

## Impact of Digital Tools and Applications on the Research Productivity of Arabic and Islamic Studies Students in Pakistan

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### Abstract

The growing influence of digital technologies has reshaped the nature of academic research, offering new opportunities for improving efficiency, accessibility, and innovation. However, within the field of Arabic and Islamic Studies in Pakistan, the adoption and effective use of digital tools remain underexplored. The limited integration of technology in religious academia often restricts students to traditional, manual research methods, which can impede productivity and quality. This study aims to evaluate the impact of digital tools and applications on the research productivity of Arabic and Islamic Studies students in Pakistan, focusing on awareness, usage patterns, institutional access, and perceived effectiveness. A descriptive quantitative research design was employed, utilizing a structured questionnaire distributed among 252 students from public and private universities. The collected data were analyzed using descriptive statistics to identify usage frequency, tool preference, and perceived outcomes. Results revealed that over 90% of respondents were aware of digital research tools, with Islam360 (88%) and Maktaba Shamela (82%) being the most widely used applications. A majority of students reported improved research quality (74%) and productivity (56%) due to the use of digital tools. Nevertheless, challenges such as inadequate training, limited institutional support, and unequal digital access persist. The study concludes that digital tools have significantly enhanced the efficiency, accuracy, and scholarly depth of Arabic and Islamic research in Pakistan. Strengthening institutional support and digital literacy programs could further advance research productivity and innovation within the discipline.

**Keywords:** Research Tools; Digital Tools; Arabic & Islamic Studies; Research in Arabic and Islamic Studies; Arabic & Islamic E-Database.

### INTRODUCTION

The instant development of digital gadgets and technologies has intensely transformed all fields of Human life besides academic research and higher education globally. (Tikam, 2013) In the twenty-first century, digital tools, applications, software and e-library based databases have become primary reference point and major guideline platforms for enhancing research productivity, efficiency, and accessibility across all disciplines. (Rafi et al., 2018). Here in the field of Religious Studies specially Arabic and Islamic Studies, the use of digital sources has facilitated scholars to engage with the primary sources of Islamic Teachings easily and efficiently. Here the available sources

i.e. the Holy Qur'an, Hadith, Fiqh, History and Comparative religious literature with assistance to analyze the data more systematic way than ever before besides some improvements. These advances in the digital sources have introduced indigenous and novel opportunities ranging from text analysis, data retrieval, citation management, and collaborative research. (Alginahi et al., 2014)

Major pro-research databases of Islamic Studies and Arabic Language and literature in Arabic on Islam such as Islam360,(Bashir & Ayaz, 2025) Maktaba Shamela(Azeem & Ahmad, 2025), and *Easy Quran wa Hadith* provide a lot of help to the researchers and offer searchable databases of classical Arabic and Islamic texts. While tools like Zotero, Mendeley,(Ivey & Crum, 2018) and MS Word(Mamishhev & Sargent, 2014) support research documentation, organization, and citation management(Yousuf Yaqoob, 2021). These tools and increasing use of these digital gadgets indicating a major paradigm switch of research and researchers from manual research methods at public libraries or personal libraries to digitalized, evidence-based inquiry within Arabic and Islamic academia.

At different levels and activities conducted during academic research, digital transformation has significantly increased research horizon, its visibility, impact through citation, and collaboration across disciplines. However, in the context of Pakistan, where the sector of higher education is under evolving position, the overall research output remains relatively modest. According to Journal and Country Rank produced by Scimago (Scimago Journal and Country Rank, 2024) Pakistan's researchers has published 371,531 documents with citation of 6,034,490. These have maintained an H-index of 481. Whereas within the religious studies domain, the output is low compare to other fields, with only 565 researches and an H-index of 19(Scimago Journal and Country Rank, 2024). This data presents a considerable and comprehensive gap between Pakistan's overall productivity and its contributions in the academic field of Arabic & Islamic Studies.

The adoption of digital databases, tools and applications in higher education institutions has transformed knowledge creation methods, presented, analyzed, managed, and disseminated. Globally, the relationship between digitalization and research productivity has been widely studied with several researches emphasizing the role of information and communication technologies (ICTs) in enhancing efficiency and innovation. (Biagi, 2013) reviewed ICT literature and productivity, concluding that digital adoption significantly contributes to higher academic and organizational performance when effectively utilized. Whereas, (Cox & Pinfield, 2014) explored the issue of research data management systems which are helping in accessibility and collaboration in higher education institutions and are become essential part of modern academia. Strengthening this exploration, (Rowlands, Nicholas, & Jamali, 2017) examined that the technologies have reformed the system of streamlining the research and have reduced the dissemination duration.

Digital literacy and skills are also recognized as core factors which is impacting on productivity among researchers. (Yazon et al., 2019) is of view that digital skills and educating the digital tools to the researcher directly affects research productivity. Besides that it improves productivity when there is strong system of training and excellent familiarity with digital platforms. Research of (Warriach & Tahira, 2014) focused the relationship between ICT infrastructure and research productivity in Pakistani universities, with special emphasis on the institutional investment in technology which are baseline for development of a research culture. In line with this, these findings

collectively indicate that positive and smart use of digital tools enhances efficiency besides improvement of the quality and credibility of academic research.

In Arabic and Islamic education and research, the role of digital tools and applications have greeted by increasing attention from the researchers in recent years. (Khan & Al-Qarni, 2019) have identified that how digital databases have modernized classical Arabic & Islamic resources and text books by improving accessibility and cross-referencing capabilities. Research of (Ahmad, 2021) further elaborated that applications and tools of Arabic and Islamic Studies have introduce new methods that facilitate comparative textual analysis and develop critical thinking in the scholar of Arabic and Islamic Studies. Besides the opportunities, (Prima, Julhadi, & Mursal, 2024) discussed challenges in Arabic & Islamic education, and suggested that digital tools are major factor to improve engagement and access, they also demand proper training and ethical regulation in this domain for better results and ethical considerations. The integration of digital tools at the secondary level in Nigeria have been investigated by (Ayuba, Abdulkadir, & Mohammed, 2025) and found that these tools improve student's active participation and proper comprehension, indicating their broader pedagogical potential in Arabic & Islamic education. Although this is not related to research, but this is a major issue in the research institutions that a lot of the institutions are lacking digital literacy in its real practical approach as observed by the researcher.

At the higher education level, Research of (Ali & Nordin, 2020) is focused on the challenges of incorporating digital technologies in Arabic & Islamic research institutions. Findings of this research suggest that factors such as limited digital literacy, insufficient technical support, and lack of funding hinder effective integration. (Rehman & Saeed, 2022) analyzed Pakistani universities where this research concluded the findings that awareness of digital research tools is high, yet practical utilization remains very low due to inadequate training and institutional support. The research productivity in Pakistan's libraries have been studied by (Haq & Satti, 2021) which is identifying similar structural challenges in the research ecosystem, including unequal access to digital facilities. Complementing this, HEC (Higher Education Commission), reported that Pakistan's research output is growing in overall. Here the contribution from Arabic and Islamic Studies is proportionally very low, a need for modernization and digital enhancement in this field is highlighted by the Commission in its numbers (Higher Education Commission (HEC), Pakistan, 2024). Overall, the literature suggests that digital tools—including database platforms (Islam360, Maktaba Shamela), referencing software (Zotero, Mendeley), and productivity applications (MS Word)—have substantially enhanced academic efficiency and access to resources. However, most recent and most relevant works have concentrated on general higher education contexts, leaving a major academic gap in the domain of research which is specifically focused on Islamic Studies in Pakistan. As point outed by (Rehman & Saeed, 2022), available literature and research has not measured the direct relationship between digital tool and research productivity within Arabic and Islamic Studies fields. Therefore, this study is a step to attain that gap by assessing how digital tools and applications are influencing the research efficiency, productivity and skill development of Arabic and Islamic Studies students in Pakistan.

Therefore, this study investigates the impact of digital tools and applications on the productivity of Arabic and Islamic Studies students in Pakistan within the research domain. It aims to examine students' awareness levels with digital sources, frequency of the use, and purposes of using digital tools. Besides this, this study evaluates the role of

institutional access to Digital sources and teacher guidance in promoting the digital scholarship. The research assesses how these tools influence the efficiency, quality and overall productivity of the research in the field of Islamic Studies. The findings of this study are expected to contribute to policy development and curriculum design, helping universities and religious institutions integrate digital resources more effectively into Arabic and Islamic higher education. The major objectives of the study are to: (1) identify the major commonly used digital tools and computer or mobile applications among Arabic and Islamic Studies students, (2) analyze the impact of these tools and applications on research quality and productivity, (3) find out major challenges faced in the adoption and effective use.

## METHODS

The study adopted a quantitative descriptive survey design to analyze the impact of selected digital tools and applications on the productivity among researcher of Arabic and Islamic Studies in Pakistan. To collect the data and analyze it in systematic way the descriptive method has been adopted where it is easy to identify patterns of digital tool usage, frequency, and perceived influence on research productivity and performance.

The research has applied cross-sectional design using a structured questionnaire as instrument of the primary data collection. This approach helped in the collection of data through responses from a very diverse group of participants within the field and enabled statistical analysis to determine the relationship between digital tool usage and research productivity.

Target population for the study comprised students of Arabic and Islamic Studies at various levels; Scholars of Last Year Bachelors, Postgraduate MPhil/ MS Scholars and PhD Enrolled scholars across in Pakistani Universities, including the Bahria University, National University of Modern Languages, University of the Punjab, Lahore; International Islamic University, Islamabad; University of Peshawar; and University of Karachi. Respondents were selected through stratified random sampling to ensure different provinces representation. Participation was voluntary, and confidentiality of responses was maintained throughout the study.

A structured questionnaire was developed as per findings and suggestions of previous research instruments and adapted to the context of Arabic and Islamic Studies and digital research practices (Ali & Nordin, 2020) & (Rehman & Saeed, 2022), the questionnaire was prepared on google forms and disseminated to the participants in October 2025. Both online and offline participation were available for the volunteers. The form was bilingual (English and Urdu) to ensure clarity for respondents from diverse population. 20 structured questions were asked within five sections: demography, awareness of digital tools and applications, frequency of use, apparent impact on productivity, and challenges in the domain.

The questionnaire link was shared via WhatsApp groups, and academic forums of selected universities. Respondents were requested to complete, whereas their credentials were asked only for the verification of their academic identity. The questionnaire consists of both nominal and ordinal variables. Nominal items are allowed to capture categorical information i.e. gender, institutional type, and awareness of digital tools, where as the ordinal (Likert-type) items helped in assessment of levels of frequency, proficiency, and impact. Few questions allowed the respondent to select multiple responses to capture diverse experiences (e.g., tools used, and challenges faced). The inclusion of Likert-scale

items enabled a systematic quantitative analysis of respondents' attitudes, confidence, and perceptions related productivity in the field of Arabic and Islamic Studies to digital tool usage.

The data collected was analyzed through Microsoft Excel and SPSS. Descriptive statistics, including frequency distributions, percentages, and mean scores, were used to explain the respondents' awareness, patterns in usage, and perceived impacts of digital tools. Inferential statistics such as Pearson correlation analysis were used to determine the relationship between the frequency of tool usage and research productivity levels.

The analysis of this research is limited on analysis and identification of mostly used digital tools among Pakistani students i.e. Islam360, Maktaba Shamela, MS Word, Mendeley, Zotero, and e-databases. The replicability was assured through the research methodology adopting transparent procedures for sampling, data collection, and statistical analysis.

## RESULT & DISCUSSION

Valid responses from 252 participants were collected and analyzed. As per gender there were respondents represented approximately 69% male and females were 31%. The postgraduate scholars: MS/M.Phil scholars and graduates of MS / M.Phil. Level (PhD Enrolled) together made up over 90% of the total participants and make them dominant group, whereas final-year students of BS Arabic and Islamic studies comprising the remaining 9.5%. Keeping the variety of institutions in the view the distribution of institutions was quit balance, with 47.6% from public Institutions 52.4% from private institutions of Higher Educations Sector in Pakistan.

Results of section two where awareness of digital tools and applications among the respondents was revealed high, with 91.7% it indicates familiarity of the scholars with digital applications, websites and tools used for research within Arabic and Islamic Studies. Whereas access to tools and applications is not a big problem in the digital era. Although the teachers and institutional environments have no replacement. During the survey 73.8% indicated that the teachers provide proper and to the point guidance, they motivate and encourage them to use digital resources, where 73.8% stated the proper guidance from the teachers. Whereas personal arrangements for the research at home or on mobile remained high percentage (96.4%), which is nearly universal.

Regarding frequent engagement of the user with the digital tools, 40.5% of the participants reported daily use of these digital tools, 27.4% weekly, and remaining 27.4% uses the tools rarely. Whare as the common purposes behind the use remained preparation of assignment, collection of data for research and academic paper writing, and general study. Here a cross tabular analysis revealed that the PhD. Candidates – A Higher Level of the study level in the survey- are consistent users of the tools mentioning Daily basis use, as compared to undergraduate students whose engagement is weekly basis. This factor indicates the maturity and academic research level positively influence digital tool adoption.

**Table 1. Study Level and Frequency of Digital Tool Use (Cross Analysis)**

| Level of Study  | Daily (%) | Weekly (%) | Fortnightly (%) | Monthly (%) | Rarely (%) | Total (%) |
|-----------------|-----------|------------|-----------------|-------------|------------|-----------|
| BS (Final Year) | 21.4      | 38.1       | 19.0            | 14.3        | 7.2        | 100       |

|                   |      |      |      |      |     |     |
|-------------------|------|------|------|------|-----|-----|
| MS/M.Phil Scholar | 30.6 | 37.1 | 15.3 | 10.7 | 6.3 | 100 |
| PhD Enrolled      | 42.9 | 35.7 | 7.1  | 7.1  | 7.2 | 100 |

Among the tools, *Maktaba Shamela* which is basically source of more than 7000 books in Arabic language with facility of search and analysis within text of Quran and Hadith have frequency of (96.4%) users and Islam 360 which is mobile application consist of Quran, Urdu Tafasir of renowned scholars of various schools of thought emerged as the most frequently used platforms with (88.1%), after that the users frequently uses a major source of Urdu, Persian, English and Sindhi Tafasir and Hadith based on more than 100 tafasir and basic sources of Hadith in Urdu named *Easy Quran wa Hadith* where (44.0%) users use it in their work. Whereas (36.9%) of the digital users within the domain of Arabic and Islamic Studies use Maktaba Jibreel which is renamed as Islam library a comprehensive mobile app for Urdu books. A website for quranic analysis and the app of the same website named Analyze Quran which is based on different translations of Quran in various languages have (31.0%) users, and a dawah based e-library Maktaba Al-Madina is being used by (27.4%). The data indicates to the engagement of Arabic and Islamic Studies' researchers with the text-based databases as dominant applications.

**Table 2. Top 10 Digital Tools Used by Arabic and Islamic Studies Students in Pakistan**

| Tool/Application            | % of Respondents Using |
|-----------------------------|------------------------|
| <i>Maktaba Shamela</i>      | ≈ 98 %                 |
| Islam360                    | 88.1 %                 |
| Easy Quran wa Hadith        | 44.0 %                 |
| Maktaba Jibreel / Islam Lib | 36.9 %                 |
| Analyze Quran               | 30.9 %                 |
| Maktaba Al-Madina           | 27.4 %                 |
| Maktaba Ya Hossain          | 18.3 %                 |
| Quran Explorer              | 12.7 %                 |
| Other tools                 | < 10 %                 |

In the context of research quality as perceived by the user, 73.8% of participants confirmed the improvement through digital tools, while a noted improvement to the some extent is highlighted by 26.2% population. As per the major focus area of the study, the productivity is assessed in 56% of the respondents as significant increase, and 39.3% indicated the moderate productivity, and a little or no change is mentioned by 4.8%.

**Table 3. Descriptive Statistics of Key Variables (n = 252)**

| Variable                           | Mean (M) | Standard Deviation (SD) | Interpretation        |
|------------------------------------|----------|-------------------------|-----------------------|
| Frequency of Digital Tool Use      | 3.72     | 0.89                    | Moderate to High Use  |
| Perceived Research Productivity    | 3.94     | 0.82                    | Improved Productivity |
| Confidence in Digital Database Use | 3.61     | 0.76                    | Moderate Confidence   |
| Proficiency in MS Word             | 3.85     | 0.68                    | Competent Skill Level |
| Use of Citation Tools              | 3.54     | 0.93                    | Moderate Usage        |
| Institutional & Faculty Support    | 3.29     | 0.88                    | Partial Support       |
| Overall Digital Literacy           | 3.77     | 0.71                    | Above Average         |

Interaction of the user with the tools can give productivity when a user set his objectives while using the applications. To know the fact of the users', aim a cross-tabulation analysis reveals that the apparent patterns among Arabic and Islamic Studies students in Pakistan for utilization of digital tools. Islamic Library of Arabic Books

Maktaba Shamela, Mobile app of Urdu Tafasir and Hadith Collection Islam360, and HEC digital databases primarily seem to be used for research paper, it reflects the importance and authenticity due to easy access of the sources and quality of classical texts. While for the research organization, documentation, and references Zotero, Mendeley, and MS Word remained efficient and helpful for the users of Arabic and Islamic Studies and increased their efficiency. Quranic text analyzers like *Easy Quran wa Hadith* software and other Quranic lexicons remained common applications among the Pakistani scholars for general study and reference checking, it shows the utility in everyday religious learning and academic accuracy. Overall, the analysis shows that the majority of digital tools directly contribute to scholarly writing and productivity, some of the tools support supplementary research activities and its preparatory, these tools collectively enhance the overall research process among the Arabic & Islamic Studies' scholar in the country. Besides that, these patterns indicate that scholars who actively utilize more than one digital platform or tools for varied research, this influence positively on the efficiency, quality, and independent inquiry by the researcher in the inquiry. This confirms that a strong positive correlation between tool usage in diversified patter and productivity in Arabic & Islamic Studies' research.

**Table 4. Users Objectives during the Engagement with Digital Applications**

| Digital Application         | Assignment Preparation | Research Paper Preparation | General Study / Reading | Other Uses |
|-----------------------------|------------------------|----------------------------|-------------------------|------------|
| Islam360                    | 28 %                   | 46 %                       | 20 %                    | 6 %        |
| Maktaba Shamela             | 18 %                   | 52 %                       | 25 %                    | 5 %        |
| Easy Quran wa Hadith        | 24 %                   | 31 %                       | 38 %                    | 7 %        |
| Zotero / Mendeley           | 10 %                   | 68 %                       | 14 %                    | 8 %        |
| MS Word                     | 15 %                   | 61 %                       | 18 %                    | 6 %        |
| Canva / PowerPoint          | 62 %                   | 20 %                       | 10 %                    | 8 %        |
| E-databases (HEC Resources) | 12 %                   | 70 %                       | 10 %                    | 8 %        |
| Other Apps                  | 20 %                   | 28 %                       | 42 %                    | 10 %       |

In table 4. means of 5-point scale range from 3.3 to 3.9, give indication of overall engagement with digital tools in positive way, moderate proficiency. Besides this it is highlighted the perception that such various tools enhance the productivity of Arabic & Islamic Studies' scholar in their academic activities with special focus of research. Correlation analysis between frequency of digital tools use and productivity perceived yielded a Pearson coefficient of  $r = 0.353$ , indicates to a positive relationship in moderate status. As mentioned below:

**Table 5. Descriptive Statistics of Key Variables (n = 252)**

| Variable Pair   | Pearson r | p-value | Relationship Strength |
|---|-----------|---------|-----------------------|
| Frequency of Digital Tool Use ↔ Research Productivity | 0.353     | < 0.001 | Moderate positive     |

In the section related to the improvement perspective and challenges faced by the users, The most frequently highlighted factor remains the lack of formal training, this prevents many scholars from efficient use and utilization of available tools and applications. As mentioned in Table 6. the second major challenge faced by the scholars at universities is availability of proper infrastructure, availability of labs and online resources within the Arabic and Islamic Studies discipline, where awareness of technology is available but practical proficiency and institutional support remain

inappropriate. Overcoming these issues can fully enhance the skills and make the scholar in position to get benefit from technology in oriental scholarship.

**Table 6. Challenges Encountered in Using Digital Tools among Arabic and Islamic Studies Students**

| Challenge Category  | % of Respondents Reporting |
|---|----------------------------|
| Lack of training  | 51.2 %                     |
| Lack of institutional access                              | 31.0 %                     |
| Poor internet connectivity                                | 28.6 %                     |
| Language barrier  | 20.2 %                     |
| Other issues (e.g., technical errors, device limitations) | < 10 %                     |

Results of the research underscore that digital Applications and tools are becoming primary part to the scholars of Arabic and Islamic Studies in Pakistan, where workflow is influenced by the digital development of the field. Scholars' awareness level and strong access in personal approach shapes a new dimension digital orientation in Islamic research. Whereas institutional infrastructure within public universities is a major gap and issue which indicates an uneven diffusion of technological resources. The conclusions grabbed by (Rehman & Saeed, 2022; Warriach & Tahira, 2014) were also aligned with these findings, their papers also concluded similar disparities. The use of *Maktaba Shamela* and *Islam360* and their predominance status confirms their prominent role in facilitating the scholars in access to classical Arabic and Islamic sources besides helping them in the understanding of the text through easy methods of search and inclusive database consists of various translations of Quran, diverse sources and user familiarness. These e-libraries specially *Maktaba Shamela* have modernized techniques for textual retrieval, comparison of the text with published version, and easiness in referencing, allows the scholars to engage with primary sources of Islam in more efficient way. As noted by (Ahmad, 2021; Khan & Al-Qarni, 2019) such applications fulfills the gap between traditional learning and modern tools for the research and research it self.

The moderate correlation ( $r = 0.353$ ) among usage of the tools and digital applications frequency and research productivity provide a strong support to the narrative that habitual interaction with digital Applications and tools improves scholarly output and their personal efficiency. These findings support the models of (Lambusch et al., 2020) & (Yazon et al., 2019), which support the stance that digital literacy and inconsistent use are predictive of higher level of productivity in the Academic field.

A clear upward trend from the cross-tabulation revealed awareness and productivity with increased academic level of scholar. Students of undergraduate level are the lowest aware sector of the population besides lower perceived productivity ( $M = 3.3$ ), indicating minimal acquaintance to research based digital environments. In contrast, PhD respondents highlighted frequent utilization of databases such as *Maktaba Shamela*, *Islam360*, and greater awareness about reference management tools like *Zotero* and *Mendeley*, contrasting with the highest productivity mean ( $M = 4.4$ ).

This pattern aligns with previous research findings of (Ali & Nordin, 2020; Rehman & Saeed, 2022), where institutional training and factor of research experience significantly increased effective usage of the tools and applications. The results reveal that digital literacy at initial level of university education could enhance research performance with high impact and so is role of early academic engagement with digital tools.

Awareness levels of the participants with digital applications and tools increase with academic progression. The two-fifths of BS students (38%) informed that they had no prior exposure to digital databases within the field, compared to PhD candidates (9%).

Mean productivity scores maximized side by side with tool awareness and academic level, it suggests a strong correlation which is positive in its nature, between digital familiarity and scholarly production in the field of research.

**Table 7. Relationship between Awareness, Level of Study, and Productivity**

| Level of Study    | Not Aware of Tool (%) | Low Productivity (Mean) | Moderate Productivity (Mean) | High Productivity (Mean) | Interpretation  |
|-------------------|-----------------------|-------------------------|------------------------------|--------------------------|---|
| BS (Final Year)   | 38.2                  | 2.8                     | 3.3                          | 3.7                      | Limited awareness results in lower productivity gains |
| MS/M.Phil Scholar | 21.5                  | 3.2                     | 3.8                          | 4.1                      | Moderate awareness improves productivity outcomes     |
| PhD Enrolled      | 9.6                   | 3.5                     | 4.1                          | 4.4                      | High awareness strongly correlates with productivity  |

Despite these advancements being produced on the global data hubs, the lack of formal training is a key issue in the whole scenario, where staying up to date is another dimension of the challenge for the instructors. As indicated by (Ali & Nordin, 2020) in the previous research awareness alone does not guarantee high productivity and proficiency. Structured digital education and literacy programs, especially within the field of Arabic & Islamic Studies, are strong foundation for maintaining effective and ethical use of digital technology in the research.

## CONCLUSION

This study investigated the impact of digital evolvement in the field of Arabic and Islamic Studies on the research productivity among the students in Pakistan. This systematic approach addressed the intentions behind commonly used tools and identified it in proper way, analyzing their impact on productivity of research, and highlighted obstacles. The results and findings indicate that the awareness of digital tools and their integration to the field of Arabic and Islamic Study—particularly Maktaba Shamela, Islam360, Zotero, Mendeley, and MS Word—has highly enriched research outcomes by improving the access of a scholar to the classical text, major and primary sources, easiness in citation management, and reduces time spent on data management, analysis and presentation.

The study advances the available knowledge by contributing empirical evidence from a discipline, and through a specific context which is Arabic and Islamic Studies. Here digital familiarity has historically been slower as compared to the natural sciences. Additionally, this research contributes a focused analysis of how digitalization directly affects scholarly output in religious academia. Here, it confirms that digital tools enhance self-directed learning besides higher research productivity for a researcher. It also indicates that institutional infrastructure with special focus of digital sources and user skills can ease the achievement of higher productivity levels. This issue also highlights the need for structured digital literacy programs and faculty development workshops besides mentorship of the skilled teachers to ensure equitable research facilities and opportunities across academic levels.

Overall, a positive correlation was observed among digital tools and applications' usage and research productivity of a scholar. This study revealed that major barriers in achieving high productivity in research. The barriers pointed out are limited training, lack

of institutional resources and poor internet access. Being mandated for the research the universities should integrate digital education and literate with special focus on research tool training within the field of Arabic and Islamic Studies. Where the leadership and professional development cells of the universities have to encourage and offer faculty mentorship workshops to enhance digital skills of the teachers and make them UpToDate. The HEC (Higher Education Commission of Pakistan) and HEIs (Higher Education institutions) must focus on improvement of digital infrastructure and access to databases through digital labs and strong connectivity. The interfaces of the software and Apps in local languages can enhance productivity positively besides awareness campaigns can boost the results. It recommended for research scholars that long-term impacts of the tools and digital applications can be explored where the impact can be assessed on basis of engagement or scholarly productivity in the field. Where longitudinal or comparative approaches can be adopted to explore how engagement with digital tools impacts long-term research productivity.

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