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Postgraduate Students' Level of Electronic Search Skills at the University of Hail in the Kingdom of Saudi Arabia

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Abstract
The current study aims to explore postgraduate students' level of electronic search skills at the University of Hail. To achieve the objective of the study, a 34-item questionnaire is developed and the descriptive analytical approach is adopted. The study sample consists of (62) male and female postgraduate students randomly selected from all faculties of the university during the first semester of the academic year 2019/2020. The results of the study show that the level of electronic search skills among postgraduates is medium. The results also show that there is a statistically significant difference at the level of electronic search skills due to the variable of the cumulative average in favor of a very good average. Besides, the results also show that there are no statistically significant differences at the level of electronic search skills due to the variables of the student's specialization in their first university degree or due to gender. The study recommends raising the level of postgraduate students' participation in electronic search by providing an electronic learning environment to bridge the gap they have by offering electronic courses that refine and develop their practical and search skills.

Keywords
Electronic Search Skills, postgraduate Students, University of Hail.

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1. Introduction

The value and significance of scientific research and the urgent need for it are evident with the increasing problems facing societies, and the need to reach solutions to these problems by conducting systematic and practical scientific research and studies contributing to the development of appropriate and applicable proposals and solutions. The process of conducting studies requires tremendous efforts to prepare and develop a generation of distinguished and productive researchers to carry out purposeful research in the various fields of life that develop society and achieve its scientific and cognitive progress. To this end, educational institutions must encourage their students in general, and postgraduate students in particular, to conduct scientific research in order to serve the community, solve its problems and bring it to the ranks of leading and developed countries.

The Internet is the global library that encompasses much information in various forms and on varied topics. The Internet has become a destination for researchers of different research directions, as it enables them to attain sources of information in many fields with various types of audio, textual and visual media. The Internet includes a huge amount of information distributed in the form of pages and grows quickly. To take advantage of this information available on the Internet, researchers are required to be familiar with those research tools that organize the Internet and facilitate access to the information available on it (Bassiouni and Rajeh, 2009). Besides, the Internet consists of a positive dimension that benefits postgraduate students, as it provides them with an electronic environment in which the circle of learning and information resources expands, along with greater diversity in various fields of science, relieving graduate students from the trouble of moving and searching in libraries.

Precisely, colleges and universities, as educational institutions, have a functional role in the field of scientific research. The university plays a prominent role because of its research institutional environment in which the necessary scientific data is available such as the presence of faculty members, researchers, and postgraduate students, alongside other requirements like libraries, periodicals and laboratories. Thus, preparing well-trained and qualified persons to bring about change and development in society in various aspects of life is considered one of the most central functions and responsibilities of universities. Since the graduate programs at the University are the

nucleus of scientific research, and their scientific subjects give their students the required research skills, the university's task is incomplete unless there are effective programs for graduate studies through which electronic search skills are practiced in various fields of knowledge (Al Reyashi & Hassan, 2014).

Several studies show a relationship between the ability to search on the Internet and the use of electronic data and information. Students who have electronic search skills use electronic information effectively and their academic level is better. For example, studies (Willoughby et al. 2019) show that using the Internet contributes significantly to improving the level of writing research papers on the topics searched by students. Chen & Fu (2009) show that training 8th-grade students in Taiwan on Internet search skills increases their grades and raises their level of academic achievement in tests. Their study also shows that using the Internet to play electronic games and going to Internet cafes contributes to their low level of academic achievement.

Electronic search is proven to have a lot of advantages, namely: giving the researcher several hours to search, overcoming the spatial dimension of libraries and long distances, and reducing the economic dimension and costs for postgraduate students. Besides, electronic search improves students' computer skills, increases their activity and culture, and updates them on everything new in their field of specialization. It also contributes to achieving a high degree of self-learning, alongside the learning acquired by the traditional method, and shortens the time period spent by students in the search process, especially as they understand the subject more quickly compared to the traditional method. This is confirmed by the study (Grabe and Grabe, 1998) that the use of the Internet to search enhances group learning among students and revives the spirit of cooperative work in one team through the distribution of roles and tasks among members of one group, and thus the topic is completely covered. Hamshari (2009) believes that electronic search helps in speeding the acquisition of information, reducing its cost, increasing its security and confidentiality, and preserving it from factors of damage and loss and providing spatial space in comparison to the printed information sources.

Scientific research at the University of Hail is of great importance, as the university supports the production of scientific research to serve the community and provides graduate students with a set of international rules specialized in theses and

scientific research to help them write their letters and research. The number of research papers published at the university has reached more than 2000 research papers, in which the number of citations has exceeded 29 thousand, and the university annually provides research grants to faculty members in the framework of directing research competencies and capabilities at the university to contribute to the advancement of scientific research and solving research problems in the community.

2. The Study Problem and its Questions

Via the internet, electronic search has become the most important source that postgraduate students rely on to draw their information and data, as it helps them to obtain immediate information from various sources, distributed throughout the globe and provides them with several options to draw their research, studies and theses in line with research and scientific development in all fields. Through the process of monitoring, following-up and observing the performance of postgraduate students during their teaching and assigning them tasks and coursework, along with following-up with them in the supervision stage during scientific theses writing, the prevailing feeling of researchers is that there is a general weakness in electronic searches, and that the use of the Internet in searches by postgraduate students is still weak. More tellingly, the majority of postgraduate students resort to the library and search the traditional sources and references, because of the ease of access and their belief that it is more reliable than what is published on the Internet.

Odeh's study (2013) maintains the necessity of working to raise the technical level of students of the Faculty of Education within the postgraduate programs to identify the capabilities offered by the e-learning environment to bridge their electronic gap. Also, Jarf's study (2017) recommends integrating search skills in information sources on the Internet in the courses offered by the university for undergraduate and postgraduate students, so that it becomes an integral part of lectures and textbooks used in the classroom, as well as training graduate students on electronic search skills that would qualify them to be active researchers in the contemporary information society. In light of the present review, the problem of the study lies in exploring the level of electronic search skills for postgraduate students at the University of Hail, and its dependence on certain variables.

In light of the problem of the study, the following questions are articulated.

1. What is the level of electronic search skills for postgraduate students at the University of Hail?
2. Does the level of electronic search skills for postgraduate students at the University of Hail differ due to the cumulative average (excellent and very good)?
3. Does the level of electronic search skills for postgraduate students at the University of Hail differ due to the specialization of the first university degree (scientific faculties, humanities faculties)?
4. Does the level of electronic search skills for the postgraduate students at the University of Hail differ due to gender (male and female)?

3. Techniques, Tools and Principles Concerning Electronic Search

3.1 Guidelines to using database

Electronic search is one of the easiest and most effective ways to search for information in the modern era. The World Wide Web provides a limitless amount of information on its countless webpages because of its abundance and diversity, providing a possibility for all researchers to search for different information to enrich their minds, develop their skills, and broaden their awareness. Now, we review the electronic search steps, the learning tools in electronic search, the sources of information published on the Internet, the advantages and disadvantages of electronic search, and the ethics of electronic search.

The process of extracting data and research from specialized databases requires a set of steps to be followed as indicated by Kattait, Oreifi and Khalayleh (2016):

First: Define the required database

The database is determined according to the researcher's specialization and the sources of information required. The search is conducted through general search engines such as WebSearch, Altavista, Lycos, Yahoo, and Google:

Second: Enter the database.

-Use the acronym for the database in capital letters such as LISA, LLBA, MLA.

-Use the full link of the database as www.askeric.org.

-Enter the university library website and click on the name of the database to be used and type in the username and password.

Third: Define the type of search in the databases: There are two searches: Simple Search and Advanced Search.

Fourth: Choose the search words.

- Determine the subject of the search and subdivide it into small subjects, then write a number of keywords that refer to the subject of the study. Search using one word for simple search or a group of words if the search is advanced.

Fifth: Write search words in the appropriate fields and select the appropriate tools for linking among words.

Sixth: Select the search fields from the list.

It indicates the location of the search in the databases using the search words selected by the researcher, that is, the computer search by keywords, document titles, author's name, inside the abstracts, inside a specific periodical, or by the names of periodicals.

Seventh: Select the date of publication of the required documents.

The date of publication of the required documents is determined in two years from 0000 to 0000. Sometimes you select from the list and sometimes you write in full or write the last two numbers of each year and sometimes define the month.

Eighth: Select the language in which the required documents are written.

Ninth: Define the required information about the document.

Select reference quotation only, reference quotation and abstract, or reference quotation, abstract, and the full text of the document, if any.

Tenth: Select the type of documents required

Select the source type from the list if it is present in the database, such as peer-reviewed periodicals, newspaper articles, chapters of books, and reports.

Eleven: Select the name of the journal to be searched.

Twelfth: Select other options.

Specify the number of documents displayed on the screen and how they are displayed: Brief reference quotation for document, Detailed reference quotation for document, Reference quotation and abstract, Reference Quotation , abstract and full text in the X box) either by placing the small mark or clicking the small icon to the left of the document.

Thirteenth: Store search results, print them on the screen, or email them.

3.2 Search and Communication Tools in Electronic Search

There are several search tools that help in accessing information. Among these tools used by the researcher are the following:

First: Electronic Email: It is an economic and fast system for sending and receiving electronic messages across the world through the Internet. The e-mail service is one of the most significant services available on the Internet. By using it, the subscriber can send and receive comprehensive messages (documents, images, video, and audio) from around the world in a short period of time (Rubaie et al, 2004).

Second: The World Wide Web: It is a program for serving the scientific research that uses multimedia systems and is the fastest growing part of the global network. It also allows the user to access visual and audio information, such as graphics, animations, fixed images, and videos, along with written texts (see Qandalji, Alyan, and Samarrai, 2009).

Third: Chat via the Internet: It is a chat program that enables two or more people to exchange dialogue and talk in writing or voice and allows the meeting of users from all over the world to exchange written and spoken words. Specifically, this is done in special rooms for conversations within specialized topics among participants in the same room. Through this chat, users can ask general questions and issues to discuss in a specific area to obtain answers and ideas that are unavailable in other ways (Shboul and Alyan, 2014).

Fourth: E-Mailing Lists: This service allows the identification of a list that includes a group of people with the same interests so that electronic messages are sent to the entire group at the same time by using a single message. Thus, the e-mailing lists enable joint discussions between this group of people on a specific topic and allow them to be in constant contact with the latest developments affecting this topic. The way the e-mailing lists work depends on the definition of an email address for each e-mailing list with assigning a program that receives messages sent to this address, and then sent to a group of e-mailing addresses stored in its mailing list, and therefore every message sent to the address of the list will reach all people included in this list (Rubaie et al, 2004).

Fifth: Electronic Blogs: They are used in a wide field by researchers to record their posts, comments and writing on a specific topic. Perhaps, its most prominent use is that it forms a permanent information unit on the Internet for events and tasks required by students and learning resources. It provides students with an opportunity to send information or specific assignments and work to review the scientific material and gives students an opportunity to benefit from their opinions and comments on the work of others (Duffy & Bruns, 2006).

Sixth: Video conferencing: This technology is done by using modern cameras placed on computers to take pictures and transmit live audio and images for simultaneous display in another place. Its aim is to achieve an interactive atmosphere among the participants (Shboul and Alyan, 2014). They are used in universities to give lectures if students cannot attend the university classroom.

3.3 Sources of Information Published Online

The sources for obtaining information from the internet vary. Among these sources are:

The Electronic Library: It is the library that focuses its work on information and communications technology to convert the library data and the way it works, and the circulation of books, periodicals and journals into a technical method that depends on modern technologies, particularly the Internet and its services for the purpose of developing scientific research, and facilitating searching between references wherever they are. The electronic library contributes to the spread of information and scientific references to the world for the benefit of researchers and postgraduate and general students. It also makes it easier for researchers to walk among dozens of libraries to

search for references and enter the libraries lockers without leaving their seat in front of the computer. Besides, it saves the time and effort spent to obtain information and scientific references (Far, 2012).

Electronic periodicals available online: These periodicals are divided into two categories:

*General electronic periodicals: These are periodicals concerned with publishing articles and general news on various topics, and they are characterized by a simplified method directed to all segments of society. The purpose of these periodicals is to entertain or provide general information.

*Specialized electronic periodicals: These are periodicals concerned with publishing research, studies and in-depth articles on a specific topic, such as journals specialized in medicine, engineering, educational sciences, etc. (Nawaiseh, 2010).

Research databases across the web: Electronic databases are divided according to the type of information into:

a. Bibliographic databases: they contain data and summaries of information sources that contain full texts. An example of these databases on the web is the ERIC base which is the educational information resource database (Qandilji, 2008).

b. Full text databases on the web: These databases provide the researcher with the final information for the research topic, thus exceeding the levels of documentation and restriction to the operation of a large amount of electronic texts alongside other means of saving information. Examples of these databases are the EBSCO database specializing in the delivery and availability of journal articles in the form of full texts through 35 databases in various fields of knowledge (Nawaiseh, 2011).

Electronic book: It is a new method for displaying information, including text, graphics, shapes, images, movements, sound effects and film clips in the form of an integrated book copied onto CDs (Far, 2012).

3.4 The Role of the Internet in Developing Electronic Search Skills

This role, as put by (Far, 2012), is represented in the following points:

* Develop the concept of conducting joint scientific research between university professors and researchers in different countries of the world, as it has become easier to

communicate with faculties in other universities in other countries and exchange information to conduct joint research.

* Assist researchers in contacting research supervisors to discuss difficulties in carrying out research operations.

* Assist researchers in exchanging research and scientific documents with immediate speed and at low costs, while providing the possibility of written conversation, or telephone conversations between them.

* Contribute to facilitating researchers' contact with local and international scientific research centers, universities and scientific information centers to obtain data and information necessary to carry out scientific research.

* Help researchers spread their research around the world to benefit from the scientific results attained.

3.5 Electronic Search Features

Electronic searches have many advantages featured with the following points as indicated by Marwan (2016).

* It saves time and effort for researchers, especially those who need to obtain general knowledge about a particular topic, or those who need to first verify that they already have valid information.

* It compiles several different search results and puts them in the hands of the researcher, as the researcher is able to review many forms of search results in the same place without the need to move around and make an effort to do so.

* It saves a lot of money because the researcher only needs a computer, mobile phone or tablet device along with having a connection between one of these devices and the internet.

3.6 Electronic Search Ethics

The researchers are required to adhere to a code of ethics while conducting an electronic search such as not causing harm to others for example by sending viruses, as computer hackers do to cause chaos and destroy their files, respecting the intellectual property rights of publishers on the web because copyright and copying are owned by their owners and it is not permissible to deal with them unless a prior permission is obtained

from the owners of those rights, taking into account the accuracy when determining the destination of the electronic document due to the existence of similarity in many addresses, avoiding the use of encrypted texts in writing electronic documents so as not to burden the recipient due to the difficulty in obtaining the ability to decode, observing the protocol of communication within the groups and this includes gathering the necessary information about them, and checking the *Sent Emails* issued daily to ensure that they are directed to the desired destination (Rubaie et al, 2004).

4. Literature Review and Previous studies

In the Arab region researchers have focused on different aspects of postgraduate student use of electronic search and tools.

Shammas (2008) reveals the use of the Internet in educational research papers assigned to postgraduate students of the educational diplomas at the Faculty of Education at the University of Damascus. The study adopts the descriptive analytical method using a validated questionnaire. The study sample consists of (42) participants, including (18) male students and (24) female students from educational postgraduate diplomas who use the Internet. The results also show that (66.7%) of the study sample spend less than four hours a week using the Internet to conduct the educational research papers. Also, the results show that between (66% - 68%) use the Internet to obtain a large amount of new information at a low cost to enrich the research paper. The study also shows that (86%) report that improving their foreign language skills comes in first place as one of the benefits of the Internet when conducting educational research papers, followed by access to educational research and conferences. However, (100%) of the participants agree that the lack of an appropriate center for the Internet and lack of Arabized materials, along with slow internet connection are the first difficulties in using the Internet. The comparison between males and females does not show any statistically significant differences in the subjects of the study.

Qarni (2008) investigates the impact of search engines on the use of databases at the Central Library of King Abdulaziz University for Master's students in the Faculty of Arts in Saudi Arabia. The study relies on the survey method, and the study sample comprises a random sample consisting of (80) students representing the various disciplines at the Faculty. Concerning the search engine, Google is the most used engine

followed by Yahoo, LookSmart, Infoseek, Altavista, and finally Hotbot. The study shows that female Master's students rely more on search engines when preparing scientific research than on databases available at the Central Library.

Dwedy (2009) identifies the effectiveness of e-learning in developing search skills for postgraduate students in Saudi Arabia and reveals the effectiveness of e-learning via the Internet and its relationship to academic specialization. To achieve the objectives of the study, two instruments are prepared: a note card for search skills in databases and a questionnaire consisting of four themes, where the note card is applied to (59) students, and (53) questionnaires are returned from students. The results show that there is a statistically significant difference between the arithmetic mean of the degrees of the pre-application and the post-application in favor of the post-application of search skills in databases. The results also conclude that there is no statistically significant difference for search skills in the databases between the arithmetic mean of the degrees of the study sample in the scientific and literary specialization.

Sahin, Balta, and Ercan (2010) investigate students' attitudes toward the Internet and their use of electronic resources available via the Internet through their work in preparing a draft of a course. Electronic sources include electronic journal databases, search engines, electronic libraries, blogs and forums, and distance learning. The study sample consists of (102) students from the Department of Tourism and Hotel Management at Yasar Uiversity in Turkey, and a questionnaire to achieve the objectives of the study. The results show that search engines such as Google and Yahoo are most used engines by students during the project, where the databases are ranked second. The results also show that the levels of students in recent years are better than the first and second year students.

Qdeh (2013) identifies the role of e-learning in supporting the scientific research process in order to serve the educational process through developing the skills of scientific search among students of the Faculty of Education in graduate programs in Palestinian universities. The study sample consists of (40) students for the academic year 2012/2013 and uses the descriptive analytical approach to achieve the objectives of the study. Besides, a questionnaire consisting of (3) dimensions and (38) items is prepared to answer the study questions. The results of the study show a high degree of acceptance of the students of the Faculty of Education for e-learning in developing their

scientific search skills. The study also shows the success of e-learning applications in developing scientific research skills for postgraduate students through the development of skills in using databases and in using the Internet for scientific research. The results also show the absence of statistically significant differences in the role of e-learning in developing scientific search skills among postgraduate students due to gender and university variables.

Rabayaia (2014) measures the degree of possession of electronic search skills and obstacles to its use among postgraduate students at the Faculty of Educational Sciences at the University of Jordan. The sample of the study consists of (270) male and female postgraduate students from the Faculty of Educational Sciences distributed as follows: (163) Master's degree students and (107) PhD students. To achieve the objective of the study, a questionnaire consisting of (47) items is divided in two areas: the first is electronic search skills consisting of (32) items, and the second is the obstacles to its use consisting of (15) items. The results show that the degree of students' possession of electronic search skills is medium, and indicate that there are no statistically significant differences in electronic search skills attributed to gender variable and the first university study degree. The results also show that there are statistically significant differences due to the variable of the study program in favor of PhD students. The study also shows that the most important obstacles faced by them are the weakness of their computer and Internet skills, the lack of permission to download researches electronically, and the lack of databases in the Arabic language.

There has been much research around the world on postgraduate students’ use of electronic search.

Ren (2000) identifies students' abilities to search for electronic information and their attitudes and feelings towards electronic search. The study sample consists of (85) undergraduate students who receive training in the use of the library while studying the writing course in English at Rutgers University in New Jersey, USA. The training encompasses an 80-minute class lecture, where the students watch a live presentation of electronic search, followed by practical training in electronic search. The results of the study show a noticeable improvement in students' ability to search in electronic databases and in their performance, feelings and positive attitudes towards study in this method.

As for the study of Khan, Khan, and Bhatti (2011) in Pakistan, they investigated the time spent by university students using the Internet to search for information. The sample of the study consists of (100) male and female students distributed as follows: (50) from scientific faculties and (50) from humanities faculties. To achieve the objective of the study, a questionnaire is prepared. The results of the study show that the attitudes of the students towards the Internet are very positive, and are used for study purposes, and the search engine (Google) is ranked as the most frequently used engine. On the other hand, the students show that their use of the free database provided by the Higher Education Committee is not satisfactory, and that there is difficulty in accessing the required information, the Internet connection is slow, and the computers are not sufficient. Also, (66%) of the students show their need for adequate training in using the Internet and electronic search skills.

In Greece, Malliavi, Korobili & Zapounidou (2011) studied the information seeking behavior of graduate students in Greece. (254) students from university of Thessaloniki participated in the study. The results revealed that the information seeking behavior of the students was affected by their experience in searching, computer experience and their personal characteristics.

Postgraduate students' awareness and usage of electronic resources was the focus of a study conducted in Nigeria by Akpojotor (2016). The result of the study revealed that postgraduate students are quite aware and highly use electronic resources. The study also showed that postgraduate students are highly skilled in the use of electronic resources.

In Indonesia, Kurniasih et al. (2018), investigated students' use of search engines at the university of Padjadjaran. The data was collected though surveys, interviews and observation. The result revealed that students use electronic search mainly to solve problems, increase knowledge, reduce doubts, and clarify things.

It is evident from the previous presentation that the current study is similar to previous studies in that it deals with postgraduate students and how they can search through the Internet to access databases and publishing houses and use them in their research. With some studies, the nature of the content that was dealt with differed in

terms of e-learning, trends towards the Internet and the development of their research skills.

The current study was distinguished by the fact that it tried to investigate the impact of gender, GPA, and the student's specialization in the first university degree in the level of electronic research skills. It was also distinguished from other studies in that it included all university students in postgraduate studies. And it is one of the few studies in this field.

5. Methodology of the Study

To achieve the objectives of the study, the descriptive approach is used to investigate the phenomenon under study, i.e. the level of electronic search skills among postgraduate students at the University of Hail.

Study Sample

The study sample includes (62) male and female postgraduate students selected in a simple random manner from all faculties of the university during the first semester of the academic year 2019/2020 as shown in table (1).

Table 1. *Distribution of Study Sample Members According to Variables of Cumulative average, Specialization in the First University Degree, and Gender*

	Categories	**Frequencies**	**Percentage**
Cumulative average	Excellent	36	58.1
	Very good	26	41.9
Specialization in the First University Degree	Scientific faculties	16	25.8
	Humanities faculties	46	74.2
Gender	Male	24	38.7
	Female	38	61.3
	Total	62	100.0

Study Instrument

A questionnaire is developed to reveal the level of electronic search skills for postgraduate students by referring to theoretical literature and related studies. The questionnaire includes (34) items in its final form. A five-degree scale is selected to respond to the questionnaire items as follows: (very high (5) degrees, high (4) degrees, medium (3) degrees, weak (two degrees), very weak (one degree)). To decide the level of electronic search skills for postgraduate students, the following criterion is adopted:

- The level of electronic search skills is low (1-2.33)
- The level of electronic search skills is medium (2.34-3.67)
- The level of electronic search skills is high (3.68-5.00)

Instrument Validity

In its initial form, the questionnaire is presented to a group of university professors who specialize in curricula, teaching methods, psychology, measurement and evaluation to check the questionnaire's items in terms of clarity of meaning, linguistic construction, the extent of the appropriateness of the questionnaire for application, the adequacy of items in each subject of the questionnaire, and finally the degree of the suitability of the items to each of the identified subjects. In light of these views, some of the items are excluded and others are modified, so the questionnaire consists of (34) items in its final form.

Instrument Reliability

To verify the reliability of the instrument, it is applied in its final form to a pilot sample of (20) male and female postgraduate students from outside the study sample, where the reliability of the questionnaire is calculated using the Cronbach-Alpha formula. The value of the total reliability coefficient of the questionnaire is (0.93). Precisely speaking, this indicates that the questionnaire has a good degree of reliability, which makes it applicable to the study sample.

6. Results of the Study and its Discussion

This section gives an insight into the results of the study and its discussion in relation to the questions.

Q1.What is the level of electronic search skills for postgraduate students at the University of Hail?

To answer this question, the arithmetic means, standard deviations, and ranks for the level of electronic search skills for postgraduate students at the University of Hail are calculated as shown in Table (3).

Table 3. *Arithmetic Means, Standard Deviations, and Ranks of Electronic Search Skills for Postgraduate Students at the University of Hail in Descending Order*

Rank	No	Item	AM	SD	Level
1	5	Use search engines like (Google, Yahoo, Altavista, MSN and Ayna) to access the information I need.	4.44	.917	High
2	2	Employ e-mail as a means of sending and receiving files.	4.39	.856	High
3	25	Document references and resources taken from the Internet.	4.06	.939	High
4	24	Store and print the search results on the screen or send them by e-mail, and either store or print them as a document or all the required documents together.	4.05	.965	High
5	1	Select the right words in the search, narrow and broaden and select synonyms for them.	4.03	.849	High
6	28	Return to the home page to conduct a new search.	4.02	.983	High
7	15	Identify appropriate keywords that serve my purpose in my research.	3.81	1.114	High
8	29	Upload and save files to the network.	3.65	1.161	Medium
9	30	Deal with blogs to gain access to information sources.	3.63	.996	Medium

10	8	Use of various electronic sources, such as knowledge circles, publishing houses and electronic encyclopedias, and research centers available free of charge.	3.53	1.211	Medium
11	12	Benefit from conference research, seminars, and workshops that serve my specialization through the Internet.	3.52	1.020	Medium
12	23	Select the type of documents required (peer-reviewed periodic journal research, newspaper articles, book chapters, reports).	3.50	1.067	Medium
13	26	Refer to the reference quotations page to select a new document.	3.50	1.004	Medium
14	19	Define the required information databases and information sources to be searched for.	3.47	1.082	Medium
15	7	Enter the databases (electronic library) from home using the username and password.	3.45	1.276	Medium
16	20	Determine the type of search in the databases: Simple Search or Advanced Search.	3.42	1.167	Medium
17	11	Access the international electronic libraries available free of charge and take advantage of their capabilities.	3.34	1.241	Medium
18	34	Determine the years of publication and the types of publishing groups to search in when using advanced search in specialized databases and electronic library catalogs.	3.34	1.086	Medium
19	22	Specify the required information about the document, such as: reference quotation and abstract, reference quotation and abstract and full text of the document.	3.24	1.066	Medium
20	14	Subscribe to specialized forums to benefit from the expertise of specialists.	3.21	1.103	Medium
21	3	Use the Saudi digital library to access information sources	3.19	1.226	Medium
22	9	Use NOT, OR, AND linking tools when searching on Google scholar, Google Books,	3.18	1.167	Medium

		and when using simple search.			
23	31	Search news websites, such as world newspaper and magazines.	3.11	1.282	Medium
23	32	Put search words in quotation marks when searching in Google, Google scholar, Google books.	3.11	1.243	Medium
25	6	Take research and studies from specialized databases such as ERIC, International Dissertation Abstracts, EBSCO.	3.06	1.158	Medium
26	4	Use the electronic library at the University of Hail to access information sources.	3.03	1.241	Medium
26	13	Use chat programs to communicate with others to get help in my field of study.	3.03	1.355	Medium
26	16	Deal with electronic global journals.	3.03	1.071	Medium
26	17	Use Arabic databases such as Dar Al-Manzumah, Al-Manhal.	3.03	1.201	Medium
30	33	Use the King Fahd National Library to access sources of information.	3.02	1.208	Medium
31	27	Fill out the forms requesting books and articles from the competent authorities to obtain the full articles	2.97	1.101	Medium
32	18	Be proficient in the English language to be able to use the Internet in the field of electronic search.	2.90	1.112	Medium
33	21	Correspondence to electronic libraries and databases available online to access information sources.	2.85	1.114	Medium
34	10	Distinguish between abbreviations used in reference quotations, abstracts and full texts of documents such as AU = Author, TI = Title, SO = Source, AB = Abstract, KW = Keyword, ED = Editor, JN = Journal Name.	2.68	1.142	Medium
		Electronic search skills	3.41	0.617	Medium

Table (3) shows that the arithmetic mean of the level of electronic search skills among postgraduate students at the University of Hail as a whole is (3.41) with a medium standard deviation of (0.617). Normally, this percentage does not reflect the growing interest in employing electronic search in the educational process and the positive role it plays in helping postgraduate students access information in the fastest way and with the least time cost. This result may be due to the failure of postgraduate students to receive adequate training in electronic search, and their failure to study research courses at the undergraduate stage to learn how to search within the sources of information. Researchers explain that faculty members do not assign students research duties and work that require them to search online in different sources; even if faculty members assign them some duties, they do not provide them with information, websites, guidelines, or databases that help them search and complete the required work.

This result is consistent with the study of Rabayaia (2014), which indicates that the degree of postgraduate students' possession of electronic search skills is medium. It also agrees with the study of Shammas (2008) that shows that (66%) of postgraduate students and educational diplomas use the Internet to obtain a large amount of new information at a low cost to enrich their research. Yet, the result differs with the study of Khan, Khan, and Bhatti (2011) that shows the students need adequate training in the use of the Internet and electronic search skills. The results also differ with the study of Jarf (2004), which indicates that a small percentage of postgraduate students can attain research and studies from specialized information databases.

More tellingly, item (5) which states “Use search engines like Google, Yahoo, AltaVista, MSN, and Ayna to access the information I need” is ranked first at high level and with an arithmetic mean of (4.44) and standard deviation of (0.917). The reason is that these engines are available for use and students resort to them because they are easy to deal with and available free of charge to access the information they are looking for. This is consistent with the study of Sahin, Balta, and Ercan (2010) which shows that the engines (Google and Yahoo) are the most used engines by students. It is also consistent with the study of Khan, Khan, and Bhatti (2011) which concludes that search engines are the most used engines. Also, it is in line with the study of Qarni (2008) that female Master’s degree students use search engines when preparing scientific research more than they use the databases available at the Central Library.

Also, item (2) which states “Employ e-mail as a means of sending and receiving files” is ranked second at a high level and with an arithmetic mean of (4.39) and standard deviation of (0.856). This is due to the desire of postgraduate students to complete their research work and reach them as quickly as possible by exchanging messages and information, receiving files, and participating in databases via e-mail. As for item (25) which states “Document references and resources taken from the Internet” is ranked third at a high level and with an arithmetic mean of (4.06) and standard deviation of (0.939). This is due to students' awareness of the importance of documenting information, and the easiness of referring to the same reference in the coming times.

Importantly, as for item (21) which states "Correspondence to electronic libraries and databases available online to access information sources”, it is ranked 33rd in the penultimate at medium level and with an arithmetic mean of (2.85) and a standard deviation of (1.114). More importantly, item (10) which states "Distinguish between abbreviations used in reference quotations, abstracts and full texts of documents such as AU = Author, TI = Title, SO = Source, AB = Abstract, KW = Keyword, ED = Editor, JN = Journal Name” is ranked last at a medium level and with an arithmetic mean of (2.68) and a standard deviation of (1.142).

Q2. Does the level of electronic search skills for postgraduate students at the University of Hail differ due to the cumulative average (excellent and very good)?

To answer this question, the arithmetic means and standard deviations for the level of electronic search skills for postgraduate students at the University of Hail based on the cumulative average (excellent and very good) are calculated. To show the statistical differences among the arithmetic means, the T test is used as shown in Table (4).

Table 4. *Arithmetic Means, Standard Deviations, and T Test of the Level of the Electronic Search Skills for Postgraduate Students at the University of Hail Based on the Cumulative average*

	Cumulative Average	**Number**	**AM**	**SD**	**Value of T**	**Degrees of Freedom**	**Statistical Sig.**
Electronic Search Skills	Excellent	36	3.27	.628	-2.153	60	.035
	Very good	36	3.60	.557			

Table (4) shows the presence of statistically significant differences (α = 0.05) in the level of electronic search skills of postgraduate students due to the cumulative average, where the differences are in favor of the cumulative average of "very good". This result is due to the researchers' viewpoint that the postgraduate students whose cumulative averages are very good have a desire to develop their research skills. Thus, this leads them to pay more attention to the fields of electronic search and join training workshops, scientific seminars and lectures held on the mechanisms and methods of use of the electronic search, as well as their feeling that such meetings develop their search capabilities and skills and increase their academic achievement level and their motivation towards learning. Besides, This is a much better expression in my opinion to the feeling of postgraduate students that electronic search has become a basic requirement in all academic courses in the Master's degree as it helps in writing research, reports, and abstracts using electronic search tools and accessing various electronic sources and groups without having to go to the university library and search the sources and paper references, which saves time, effort, and costs in the search process.

Q3. Does the level of electronic search skills for postgraduate students at the University of Hail differ due to the specialization of the first university degree (scientific faculties, humanities faculties)?

To answer this question, the arithmetic means and standard deviations for the level of electronic search skills for postgraduate students at the University of Hail based on the variable of the specialization of the first university degree (scientific specializations, humanities specializations) are calculated. To show the statistical differences among the arithmetic means, the T test is used as shown in Table (5).

Table 5. *Arithmetic Means, Standard Deviations, and T Test of the Level of the Electronic Search Skills for Postgraduate Students at the University of Hail Based on the variable of the specialization of the first university degree (*scientific specializations*,* humanities specializations*)*

	Type of Specialization	**Number**	**AM**	**SD**	**Value of T**	**Degrees of Freedom**	**Statistical Sig.**
Electronic Search	scientific specializations	16	3.31	.642	-.739	60	. 463

Skills	humanities specializations	46	3.44	.612			

Table (5) shows that there are no statistically significant differences ($\alpha = 0.05$) in the level of electronic search skills of postgraduate students due to the variable of the specialization of the first university degree. This is due to the fact that postgraduate students of different academic specializations realize via the internet their need for electronic search to see what is new and modern in their field of specialization and their desire to keep pace with modern technological requirements in the research process and fulfill the requirements of the curricula such as the preparation of scientific research, writing reports, and specialized articles and papers. This is what drives them to rely on electronic search to obtain new information quickly, and with minimal effort. The reason may also be due to the opinion of researchers that despite the different specializations of the postgraduate students, they gain the same experiences while studying academic courses. This result is consistent with the study of Dwedy (2009), which shows that there are no statistically significant differences in electronic search skills in databases between the average of degrees of the study sample in scientific and humanities faculties. It also agrees with the study of Rabayaia (2014), which indicates that there are no statistically significant differences in electronic search skills due to the student's first university degree.

Q4.Does the level of electronic search skills for the postgraduate students at the University of Hail differ due to gender (male and female)?

To answer this question, the arithmetic means and standard deviations for the level of electronic search skills for postgraduate students at the University of Hail based on the variable of gender (male and female) are calculated. To show the statistical differences among the arithmetic means, the T test is used as shown in Table (6).

Table 6. *Arithmetic Means, Standard Deviations, and T Test of the Level of the Electronic Search Skills for Postgraduate Students at the University of Hail Based on Gender (Male and Female)*

	Gender	**Number**	**AM**	**SD**	**Value of T**	**Degrees of Freedom**	**Statistical Sig.**
Electronic Search Skills	Male	24	3.33	.608	-.780	60	. 438
	Female	38	3.45	.626			

Table (6) shows that there are no statistically significant differences (α = 0.05) in the level of electronic search skills of postgraduate students due to the gender variable. This is due to the fact that male and female postgraduate students are subject to the same university conditions, receive the same requirements and duties, and study the same courses. Researchers explain that males and females have the same desire to learn and have the motivation to develop their search skills to achieve study requirements on the one hand, and catch up with scientific research and keep up with developments in their specialties on the other hand. This result is consistent with the study of Shammas (2008) and his comparison between males and females has not shown any statistical differences in their use of the Internet in educational research. The result also agrees with the study of Rabayaia (2014), which shows that possession of electronic search skills does not differ according to gender.

7. Recommendations

In light of the aforesaid results, several recommendations are set such as:

- Raising the level of postgraduate students in electronic search by providing an e-learning environment to bridge their gap by offering electronic courses that refine and develop their practical and research skills,

- Advising the relevant authorities in universities to hold more training courses for postgraduate students to develop their electronic search skills,

- Intensifying specialized training courses for faculty members supervising graduate students in electronic search and electronic data collection source,

- Conducting studies similar to the current study dealing with the obstacles facing postgraduate students in electronic search in certain courses and sciences.

8. Limitations

The application of the study is limited to the University of Hail in the city of Hail in the Kingdom of Saudi Arabia. It is applied to a sample of postgraduate students at the University of Hail. The study is applied in the first semester of the academic year 2019/2020. The study is limited to identify the level of electronic search skills of postgraduate students at the University of Hail.

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