] for?
- What sort of benefits do they feel it provides?
- What sorts of issues do they encounter when using it?
- How do they feel it could be improved upon?

METHOD

This section outlines our research model, working group, data collection, data analysis, and the validity and reliability of our research.

Research Model

Our study is qualitative in nature. Yıldırım and Şimşek (2018) indicate that the most important advantage that qualitative research provides is that they allow the viewpoints of its participants to be visible. They also state that interviewing is the single most common method used there within, given that it is a fabulous means of extracting individuals' opinions, perceptions, and feelings. In light of that, we too adopted interviewing as our method of choice in order to gauge Google Scholar through the lens of its users.

Study Group

We used criterion sampling in order to establish our sample population. In this method, the researcher is able to create the criteria themselves or rely on criteria that have already been created (Yıldırım & Şimşek, 2018, p. 122). In this direction, we identified PhD-educated academics from various departments as being one of the criteria of this study. Another criterion was that participants participate in our research on a voluntary basis only. In turn, those we interviewed included 15 academics/academics employed at a Turkish university between 2018 and 2019 during its spring semester. What is more, the participants represented broad range of academic fields, coming from the Departments of Mathematics and Science Education, Turkish and Social Sciences Education, Basic Education, Educational Sciences, Computer Education and Instructional Technology, and Foreign Language Education.

Data Collection

Interviewing is extensively used in qualitative research (Yıldırım & Şimşek, 2018). In the present study, we chose semi-structured interviewing in order to collect our data. We asked academics questions about what they thought about Google Scholar in general, what they felt its range of benefits were, what sorts of issues they encountered upon using it, and how it could be made better.

All interviews were conducted where the participants worked on campus, in their own private offices. We did not begin interviewing the participants until we first obtained their permission beforehand. Each interview was personally conducted and recorded onto an audio device by the researcher herself.

Data Analysis

We chose descriptive analysis in order to examine our data. In this approach, one summarizes and interprets their findings according through the lens pre-determined themes. The researcher moreover is able to present their data in a manner that closely follows the interview questions (Yıldırım & Şimşek, 2018). In view of this, we decoded and transferred the audio material into digital format and then encoded our data according to emerging themes. In doing this, we also made sure to directly cite each respondent's set of viewpoints within the findings section. Whatever emerged in terms of encoding was then classed under broader themes and shaped accordingly.

Validity & Reliability

When it comes to the credibility or internal validity of our research, we made sure to consult an expert who has both general knowledge about the subject matter as well as who as experience conducting qualitative research to look over our work.

We used descriptive analysis in order to analyse our data alongside extensive referencing participants' feedback in order to provide this study with transferability or external validity. In addition, we employed criterion sampling in order select the participants. Drawing only upon participants who had finished their PhD and who had taught in various departments thus ensured that the participants were diverse. On the other hand, our collecting our data from each participant in a similar manner solidified the study's degree of consistency or internal reliability. In this sense, the researcher had tried to conduct the interviewing process in a consistent manner across the board.

FINDINGS

This section looks at and interprets the study's findings within the context of how the participants view Google Scholar. We had divided the these view points under five themes:

1. 'How the participants view Google Scholar',
2. 'How the participants use Google Scholar',
3. 'What benefits the participants feel they've gained from Google Scholar',
4. 'What issues the participants have faced when using Google Scholar',
5. 'Participants feedback on how Google Scholar could be better enhanced'.

1. General Attitudes Towards Google Scholar

How the participants view Google Scholar in general is by-and-large positive, and thus has been provided in Figure 1.

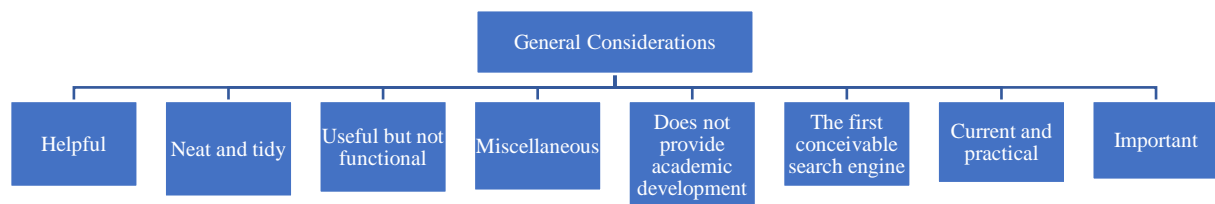


Figure 1. How Academics View Google Scholar in General

When we examine Figure 1, we see that the participants generally feel that Google Scholar is not only beneficial, but also a user-friendly, important, up-to-date, practical, and extremely popular tool that allows them easily access and follow publications.

One scholar cited Google Scholar as being particularly **helpful**, stating, "I'm aware of how useful it is for academics... In that you not only know who is accessing what, but also how many citations the paper you're accessing has. This is particularly important to us. It normally is difficult to obtain such sources. Knowing how well-cited a paper is shows us just how valuable it is." Another participant indicated, "Google Scholar is very much a platform that unites academic research under one roof, and that makes that research accessible to nearly everyone." In essence, both emphasize how particularly **respectable** Google Scholar is, underling the fact that enables you can access any topic within a short period of time. Another participant, on the other hand, argued that Google Scholar was **useful but rather dysfunctional**, stating that it is "Useful, not very functional at all. I feel what while it has its pros, it still does not scan every single data base". In contrast, they added, "It [Google Scholar] is nice, simple, handy, and easy for those who are new to it to use." In other words, they emphasized just how particularly **user-friendly** it is.

Another positive piece of feedback was that many academics stated that it was **first search engine** to spring to their minds. One participant, for instance, noted, "We generally use Google as part of our academic research in order to feed whatever it is we're curious about. Google is always the first thing that comes to mind." Many participants also brought up the fact that Google Scholar was very much an **up-to-date and practical** tool. As one subject put it:

"I view Google Scholar as one of the most up-to-date and accessible tools there is. I can't express enough how practical it is. We are able to access an overall template of things as frequently as we so wish. In a nutshell, it is practical, I can access it with lightning speed, and that it allows me to find what I'm looking for within my specific field."

In essence, those we interviewed appear to view it as being an **important** academic search engine. One subject expressed, *"It's a significant source for those wishing to get hold of scholarly articles"*. Another subject highlighted that Google Scholar was momentous in that it enabled them to upload research, to see how extensively cited the available research was, and to view the work of other academics in the same field.

On the contrary, one subject stated that Google Scholar, while beneficial, is merely a tool, and that it by itself does not facilitate **academic development**. In their own words, they indicated, *"I'm not of the opinion that Google Scholar allows for academic development in and of itself. For example, if all Turkish academics were forced to use Google Scholar [alone], Turkey's overall academic performance would far from flourish."*

2. How Academics Use Google Scholar

How the participants use Google Scholar has been outlined in Figure 2.

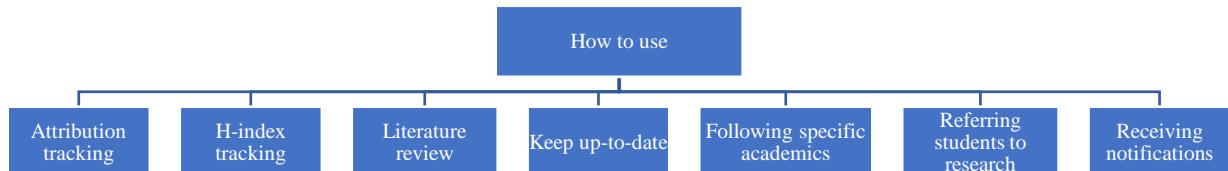


Figure 2. How Academics View Google Scholar

One thing we found that caught the interest of those we interviewed the most was **attribution tracking**. One interview said, *"I use it mainly to view citations and conduct readings. I have been using it over the past two to three years within the scope of academic incentive in order see to what extent our research is being cited."* Another interviewee expressed that they largely used Google Scholar not only to keep track of how many citations they receive, but also to follow its **h-index** feature as well, stating,

"Google Scholar has a feature known as h-index. It shows you how many people have cited your publications. It isn't always possible for us to keep track of that. Therefore, it instead needs to be done digitally. We otherwise have now way of doing that ourselves. It does that for us automatically."

Another thing participants brought up was that they used Google Scholar in order to conduct **literature reviews**. One subject stated, *"I always use Google Scholar as part my research process. I use it to find studies that pertain to the topic I'm working on"* Similarly, another participant declared, *"we use it in order to scan, analyze, and access academic publications."*

Yet another participant indicated that they used the application in order to **figure out which publications are current versus which are not**, citing, *"I use it in order to find out how up-to-date the papers that I'm interested in are. I also check to whether or not there are any inconsistencies in terms my own references. If anything is missing, I try to fill in the gaps. That is how I conduct my research, in essence."*

Beyond the above, participants also cited that they used Google Scholar in order to follow **other academics**. As one stated, *"We keep track of Google Scholar in order to in order to look at academics who lead the way in their own field, and to in turn follow their work."* Likewise, one interviewee indicated, *"If there is someone in particular whom I wish to follow, I find and follow them."*

Only one participated cited that they used Google Scholar in order to **refer students to research**, voicing, *"I use it a lot in order to direct my students, especially my undergrads, when it comes to conducting research. I try show them what is available out there."* The same person also added, *"We sometimes receive notices. When I was writing my own thesis, I was always using something from either Google Books or Google Scholar. Sometimes when you create your notice, different notices would then come pouring back towards you. Each notice pointed you a different direction, to different papers in different fields."*

3. The Benefits that Academics Gain from Google Scholar

When we looked more closely that this particular aspect of the participants answers, we witnessed that most that praised it for its ease of use. Apart from providing convenience, respondents say that Google Scholar is saves then both time and energy, that they can use it to keep track their own status, identify citations, support their literature review, and personalize certain things, that it encourages them and grants them greater recognition, and that they automatically draw from certain indexes, among other things. We have provided there within this theme in Figure 3.

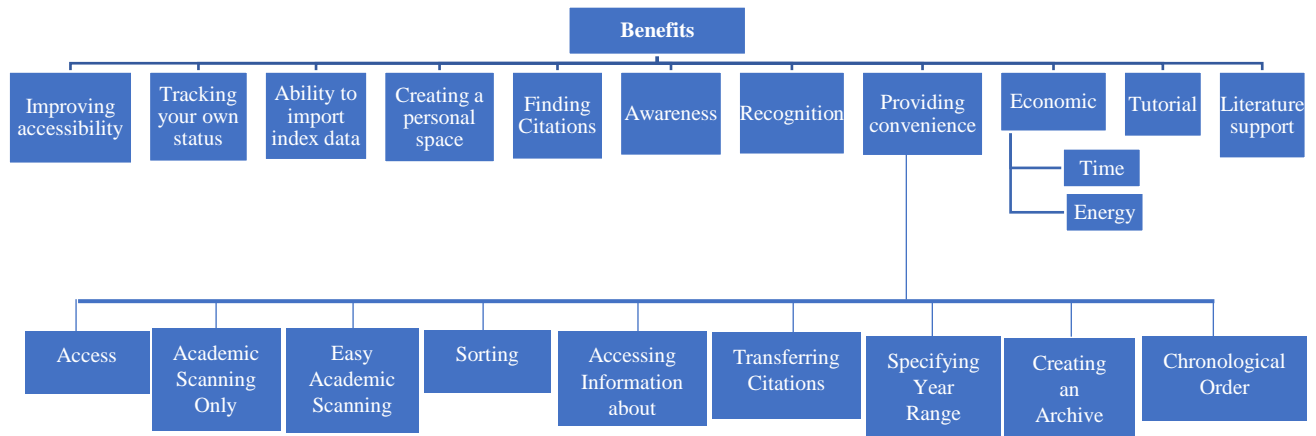


Figure 3: How Academics Feel that they Benefit from Google Scholar

One participant, in referencing Google Scholar's **ease of use**, stated, *"It makes academic scanning much easier. We are able to filter out all that is unnecessary, in essence. I waste neither time nor energy. On normal Google, I type in a bunch of keywords and a thousand things pop up in front of me, When I use Google Scholar, I enter those same key words, but this time get exactly what it is I'm looking for."* This indicates to us that users find that it **saves them time and energy**, and that they like it for its **easy and focused academic scanning aspects**. The same person, in also underling its sorting dimension, added that, *"We also are lucky in that we are able to retrieve just the abstracts, alongside whole articles and even patents through specialized sorting. This too is an ease."* Praising Google Scholar's **easy academic scanning quality**, a second participated noted that:

"When I give students a topic to research, most aren't immediately aware about how to scan academic sources—this includes undergraduates! For example, I once asked them to research children's literature; I asked them what it was. They looked at me dumbfounded and asked how and where on Earth would they be able find that out. When I pointed them towards Google Scholar... well, you know what numerous papers in PDF format become immediately visible. It was the first time they had ever encountered an academic paper. Those who were especially curious were able read about the topic in greater detail. They were instantaneously able to access Google Scholar with their cell phone and scan their way through its every nook and cranny. For them, it's a huge advantage."

In addition, one participant cited that they benefited from Google Scholar when it came to **obtaining information about certain people**. They noted, *"Google is, I think, the best means there is on the Internet to obtain for information. For example, you are able to learn about which university professor so-and-so works at, provided that they are listed."* Here, the person is emphasising how important that particular feature is in that it allows one to access information about academics (e.g. their academic and publication histories) so long as they have a profile.

Another participant referred to how easy it was to transfer citations: *"When you conduct a search via your profile, Google asks you where you would like to transfer your search results. There are dozens of citation programs already out there. I am able to use mine in a very convenient manner. After you've made your search, if you click on the very hand side of right of the screen, you can upload/transfer that paper that you've found directly to your citation program."*

Yet another participant cited that Google Scholar's **chronological ordering** dimension that also makes it very easy too use, citing, *"Being able to not only sort research by year, but also to able to do so while being specific about the topic you're looking for is very beneficial."* They also commented being able to **create archives** was also a superb feature: *"I benefit extensively from my library section. I am immediately able place my favourite articles into it and thus create an archive. This definitely makes academics' lives easier."*

Elaborating upon this particular feature, one academic added that, *"The fact that that articles are categorized according to year is a big help to those who are conducting research on similar, if not identical topics."*

Participants moreover mentioned that Google Scholar had saved them both time and energy. With regards to the factor of **time**, one interviewee noted that *"I definitely think that it grants us the ability to read a large quality of*

papers, trace them, check out how many times they've been cited, and thus benefit from them in as short amount of time as possibly definitely saves us a ton of energy."

Correspondingly, many appeared to favour being able to **keep track of their own status** via Google Scholar. As one interviewee indicated, *"One further benefit is that you are able to keep track of your own publications according to different variables. The number of citations that you receive, your visibility... these are all important for us."* Commenting on being able to **become indexed**, another interviewee put forth that, *"You are able to upload your own papers onto Google Scholar as an independent researcher, as well as become indexed via various variables such as h- and i-indexing."*

Highlighting the fact that Google Scholar allows academics and researchers the option to **create their own user profiles**, one of the interviewees had exclaimed, *"We are able to create our own personal profile page on Google Scholar. What is more, how many people have cited my papers, who I've worked with, and what kind of research I do are all visible on my page. This is a advantage."* Sharing the sentiment, another interviewee too commented, *"You have your own profile and everyone is able to access that profile. Everything is open to public view, including which of articles have been cited. In fact, those who collaborated with you automatically become visible via that. That only adds to the list of benefits that it offers you."*

Among the other important advantages that Google Scholar provides academics is the ability to have their citations made publically visible, which in turn boosts their academic credibility. In response to this, one interviewee indicated, *"We are able to see how many people have acceded/read our papers, and of those how many cited—including who and in which journal(s) the citations appear. It makes it easy for us to determine to what extent people are referring to our research. This is great when it comes to things like academic incentive. It provides you with a more practical picture of things. You then can say to yourself, 'Gee, this paper really struck a chord with people. They're reading and citing it. Or hmm, this paper received little attention. I could make this better.' It gives you the chance to evaluate yourself."*

Two of those whom we interviewed commented on Google Scholar notifying them whenever someone has cited their paper. The second person, more specifically, enjoyed the fact that it kept them up to date, *"There is a red button that that lights up whenever there is a notification. I read them when I have the chance to. Without it, I would have to scan for things. Instead, the notifications deliver me current information. For example, it tells you that paper such and such came out this year (2018), or that you had researched a, b, and c in your field."*

Others made reference to benefiting from Google Scholar's helping them **raise their profiles**. One interviewee indicated, *"There are always positive aspects to stepping out of your own locality and launching yourself onto the international stage. Another participant, added that, "You can add a photograph to your profile if you so wish. Professors want to be able to recognize and remember one another. Sometimes you know a person's name but cannot attach it with a face that you may have seen at a conference you attended. Having a photo can be quite be practical."*

Supporting the fact that Google Scholar proved beneficial in terms of its enhancing accessibility for its users, one participant, in commenting that it made accessing documents easier in terms of showing you which ones were available in PDF forma and thus allowing you to download them directly, remarked, *"Google Scholar has it all, from abstracts to whole chapters/sections of books."*

Google Scholar appears to be useful not only to academics, but to students as well. One participant went so far as to say, *"We have a smart board in our classroom. Students are able to observe how to scan though an academic paper via that. Sometimes the students even ask us what citations being referred to o Google Scholar are. At that point, I introduce to them what citations are, telling them that they are able to access a variety of other information via them."*

Touching on the topic of literature support, one interviewee mentioned, *"Google Scholar provides us with literature support. It contributes to enriching the discussion sections of our articles. We have to conduct a scan of the literature specific to field in order to go about our research. We thus consult Google Scholar in order to see whether our topic has already been studied to any extent or not. We moreover ask ourselves whether or not our research will contribute anything to what is already out there. From that angle, I feel that it is an important tool. It guides us and elevates our level of awareness."* Another interviewee commenting on the same topic, asserted, *"Before I write a paper, I always first take a glance at has already been published in my field already. I try my best to draw as much as I can from them. Google Scholar therefore helps me make my own work as distinguishable as possible. It also shows me where my colleagues have struggled, thus making it all the more useful."*

4. Issues that Academics Tend to Encounter Upon Using Google Scholar

The issues that the participants claimed they experienced upon using Google Scholar have been provided in Figure 4.

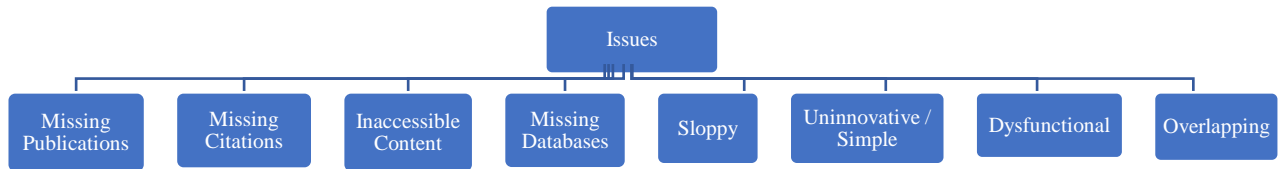


Figure 4: The issues that academics tend to encounter when using Google Scholar

Among the most widely encountered issues faced by those we interviewed in regards to using Google Scholar appeared to their inability to access all databases alongside complications regarding the visibility of citations. Moreover, many complained of their own publications not all being visible as well as complained of being unable to reach content, while others found that Google Scholar was sloppy in many ways, uninnovative, dysfunctional, and having too much in the way of overlap.

One interviewee touched on the fact that Google Scholar did not show *all* of their own publications, noting, “*We are talking about a digital program. Sometimes you cannot access all of that’s out there. Sometimes you cannot even find you’re your publications.*” Similarly, another interviewee had expressed that sometimes the citations were not always visible, either: “*At times you cannot find all of citations belonging to a particular publication. That’s always an issue. It will tell you that 10 people had cited your work, and yet you can’t find those 10 people.*”

When it came to the issue of being unable to access the content of certain sources, many complained of losing time because of it. One in particular indicated, “*For example, at times, all you see is the title of the publication; it doesn’t allow you to access the full text, or even its abstract. You go to click on it, but it doesn’t open.*” Another interviewee who also experienced the same issue said, “*Sometimes I cannot download the paper that I’ve found. That is, I cannot obtain it in PDF form.*” In contrast, a third participant, claimed that the issue of inaccessibility did not stem from Google Scholar itself, but rather that it had stemmed from the structure of the university’s own database being poor. The person added that the program offered them no obstacle whatsoever.

As was mentioned earlier, some of the respondents claimed that they experienced problems when it came **being able to scan all databases**. One remarked, “*Unfortunately, Google Scholar doesn’t place a lot of importance on theses; and yet, theses often contain the most coherent of theoretical framework for certain concepts, which is ideal for performing literature reviews. The language used in standard articles is a bit different from the language used in theses. When you go to search for something, you can’t always find it. You cannot scan every database either.*” Another, upon commenting that they **struggled trying to access books** in particular, “*You cannot access everything in full on Google Scholar, especially certain chapters of certain books. It always leaves you wanting to find out what lies within what you can’t reach.*”

Beyond inaccessibility, others commented on Google Scholar being rather **sloppy** when it came to the matter of citations. In parallel with that, one interviewee stated, “*It shows you that you have more citations than you really do. It will show you that you have between four to five or even eight citations, when in reality, all you have is two citations, or perhaps none at all.*” Another remarked, “*It displays your paper in such a manner that you’d think it was more than one publication. Right now, one of my papers appears to be in three or places. Google Scholar tells me, moreover, that one of those has been cited nine times, while another has been cited five times. It should show you your paper as one single entity. It causes you to lose time because you have to look at each paper individually.*”

While one participant had expressed that Google Scholar was **too simple or ‘uninnovative’**, expressing, “*Google Scholar is far too simple. While that can be a good thing, it can also be a problem. It never changes. It never presents users with anything new.*” Citing Google Scholar’s lack of functionality, another added, “*Google Scholar is not overly functional. When I think of functionality, what comes to mind is being able to personalize the program for my own use. I want to be able to customize it. Many open code programs offer that advantage.*”

Google Scholar doesn't. You can't even call up databases. All you can do is search websites, that's it. Oh, and you can also ask it which year certain papers were published."

Last but not least, a handful of respondents commented on the **problem of overlapping or a lack of specificity on Google Scholar**, especially when it comes to the issue of entering names into the search engine and that the fact that rather contrasting results come up instead. Remarking on this particular issue, one respondent noted, "You enter in a particular name and dozens of people in different departments with the same name come up. You write in, M. Çelik, and M. Çelik the history teacher as well as M. Çelik the social studies teacher pop up. Oh, and M. Çelik the physiotherapist, and M. Çelik the mathematician. It is quite time consuming to find who you're looking for."

5. How Participants Think Google Scholar Could Be Improved

Some of the ways in which participants feel Google Scholar could be improved upon have been outlined in Figure 5.

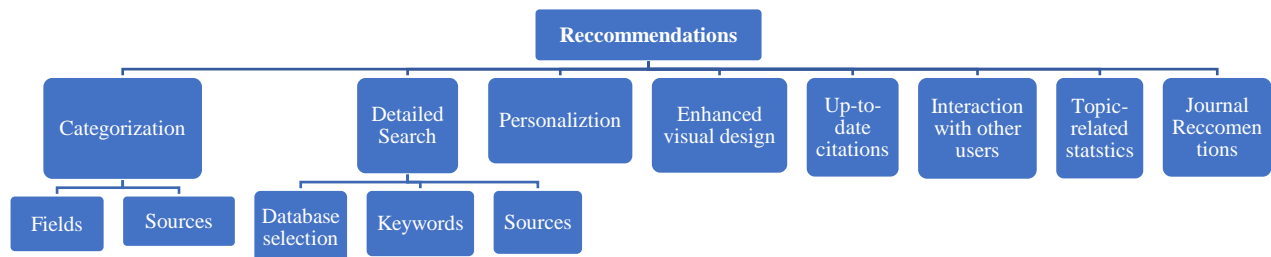


Figure 5: How Participants Think That Google Scholar Could Be Improved

The number of improvements that academics feel could be made to Google Scholar centre largely on correcting the issues that they encountered. Among these include better categorize research fields and sources, allowing advanced users to tailor Google Scholar to their own needs, keeping citations current, facilitating interaction between users, providing statics on any given topic, and providing journal recommendations.

In response to the issue of **categorizing research fields**, one respondent commented, "If only Google Scholar could revise how it categorizes research fields. It could be more specific, pointing you towards which sources belong to which fields, e.g. education, art, medicine, etc. If it did that, I feel that it would be more successful."

Likewise, another suggested that sources themselves be better categorized: "For instance, Google Scholar lacks a button that enables you to rank sources according to what they categorically are, e.g. an international journal, a book, a white paper, a thesis, etc. If it had one, it would make positive difference."

Also, while one respondent felt that Google Scholar ought to provide its users with **the ability to choose their own databases**, another commented on it improving how it uses **keywords**: "It really could do with establishing a couple of standards when it comes to refining search results. One example of this is better drawing from keywords in order to help users learn more about the researcher they're looking for as well as the categories within which their research falls, etcetera." One other respondent suggested that users ought to be able to search for certain sources in a more detailed manner: "Books tend not to immediately appear in the search results. If I enter in the name of a certain book, I want it to pop up. Certain data are found in books only; which in turn means that you have to go and find that book. If Google Scholar improved upon that, it would be awesome." A separate responded also added, "Google Scholar should offer me the ability to swiftly access internationally-written theses. I want to be able use it in order to follow what kind of research is being done."

The issue of **personalizing** Google Scholar also came up, or as one interviewee put it: "While it is easy to use, even for those who are new to it, it offers little to more advanced users in the way of personalization. I think that it could improve in that area."

In dealing with the issue of improving Google Scholar's overall **visual design**, specifically targeting how it could be upgraded visually so that it becomes more practical to use, one interviewee put fourth, "I place a lot of importance on the visual aesthetic of websites. I want to see colour and things placed into neat little boxes. Google Scholar shows you a string of dull pages. There ought to be more boxes, more colour, more tables... perhaps a more cyclical or array-oriented design. In essence it needs a visual facelift that removes it from being simply a series of pages."

Suggesting that **citations also need to be maintained and kept up to date**, one interviewee stated, *“Google Scholar needs to keep track of how up-to-date the pages it presents you with are. The same goes with ensuring that citations are current and immediately indicated as well.”*

One respondent wishes to be **better able to interact with colleagues** through Google Scholar, remarking, *“It could create a common platform for academics and researchers in order to host discussions. You can write comments, for example, on Researchgate. You can interact with other commenters. Google Scholar ought to do the same.”* Another respondent focused on wanting Google Scholar to **provide you with statistics** about how much research has been done on a particular topic in order to fill in the gaps with new research: *“Well, when it comes to selecting a topic to write on, I don’t want to examine something that has been worked on a million times over. And yet, there are dozens of topics more that haven’t been at all touched upon. I want to see a feature that indicates that so that I know in which direction to go.”*

The final suggestion had to do with **pointing users towards academic journals**: *“Room could be made for journals to introduce themselves. For example, right now I have an abstract in my hand that I want to send off, but I’m not which journal I should forward it to. Google Scholar could point me in the right direction. It could maybe categorize journals in terms of which ones charge a fee to publish versus which ones provide you with support. It ought to better promote journals, I think.”*

CONCLUSION AND DISCUSSION

We have thoroughly examined and presented how academics view Google Scholar in general, how they use it, how they feel they benefit from it, the kinds of issues that they encounter upon using it, and what they think could be done to improve it. What our research has in turn revealed is that most view it in a positive light, and that most find it to be quite useful. We found that most had agreed that both Google and Google Scholar alike were practical when it came to a whole host of sources---to the point that both were even the first things that entered their minds.

Our findings also revealed that academics mostly use Google Scholar to follow citations and to research literature. We moreover found that academicians they also used it follow the people as well as keep abreast in their own field. The fact that many use Google Scholar to direct undergraduate students towards research strikes our attention because it shows that it appeals to a much wider academic audience beyond simply academics themselves.

In this study, we also observed that nearly all those whom we interviewed had noted that Google Scholar had made things easier for them, especially in terms of accessing sources. Their being able to learn how many people have cited their work or how many times a particular paper has been cited has also proven to be an important benefit for them as well. Academics moreover are able to automatically learn where they rank in terms of indexing through their h-index value. This is especially valuable within the context of academic incentive. On the end of the spectrum, we came across only one person who felt that Google Scholar had the potential to be a good teaching tool.

In terms of issues that participants cited experiencing, most complained of being unable to access/scan every single data base, as well as noted that it often incorrectly displayed citation figures. In this sense, what we can infer is that users feel the need to access multiple databases when using Google Scholar. Another issue that users encountered had to do with the overlapping in common names, which in turn slowed down their search process. Despite this, most still appeared optimistic that, with experience, they would be able to overcome these obstacles, and that over time these issues would be resolved.

One thing that the academics we interviewed wished to see most was the ability to conduct more detailed searches, in that they wanted Google Scholar to better categorize sources and research fields, to grant them access to a wider range of data bases, as well as to better utilize keywords. The range of suggestions that participants put forth in terms of improving Google Scholar, while relatively universal, were diverse. We can infer from this many feel that it could be enhanced in a number of ways.

One study by Neuhaus, Asher, Neuhaus and Wrede (2006), exploring the depth and breadth of Google Scholar, concluded that the users are attracted to the fact that Google Scholar has a very simple search interface. In a second study investigating the usability of the websites of Web of Science, Google Scholar, and YÖK Thesis Center, all of which are online academic sources, Çetin and Şendurur (2016), came to the conclusion that Google Scholar had, by far, the simplest design. Jacso (2005) adds to that by proposing that Google Scholar is an important tool in terms of helping researchers/academics take their first steps towards discovering information. Zientek et al. (2018), too, found that Google Scholar is a platform that informs its users about as well as disseminates research, guides them towards developing future research, and builds academic networks in order to facilitate collaboration. However, Neuhaus et al. (2006) found that Google Scholar fell behind in terms of providing up-to-date information, and that many of its databases were relatively weak in certain

academic/scientific fields compared to others. Jacso (2005) adds to this, arguing that Google Scholar moreover fails in terms of indexing a large number of articles in general. A successive study by Jacso (2006) found that the number of citations that Google Scholar boasts to have does not reflect the truth, and that researchers should look through these numbers and take them with a grain of salt. We can therefore conclude that the results of other studies only solidify our findings.

In light of the findings revealed in this study, some of our own recommendations include:

- Producing studies that better introduce Google Scholar in order to raise awareness among academics and researchers alike, and that not only teach them how to use it in a more effective and meaningful manner, but that also dispel misinformation as well.
- Proving universities with the necessary groundwork in order to facilitate academics' ability to access a broader range of sources.
- Encouraging more comparative studies that juxtapose the databases that academics already use via Google Scholar with other alternatives.
- Elaborating upon this study by including a larger pool of departments and participants, including perhaps graduate students.
- Examining how academics conduct academic scanning online using different and more encompassing research designs.

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