

# **THE IMPACT OF USING DIGITAL LIBRARY RESOURCES ON THE PRODUCTIVITY OF RESEARCHERS AT THE STATE ISLAMIC INSTITUTE OF PURWOKERTO**

**Aris Nurohman**

Universitas Islam Negeri Profesor Kiai Haji Saifuddin Zuhri Purwokerto,  
Indonesia

Email: aris@uinsaizu.ac.id

**Abstract:** *Several previous studies have confirmed the relationship between the use of digital resources and research results. Therefore, this research examines the influence of digital library resources on the research productivity of researchers, lecturers, and other functionalities. Researchers were conducting research studies on the use of digital library resources by researchers at the State Islamic Institute of Purwokerto. This study uses a descriptive-analytical approach to data collection using a purposive sampling method. The conclusion is that digital information sources are valuable information that researchers widely use in the research process, starting from generating or creating ideas, designing studies, and becoming a supporting and reinforcing reference source to produce novelty research findings. The academic community of the State Islamic Institute of Purwokerto has realized that library digital resources facilitate and accelerate access to information, support and increase the quantity and quality of research, publication, and authentication of scientific work.*

**Keywords:** *digital library resources, library, researchers, research productivity.*

**Abstrak:** *Beberapa penelitian sebelumnya telah mengkonfirmasi hubungan antara penggunaan sumber daya digital dan hasil penelitian. Oleh karena itu, penelitian ini mengkaji pengaruh sumber daya perpustakaan digital terhadap produktivitas penelitian peneliti, dosen, dan fungsional lainnya. Peneliti sedang melakukan kajian penelitian tentang pemanfaatan sumber daya perpustakaan digital oleh peneliti di Institut Agama Islam Negeri Purwokerto. Penelitian ini menggunakan pendekatan deskriptif-analitik dengan pengumpulan data menggunakan metode purposive sampling. Kesimpulannya adalah bahwa sumber informasi digital merupakan informasi berharga yang banyak digunakan peneliti dalam proses penelitian, mulai dari membangkitkan atau menciptakan ide, merancang kajian, hingga menjadi sumber referensi pendukung dan penguat untuk menghasilkan temuan penelitian yang baru. civitas akademika Institut Agama Islam Negeri Purwokerto menyadari bahwa sumber daya digital perpustakaan mempermudah dan mempercepat akses informasi, mendukung dan meningkatkan kuantitas dan kualitas penelitian, publikasi, dan otentifikasi karya ilmiah.*

**Kata kunci:** *sumber daya perpustakaan digital, perpustakaan, peneliti, produktivitas penelitian*

## **INTRODUCTION**

The existence of a digital library with its digital resources is starting to be considered necessary in the academic world. A digital library (DL) is a collection of electronic resources offering a more extensive range of content and enhanced features than databases or information retrieval systems. These libraries can be accessed over the Internet, providing users with greater accessibility to a diverse array of materials and services.<sup>1</sup> In addition to meeting information seekers' information needs effectively, efficiently, and relevant to technological developments, it is also significant in supporting the education and research process, especially at the university level. Digital information has become a significant resource in the development of higher education. Digital libraries have become a fundamental source of information for faculty members, researchers, and students in research and education.<sup>2</sup> As stated by Joo and Lee, digital library services have emerged as indispensable sources of information in higher education institutions, such as colleges and universities. These services, including electronic journal access, virtual references, and online catalogs, offer reliable and convenient resources that are readily available to users.<sup>3</sup>

The increasing growth of the internet and the web has given rise to education in a learning environment based on instant communication and the ability to explore diverse resources.<sup>4</sup> Khan and Ahmed, as quoted by Feng et al. (2005), stated that digital library designers must know users' information needs and their purpose for using these resources. Digital libraries and e-journals have

---

<sup>1</sup> Christine L. Borgman, "What Are Digital Libraries? Competing Visions," *Information Processing & Management* 35, no. 3 (May 1999): 227–43, [https://doi.org/10.1016/S0306-4573\(98\)00059-4](https://doi.org/10.1016/S0306-4573(98)00059-4); Ganesh Vaidyanathan, Asghar Sabbaghi, and Michael Bargellini, "User Acceptance of Digital Library: An Empirical Exploration of Individual and System Components," *Issues In Information Systems*, no. 6 (2005): 2, [https://doi.org/10.48009/2\\_iis\\_2005\\_279-288](https://doi.org/10.48009/2_iis_2005_279-288).

<sup>2</sup> Mohamad Noorman Masrek, Adnan Jamaludin, and Sobariah Awang Mukhtar, "Evaluating Academic Library Portal Effectiveness: A Malaysian Case Study," *Library Review* 59, no. 3 (March 23, 2010): 198–212, <https://doi.org/10.1108/00242531011031188>.

<sup>3</sup> Soohyung Joo and Jee Yeon Lee, "Measuring the Usability of Academic Digital Libraries: Instrument Development and Validation," *The Electronic Library* 29, no. 4 (August 9, 2011): 523–37, <https://doi.org/10.1108/02640471111156777>.

<sup>4</sup> Halima Sadia Egberongbe, "Digital Resources Utilization by Social Science Researchers in Nigerian Universities," *Library Philosophy and Practice (e-Journal)*, 2016, 2.

become indispensable for research scholars and teaching faculty in accelerating their research and academic tasks.<sup>5</sup> A digital library offers more convenient resource access and retrieval than traditional library services. It also provides a more straightforward way to acquire full-text materials. Furthermore, digital libraries have additional advantages, such as enabling remote, quick, and equitable access to their collections, storing resources in an easily manageable digital format, and offering search techniques that give users greater flexibility and enhanced capabilities.<sup>6</sup>

Researchers, lecturers, and other professionals have recognized that digital resources are essential to supporting their research processes and productivity. On the other hand, the world recognizes the importance of publishing their research results as a form of resource sharing of copyrighted works on the original intellectual property rights they have achieved. They need authenticity, quality, and ease of access to the world of scientific information.<sup>7</sup> These two problems are at the intersection between access to authentic sources and the need for publication as evidence of original works. Therefore, the library as an institution for collecting, processing, and disseminating information sources must be able to overcome barriers to access to information and publication of scientific works by developing a digital library system.

Information resources such as libraries, research centres, and web pages that provide sources of information are essential for academics. Apart from the sources of information produced and provided by other commercial companies, academics

---

<sup>5</sup> Amjid Khan and Shamshad Ahmed, "The Impact of Digital Library Resources on Scholarly Communication: Challenges and Opportunities for University Libraries in Pakistan," *Library Hi Tech News* 30, no. 8 (October 14, 2013): 13, <https://doi.org/10.1108/LHTN-07-2013-0046>.

<sup>6</sup> Gio Wiederhold, "Digital Libraries, Value, and Productivity," *Communications of the ACM* 38, no. 4 (April 1995): 85–96, <https://doi.org/10.1145/205323.205347>.

<sup>7</sup> Khan and Ahmed, "The Impact of Digital Library Resources on Scholarly Communication," 12.

consider the university library website the most valuable resource that can search for accurate reference sources.<sup>8</sup>

The transition from print media to electronic media has resulted in the growth of digital information. However, it has also provided new tools and applications for users to search and obtain information. Digital/electronic resources are invaluable research tools that complement print-based library resources.<sup>9</sup>

Journal publications that are more flexible and open to current ideas increase enthusiasm for writing and reading journals. Kamau and Ouma's 2008 study on the influence of E-resources on the provision of health and medical information services in Kenya found that electronic resources available in the libraries of medical institutions in Kenya and easily accessible to their users led to a nearly 90 percent increase in their employment.<sup>10</sup> As an institution providing digital resources, the library provides a carrying capacity that has a positive impact on the activities of the people who work there.

Madhusudhan has researched the use of electronic resources by researchers at India's Kurukshetra University. The results concluded that electronic resources had become an integral part of the information needs of research scholars at Kurukshetra University. E-resources become an effective alternative if the access is getting faster. More computer terminals enable rapid access to e-resources.<sup>11</sup>

Amjid Khan did research based on a case study in Pakistan on the influence of accessing digital library resources on research. His research findings show that the frequency of use of library digital resources significantly contributes to

---

<sup>8</sup> Claire Warwick et al., "Library and Information Resources and Users of Digital Resources in the Humanities," *Program* 42, no. 1 (February 15, 2008): 5–27, <https://doi.org/10.1108/00330330810851555>.

<sup>9</sup> Ani & Ahiauzu, 2008 in Maxwell Akussah, Edward Asante, and Rosemary Adu-Sarkodee, "Impact of Electronic Resources and Usage in Academic Libraries in Ghana: Evidence from Koforidua Polytechnic & All Nations University College, Ghana," *Journal of Education and Practice* 6, no. 33 (2015): thirty-three.

<sup>10</sup> Nancy Kamau and Symphrose Ouma, "The Impact of E-Resources on the Provision of Health and Medical Information Services in Kenya," *Journal of Electronic Resources in Medical Libraries* 5, no. 2 (June 16, 2008): 9, <https://doi.org/10.1080/15424060802064329>.

<sup>11</sup> Margam Madhusudhan, "Use of Electronic Resources by Research Scholars of Kurukshetra University," *The Electronic Library* 28, no. 4 (August 10, 2010): 492–506, <https://doi.org/10.1108/02640471011033684>.

research satisfaction and productivity. Khan concluded the importance of providing information resources by university libraries to support research activities. Furthermore, all authorities, including managers of higher education institutions and library managers, and library professionals, are encouraged to produce digital resources and set rules on how better to use them.<sup>12</sup>

There are concepts about library digital resources. One of them is a network-connected online or subscribed to an electronic journal. Previous researchers have conducted studies on the use of digital resources. The results show that more than half of library users utilize electronic journals weekly for study. Printed journals have become less attractive to most researchers than electronic journals.<sup>13</sup>

Sheeja (2007) studied libraries' role in research at the University of Calicut. According to the study's results, the role of university libraries in promoting research is extraordinary. They respond to academics' growing requests for high-quality material in a convenient format and when they need it most. University libraries enhance access to more resources available in other libraries through the consortia. They have built interactive websites to help their users access the library anywhere. When the focus of publications shifted from print to electronic, libraries managed these developments by accommodating the libraries' electronic environment. They created institutional digital repositories to help manage the flow of published materials and knowledge created by the institutions. Subject gateways maintained on the websites of university libraries offer quick access to the resources available on other sites.<sup>14</sup>

---

<sup>12</sup> Amjid Khan, "The Impact of Digital Library Resources Usage on Engineering Research Productivity: An Empirical Evidence from Pakistan," *Collection Building*, March 24, 2017, <https://doi.org/10.1108/CB-10-2016-0027>.

<sup>13</sup> P.m. Naushad Ali and Faizul Nisha, "Use of E-journals among Research Scholars at Central Science Library, University of Delhi," *Collection Building* 30, no. 1 (January 18, 2011): 53–60, <https://doi.org/10.1108/01604951111105023>.

<sup>14</sup> Sheeja NK, "The Role of University Libraries in Research" (Calicut, University of Calicut, 2007), 90, [https://shodhganga.inflibnet.ac.in/bitstream/10603/21216/12/12\\_%20chapter%204.pdf](https://shodhganga.inflibnet.ac.in/bitstream/10603/21216/12/12_%20chapter%204.pdf).

Scientific life, research, communication, and journal publishing seem integrated and cannot be separated anymore. Furthermore, the internet has made the relationship between scientists more intensive, broad, and diverse. Network technology is growing, and its benefits for research development are increasingly evident. This growth has influenced the development of the university library world. By conducting resource-sharing activities together (resource sharing), libraries must change orientation from enlarging collections to expanding information networks in the form of digital libraries.<sup>15</sup> The existence of library resources and research productivity is exciting. It should be studied more deeply and seriously to understand and prove the relevance of the two as described by previous researchers. According to Hazelkorn (2005), recognition and measurement of research results are important and critical issues.<sup>16</sup>

#### Research purposes

- To explore in objective and factual terms the level of use of digital library resources by researchers at the State Islamic Institute of Purwokerto.
- To understand the perception of researchers in using libraries that already have digital library resources.
- To understand the level of research productivity based on researchers' use and digital library resources.
- To understand the level of research productivity at the State Islamic Institute of Purwokerto based on library digital resources.

#### Research questions

- What do you think about the function of digital (reference) resources in authoring scientific research papers?
- How do you get digital resources?
- What are the opportunities and barriers to accessing digital resources?
- How do you use digital resources in writing research papers?
- How do you benefit from using digital resources?

---

<sup>15</sup> Putu Laxman Pendit et al., *Perpustakaan Digital: Perspektif Perpustakaan Perguruan Tinggi Indonesia* (Jakarta: Sagung Seto, 2007), 45–52.

<sup>16</sup> E. Hazelkorn, *University Research Management: Developing Research in New Institutions* (Paris: OECD, 2005).

## RESEARCH METHODS

This research was conducted at the State Islamic Institute of Purwokerto for over one year, from January 2020 to July 2021, on five documents in 2016, 2017, 2018, 2019, and 2020. The research sample comprises faculty lecturers and other practitioners who also have the task of conducting research. Researchers recognize that the descriptive qualitative method is a more valid and reliable method of obtaining relevant information.<sup>17</sup>

The researcher used the purposive selection approach to pick a sample of informants, ensuring that the sample was representative of the population.<sup>18</sup> Researchers use specific characteristics to select informants with previously known population characteristics.<sup>19</sup>

Sampling in qualitative research tends to be small because in-depth interviews take a long time, and it is difficult for a researcher to engage in more than a hundred complex social interactions.<sup>20</sup> Sampling came from several elements of informants consisting of two professors, five head lecturers, five lecturers, two expert assistants, and one young functional person. Researchers conducted in-depth interviews to obtain information from informants. Lertputarrak said that intensive interviewing could bring forth deep feelings and subtle motivations. Such subtleties are unlikely to surface through checked-off responses to statements on a sheet of paper or with open-ended written responses.<sup>21</sup>

The researcher also uses an interactive analysis model to understand the data source. The model provided by Miles & Haberman (1984), mentioned that the researcher will move on three components: data reduction, data display, and

---

<sup>17</sup> J. Gilner, "Reviewing Qualitative Research: Proposal Criteria for Fairness and Rigor," *The Occupational Therapy Journal of Research* 14 (1994): 78–90; M. Patton, *Qualitative Evaluation and Research Methods, 2nd Edn*, (Newbury Park: Sage Publication, n.d.), 41.

<sup>18</sup> Marzuki, *Metodologi Riset* (Yogyakarta: BPFE-UII., 1995), 51.

<sup>19</sup> Rosady Ruslan, *Metode Penelitian: Public Relations Dan Komunikasi* (Jakarta: Raja Grafindo Persada, 2004), 156.

<sup>20</sup> E. Babbie, *The Practice of Social Research, 9th Edn* (California: Warsworthm Belmont, 2001).

<sup>21</sup> Sarunya Lertputtarak, "An Investigation of Factors Related to Research Productivity in a Public University in Thailand: A Case Study" (other, Victoria University, 2008), 70, <http://vuir.vu.edu.au/>.



conclusion to use this model.<sup>22</sup> Data reduction, namely reducing data or summarizing, selecting related and main problems, and considered necessary relevant to research information needs. The data reduction results make it easier for researchers to collect the following necessary data. Data display or presenting data—presenting research data in brief descriptions, charts, and relationships between categories. The most important presentation of data in this study is the narrative text.<sup>23</sup>

Drawing conclusions is the last step after data reduction and display. This section is research narrowing that describes the new findings. The findings of this study can be in the form of the same conclusions as the initial findings, or they can be different, findings in the form of a description or description of an object that was previously unclear but became apparent after the research.<sup>24</sup>

Furthermore, to verify the validity and reliability of a study, validity and reliability testing are carried out using eight methodologies, including: (1) triangulation using data from different sources, (2) checking respondents, (3) writing solid descriptions, (4) clarification of researcher bias, (5) Comparing with harmful or inappropriate information, (6) Increasing study time in the field, (7) Discussion with colleagues, and (8) Involving external reviewers.<sup>25</sup> Creswell suggests that researchers use at least two of the eight procedures.<sup>26</sup>

## **RESULT**

This section presents the collected data related to the problem of how the influence of digital resources on research productivity at the State Islamic Institute Purwokerto, Central Java, Indonesia. The data interpret and becomes material for discussion through questions as the focus of the discussion.

University libraries play an extraordinary role in supporting research in any way. Libraries fulfill the function of meeting ever-increasing academic

---

<sup>22</sup> Prof. Dr. Sugiyono, *Metode Penelitian Kuantitatif Kualitatif Dan R&D* (Bandung: Alfabeta, 2007), 246–52.

<sup>23</sup> Sugiyono, 249.

<sup>24</sup> Sugiyono, 253.

<sup>25</sup> John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 3rd ed (Thousand Oaks, Calif: Sage Publications, 2009).

<sup>26</sup> J. Creswell, *Measuring Faculty Research Performance* (San Francisco: Jossey-Bass, 1985).



requirements of high-quality, well-formatted, and easily accessible information materials. University libraries seek to improve access to more information resources through inter-library consortia. The library manager also continues to develop interactive websites to assist users in accessing the library anytime and anywhere. Samadi stated that in an academic environment, the timeliness of information holds excellent significance as researchers always strive to stay updated with the latest advancements in their fields. Outdated information can result in users losing interest and confidence in utilizing the digital library.<sup>27</sup>

When the focus of publication shifts from print to electronic, libraries following this development by creating digital facilities in the library. Libraries create digital repository institutions to manage the flow of knowledge as a source of scientific information on research results of researchers and academics for publication. The subject tracking system in the university library's online network has provided quick, easy access to available resources.

Other studies also produce conclusions that strengthen the university libraries' function as a research place. One of them concluded that the university library is still relied on by researchers as a place to find sources of research information, both access to printed and electronic resources. From this, university libraries must further improve their management and resource management systems, both digital and non-digital.<sup>28</sup> Based on the description above, research on the effect or impact of using digital resources on university research productivity is the proper study, especially to find out more about libraries as research sites for researchers. Then, based on another study by Rafi, it is crucial for universities nationwide to enhance the quality of digital learning and utilize

---

<sup>27</sup> Ismail Samadi and Mohamad Noorman Masrek, "Evaluating Digital Library Effectiveness: A Survey at University of Tehran," in *2013 International Conference on Advanced Computer Science Applications and Technologies* (2013 International Conference on Advanced Computer Science Applications and Technologies (ACSAT), Kuching, Malaysia: IEEE, 2013), 80–84, <https://doi.org/10.1109/ACSAT.2013.23>.

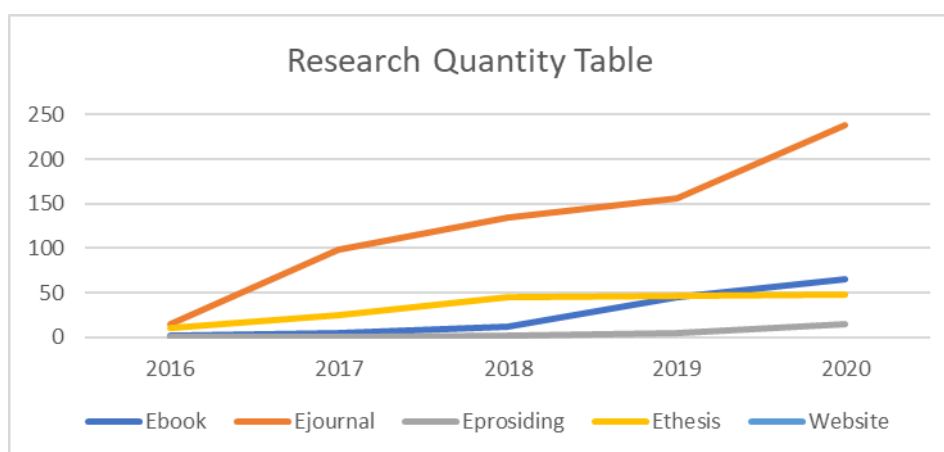
<sup>28</sup> Genevieve Hart and Lynn Kleinveldt, "The Role of an Academic Library in Research: Researchers' Perspectives at a South African University of Technology," *Library and Information Science Journal* 77, no. 1 (n.d.): 37.

digital library databases to achieve valuable research outcomes through collaboration and interdisciplinary research among universities.<sup>29</sup>

### Use of Digital Resources

Based on the documentation of the reference list of research sample scientific papers, obtained data shows an increase in the use of digital resources. The data is as follows:

**Figure 1**  
**Graph of Digital Resource Usage**



Source: Research Result, 2022

This increase in the using digital resources is directly proportional to the awareness of the use of digital resources by researchers in authoring scientific papers. The use of digital resources is increasing yearly - the most considerable increase in the use of journals. As for electronic books, electronic proceedings, essays, and websites, the increase was under hundred usages.

The data proves that researchers are highly aware of digital resources for their research. However, researchers still experience problems in accessing the sources. The assumption is that there is an increase in the use of digital resources, which is no different from the ease of access in a fast, easy, and precise manner. This problem must receive serious attention from the institution of the State

<sup>29</sup> Muhammad Rafi, Zheng JianMing, and Khurshid Ahmad, "Evaluating the Impact of Digital Library Database Resources on the Productivity of Academic Research," *Information Discovery and Delivery* 47, no. 1 (March 1, 2019): 42–52, <https://doi.org/10.1108/IDD-07-2018-0025>.

Islamic Institute Purwokerto of central Java Indonesia and the library manager to formulate the best solution to the existing problems.

### **Productivity By Quantity**

Researchers conduct documentation and interviews to obtain data about the use of digital resources. Documentation took by searching for publications of research results from google scholar, indexing websites, tracking digital files, and mapping reference sources. Interviews that conducted with selected informants consisting of lecturers and functional researchers with positions ranging from professors, head lectors, lectors, and expert assistants. There is one person selected as an informant at the young functional level.

The results of the documentation obtained are data for 2016, 2017, 2018, 2019, and 2020 research productivity described in the following table:

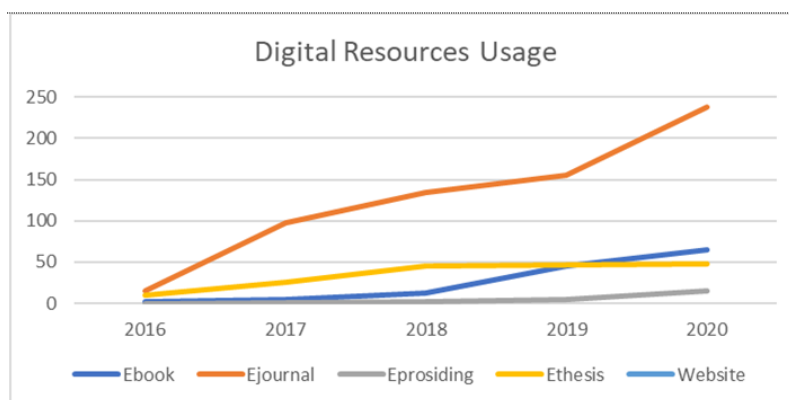
**Figure 2**  
**Graph of Research Productivity**



Source: Research Result, 2022

The table above shows a trend of increasing research productivity at the State Islamic Institute of Purwokerto. This increasing trend is relevant to data on reference sources used in research papers as shown in the following graph:

**Figure 3**  
**Graph of Digital Resource Usage**



Source: Research Result, 2022

The increase in the quantity of research is directly proportional to the awareness of researchers' use of digital resources. From year to year, there is an increase in the use of digital resources in the form of e-journals. This awareness is motivated, among other things, by the increasing use of digital resources as a primary source that becomes the main reference in their scientific writing and research. The requirements for publishing scientific papers in international journals indexed by Scopus as a requirement to become a professor are the primary motivation for researchers to improve the quality and quantity.

### **Productivity Based on Quality**

This section presents research productivity data based on quality. The quality of research productivity is assessed based on the intensity level of interaction with peer reviews in the publication of scientific papers and the usefulness of the scientific work by other researchers in terms of the number of citations, scientific presentations, or other forms of scientific communication.

The data shows that the academic community of the State Islamic Institute of Purwokerto registered and verified in the Sinta indexing system is 198 people, and thirty-five are Scopus indexed.

**Table 1. Data on the Number of Data Productivity**

No	Indexer	Number of Verified/Year				
		2016	2017	2018	2019	2020
1	Sinta	101	125	168	185	198
2	Scopus	6	12	25	35	35
3	WoS	0	0	1	6	25

Source: <http://sinta.menristekbrin.go.id>, <http://scimagojr.com>, <http://scopus.com>

The data above shows an increasing trend of interaction between researchers and reviewers. This increase indicates an increase in the research conducted by researchers from the State Islamic Institute of Purwokerto that have received recognition and eligibility to be published and published in reputable national and international journals. The peer-review process is carried out ongoing, and the journal has a good reputation.

In addition, the citation index is also a determinant of the quality of a journal. The number of citations in the indexing engine is the citation index (Citation Index). To view the citation index, one can use the Google Scholar indexer engine or, in Indonesian terms, the address <http://scholar.google.com>.

Based on the search and documentation, the following data:

**Table 2. Data on the Number of Citations of Researcher Respondents**

No	Informants	Number of citations/years				
		2016	2017	2018	2019	2020
1	Information 1 <sup>st</sup>	15	25	0	0	1
2	Information 2 <sup>nd</sup>	2	0	7	8	0
3	Information 3 <sup>rd</sup>	0	0	0	0	0
4	Information 4 <sup>th</sup>	22	3	8	6	2
5	Information 5 <sup>th</sup>	2	4	0	0	0
6	Information 6 <sup>th</sup>	1	13	15	4	3
7	Information 7 <sup>th</sup>	0	0	0	0	0
8	Information 8 <sup>th</sup>	3	2	1	0	0
9	Information 9 <sup>th</sup>	0	0	0	4	3
10	Information 10 <sup>th</sup>	0	2	0	0	0
11	Information 11 <sup>th</sup>	0	1	0	0	0

12	Information 12 <sup>th</sup>	1	3	1	0	0
13	Information 13 <sup>th</sup>	0	2	2	0	0
14	Information 14 <sup>th</sup>	0	0	6	5	1
15	Information 15 <sup>th</sup>	5	57	3	2	0
	Totals	51	112	43	29	10

Source: Research Result, 2022

The data shows that authors with longer published works will often be cited without publication. This claim concerns the limitations of measuring quality by the number of citations. The number of citations shows the impact or influence of research results on other people's research. The table shows that research results published in 2016 and 2017 had a high impact and decreased the following year.

Based on data on quality, the conclusion is that publications and citations are two components determining quality. The publication is a measure of quality based on the assessment and process of submitting, reviewing, and publishing. A journal publication also determines its quality more specifically. The higher the qualification of the journal, the higher the competition so that scientific works can be accepted and published. Another measure of quality is the calculation of the citation index. The citation index shows the relationship between one scientific work and another conceptually or can also be said as an association of ideas between authors. The first author is the originator of the idea. The next reader will study, evaluate, and criticize, which becomes the source of the quotation by the next author. The higher the citation level, the higher the scientific communication.

### **Interviewee Question Responses**

Researchers say that using digital resources helps them with the entire research process, from generating ideas to compiling research proposals to conducting research and producing research in reports published in journals, patents, scientific work reports, journals, and other formats.

**Response to question 1: What do you think about the function of digital (reference) resources in research?**

The responses to this statement all expressed the same opinion about the importance of digital reference sources in research. Reference sources have become essential to researchers' scientific and research activity. Today, technological developments require researchers to be literate in digital resources. The existence of digital resources will make it easier for researchers to obtain initial information, become information to strengthen arguments or become comparative information.

**Response to question 2: How do you get digital resources?**

Requires a media transfer device or digital reading device to utilize digital resources. For now, the most accessible and widely used media by researchers is online searches. Many website portals are used to search for digital information, such as the Google search engine, academic websites, paid and accessible databases, etc.

Researchers have now recognized and utilized digital resources based on the information and documentation conducted in their research process. The point of the statement is the importance of a container or media that can accommodate or manage various databases of digital resources that are complete, quick to find, easy to use, and with precise search results. The simple word revealed from the informant's statement is the need to empowering the role of libraries. Libraries are strategic institutions managing information resources to help researchers find the information they need. To strengthen the statement about the library's function as a unit that selects, collects, disseminates, and serves information to users.

Getting digital resources is done in several ways: using the library subscription facility, self-subscription, and access to a free journal database website address. The conclusion is that access to digital information is now getting more accessible.



**Response to question 3: What are the opportunities and barriers to accessing digital resources?**

There is a common perception of digital resource opportunities and slightly different perceptions of the barriers to access. The common perception of opportunity is the ease of finding sources of information quickly and anywhere. Meanwhile, the access barriers experienced consisted of technical barriers and barriers to tracing skills. Technical obstacles occur, for example, due to limited internet quota, interference with internet signals, damage to electronic devices used, and disconnected electricity networks. The ability and experience of researchers influence skill barriers in accessing digital information sources because some researchers still do not understand and master the various sources of digital information available both in libraries and online.

**Response to question 4: How do you use digital resources in writing research papers?**

The digital resources currently developing are supported using the reference manager tool. There are many referral management tools, some are free some are commercialized. Researchers at the State Islamic Institute of Purwokerto already know the tools for managing reference resources and understand how to use digital resources effectively by using and managing reference sources in research and scientific writing. The in-depth interviews revealed the benefits of using these tools, although they have not used them.

**Response to question 5: How do you benefit from using digital resources?**

Analyzing the value of the benefits of use has been done by comparing the two conditions, before and after researchers use and utilize digital resources in research. The interview results found two cognitive and economic aspects of using digital resources. Cognitive benefits include additional knowledge, insight, and experience in writing works and scientific research in specific disciplines. The data on work productivity in the previous discussion concludes that expertise in a particular field is related to the number of works made and studies in disciplines relevant to this conclusion.

Economic value is one of the various ways to define and quantify value. It is a computation of the profit made or potentially created by an asset in the future.<sup>30</sup> Needs and wants are the benchmarks of economic value. The statements of some of the informants above regarding the relationship between scientific work and research with future benefits such as career advancement and occupation directly impact incentives by increasing office benefits or being a resource person in seminars or workshops.

## **DISCUSSION**

It is important to note that many researchers have high research productivity and quality to be published in reputable international journals. In contrast, some people face challenges, resulting in lower output. This phenomenon among researchers at the State Islamic Institute of Purwokerto is not new. It turns out that the same thing also happens in many universities, all facing the same problem regarding their research productivity. One of the reasons for this is differences in the academic environment background.<sup>31</sup> The organization determines the HR factor as an influencing factor, individual awareness, skills, knowledge insight, motivation, and regulation. Some of these determinants can trigger high research productivity or vice versa, causing low productivity.

The data presentation and interpretation result describe the actual conditions of research productivity of researchers at the State Islamic Institute of Purwokerto influenced by order of policies and regulations, individual awareness, skills, and knowledge in tracing, managing, and using information. Regulatory policies governing the obligation of lecturers to conduct research and binding requirements for promotion and position encourage their awareness of research and become the basis for their motivation to continue learning, gaining knowledge, and enriching research experiences.

---

<sup>30</sup> Pawit M. Yusuf, *Ilmu Informasi, Komunikasi Dan Kepustakaan*, Cet. ke-2 (Jakarta: Bumi Aksara, 2013).

<sup>31</sup> Lertputtarak, "An Investigation of Factors Related to Research Productivity in a Public University in Thailand," 190.

Therefore, institutional leaders must prepare and provide infrastructure or facilities such as fast internet, computer access devices, laptops, androids, information databases, and ownership or subscription of library information sources. The completeness of facilities and information resources is directly proportional to the level of research productivity in a certain period.

Based on the presentation and interpretation of data, research productivity at the State Islamic Institute of Purwokerto campus since 2016 has increased. The improvement is seen both in terms of quantity and quality. In terms of quantity is increasing scientific works of lecturers and other functional staff and increasing academic positions. While in terms of quality is the number of research works published in various Scopus indexed journals or other recognized index systems such as the Sinta index. Researchers must pay attention to problems that sometimes occur, including technical problems using databases and skills to find the correct information.

As mentioned in the previous section, several obstacles must be taken into consideration by all relevant leaders and ranks in establishing policies and work programs to resolve the problem. Library management is not only a unit of collecting, processing, disseminating information, and serving information sources but also must act by making realistic work programs directed at handling problems. Library managers plan and propose work programs such as developing electronic/digital collections through purchases and subscriptions, strengthening information systems and websites, increasing internet network quotas, conducting socialization, and training and guidance programs to browse and utilize information resources.

## **CONCLUSION**

Library digital resources are essential in research as a reference or reference sources. As a source of scientific information, the reference source determines the quality and quantity of the researchers' scientific writings. The higher the quality of a scientific paper, the more likely it will be published. The easier it is in scientific work and research activities, the more products the research results will

produce. Given the vital function of the reference source, the preparation and management must receive special attention.

During the three obligations of Higher Education, the library as an institution, which conducts the task of selecting, collecting, processing, distributing, and serving information sources, must be truly empowered. Optimal empowerment through the completeness of infrastructure, human resources, tools, machines, and others can be one solution to the problems experienced by researchers at the State Islamic Institute of Purwokerto when they need a reference source.

The development of technology and information impacts the model of managing and distributing information sources online or digital resources, such as electronic journals, electronic books, and other sources of information. Many internet vendors build reference managers and other apps to use and manage digital resources, making them available to the public for free or for a fee. This development creates a gap among researchers regarding technology and media literacy. From the interpretation of the previous data regarding the use of digital resources, the dependence on digital resources is exceptionally high. Data on the quality of research among researchers at the State Islamic Institute of Purwokerto further strengthen the evidence. According to the data, researchers' awareness of the importance of using digital resources is one of the reasons for increasing research productivity. The use of digital resources determines the parameters of research quality. Publication and usability of works by other authors are parameters of the quality of research productivity. Publications in reputable journals, such as the Scopus and Sinta indexes, measure the quality of scientific writing. The number of citations or the citation index (H-Index) is another parameter in terms of quality. Both conditions are by the facts on the ground from the respondents obtained.

Measuring the level of research quantity is more accessible by looking at how many researchers conducted research in a certain period. The data shows the results and their interpretation of the facts. The researchers acknowledge an

increase in research productivity compared to the previous period. The interviews provide data that the motivation for the research is based not only on economic value and career development but also on the current academic environment that demands online savings and easy access. This open system provides an opportunity for continuous scientific communication between researchers and subsequent researchers.

Reference management tool applications such as Zotero, Mendeley, and others they know and use also support their research productivity. These two things (digital resources and reference management tools) have boosted the research productivity of researchers at the State Islamic Institute of Purwokerto campus. Their research productivity is getting easier and faster due to the writing rules required by journal managers at national and international levels. Ease of access should also be an important note about the library's function at the State Islamic Institute of Purwokerto. Libraries must be managed and receive significant attention. The campus community, which is moving towards digital information literacy, must facilitate adequate digital resources. Libraries must provide funds for subscriptions to journals and databases of other digital resources so that researchers will find it easier to obtain digital resources.

## REFERENCES

- Akussah, Maxwell, Edward Asante, and Rosemary Adu-Sarkodee. "Impact of Electronic Resources and Usage in Academic Libraries in Ghana: Evidence from Koforidua Polytechnic & All Nations University College, Ghana." *Journal of Education and Practice* 6, no. 33 (2015): 33–38.
- Amjid Khan. "The Impact of Digital Library Resources Usage on Engineering Research Productivity: An Empirical Evidences from Pakistan." *Collection Building*, March 24, 2017. <https://doi.org/10.1108/CB-10-2016-0027>.
- Babbie, E. *The Practice of Social Research, 9th Edn.* California: Warsworthm Belmont, 2001.
- Borgman, Christine L. "What Are Digital Libraries? Competing Visions." *Information Processing & Management* 35, no. 3 (May 1999): 227–43. [https://doi.org/10.1016/S0306-4573\(98\)00059-4](https://doi.org/10.1016/S0306-4573(98)00059-4).

- Creswell, J. *Measuring Faculty Research Performance*. San Francisco: Jossey-Bass, 1985.
- Creswell, John W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 3rd ed. Thousand Oaks, Calif: Sage Publications, 2009.
- Egberongbe, Halima Sadia. "Digital Resources Utilization By Social Science Researchers In Nigerian Universities." *Library Philosophy and Practice (e-Journal)*, 2016, 19.
- Genevieve Hart and Lynn Kleinveldt. "The Role of an Academic Library in Research: Researchers' Perspectives at a South African University of Technology." *Library and Information Science Journal* 77, no. 1 (n.d.): 37–50.
- Gilner, J. "Reviewing Qualitative Research: Proposal Criteria for Fairness and Rigor." *The Occupational Therapy Journal of Research* 14 (1994): 78–90.
- Hazelkorn, E. *University Research Management: Developing Research in New Institutions*. Paris: OECD, 2005.
- Joo, Soohyung, and Jee Yeon Lee. "Measuring the Usability of Academic Digital Libraries: Instrument Development and Validation." *The Electronic Library* 29, no. 4 (August 9, 2011): 523–37. <https://doi.org/10.1108/02640471111156777>.
- Kamau, Nancy, and Symphrose Ouma. "The Impact of E-Resources on the Provision of Health and Medical Information Services in Kenya." *Journal of Electronic Resources in Medical Libraries* 5, no. 2 (June 16, 2008): 133–47. <https://doi.org/10.1080/15424060802064329>.
- Khan, Amjid, and Shamshad Ahmed. "The Impact of Digital Library Resources on Scholarly Communication: Challenges and Opportunities for University Libraries in Pakistan." *Library Hi Tech News* 30, no. 8 (October 14, 2013): 12–29. <https://doi.org/10.1108/LHTN-07-2013-0046>.
- Lertputtarak, Sarunya. "An Investigation of Factors Related to Research Productivity in a Public University in Thailand: A Case Study." Other, Victoria University, 2008. <http://vuir.vu.edu.au/>.
- Madhusudhan, Margam. "Use of Electronic Resources by Research Scholars of Kurukshetra University." *The Electronic Library* 28, no. 4 (August 10, 2010): 492–506. <https://doi.org/10.1108/02640471011033684>.
- Marzuki. *Metodologi Riset*. Yogyakarta: BPFE-UII., 1995.
- Naushad Ali, P.m., and Faizul Nisha. "Use of E-journals among Research Scholars at Central Science Library, University of Delhi." *Collection Building* 30, no. 1 (January 18, 2011): 53–60. <https://doi.org/10.1108/01604951111105023>.

- Noorman Masrek, Mohamad, Adnan Jamaludin, and Sobariah Awang Mukhtar. "Evaluating Academic Library Portal Effectiveness: A Malaysian Case Study." *Library Review* 59, no. 3 (March 23, 2010): 198–212. <https://doi.org/10.1108/00242531011031188>.
- Patton, M. *Qualitative Evaluation and Research Methods, 2nd Edn.*. Newbury Park: Sage Publication, n.d.
- Pendit, Putu Laxman, Ari Suryandari, Brian Amiprasetyo, Edmon MAkarim, Irma Utari A, Yova Ruldeviyani, Yudo Giti S, and Luki Wijayanti. *Perpustakaan Digital: Perspektif Perpustakaan Perguruan Tinggi Indonesia*. Jakarta: Sagung Seto, 2007.
- Rafi, Muhammad, Zheng JianMing, and Khurshid Ahmad. "Evaluating the Impact of Digital Library Database Resources on the Productivity of Academic Research." *Information Discovery and Delivery* 47, no. 1 (March 1, 2019): 42–52. <https://doi.org/10.1108/IDD-07-2018-0025>.
- Ruslan, Rosady. *Metode Penelitian : Public Relations Dan Komunikasi*. Jakarta: Raja Grafindo Persada, 2004.
- Samadi, Ismail, and Mohamad Noorman Masrek. "Evaluating Digital Library Effectiveness: A Survey at University of Tehran." In *2013 International Conference on Advanced Computer Science Applications and Technologies*, 80–84. Kuching, Malaysia: IEEE, 2013. <https://doi.org/10.1109/ACSAT.2013.23>.
- Sheeja NK. "The Role of University Libraries in Research." University of Calicut, 2007. [https://shodhganga.inflibnet.ac.in/bitstream/10603/21216/12/12\\_%20chapter%204.pdf](https://shodhganga.inflibnet.ac.in/bitstream/10603/21216/12/12_%20chapter%204.pdf).
- Sugiyono, Prof. Dr. *Metode Penelitian Kuantitatif Kualitatif Dan R&D*. Bandung: Alfabeta, 2007.
- Vaidyanathan, Ganesh, Asghar Sabbaghi, and Michael Bargellini. "User Acceptance of Digital Library: An Empirical Exploration of Individual and System Components." *Issues In Information Systems*, no. 6 (2005): 2. [https://doi.org/10.48009/2\\_iis\\_2005\\_279-288](https://doi.org/10.48009/2_iis_2005_279-288).
- Warwick, Claire, Melissa Terras, Nikoleta Pappa, Isabel Galina, and Paul Huntington. "Library and Information Resources and Users of Digital Resources in the Humanities." *Program* 42, no. 1 (February 15, 2008): 5–27. <https://doi.org/10.1108/00330330810851555>.
- Wiederhold, Gio. "Digital Libraries, Value, and Productivity." *Communications of the ACM* 38, no. 4 (April 1995): 85–96. <https://doi.org/10.1145/205323.205347>.
- Yusuf, Pawit M. *Ilmu Informasi, Komunikasi Dan Kepustakaan*. Cet. ke-2. Jakarta: Bumi Aksara, 2013.