

Expanded Selecting Criteria of Research Databases for University Libraries

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Abstract— Access to valuable scientific and educational resources is an important aspect of the effectiveness of the educational process. Depending on their financial capabilities, academic libraries subscribe to various databases of the world's leading publishers. It is very important to evaluate certain databases in order to select the necessary sources of information for educational and scientific activities. The purpose of the article is to determine the most important criteria for evaluating scientific and educational databases in academic libraries based on a survey conducted among teachers and students of technical universities of the Republic of Uzbekistan. The key criteria are content relevance, thematic coverage, usability, accessibility, technical specifications, licensing models, and scalability to meet future needs. The study emphasizes the importance of aligning database selection with institutional research priorities, user accessibility requirements, and emerging fields of study. Additionally, the role of open-access resources, interdisciplinary content, and vendor support in decision-making is analyzed. By developing a comprehensive framework for database evaluation, this article provides valuable insights for librarians and academic institutions seeking to optimize their resource offerings and support diverse research endeavors.

Keywords— *Selecting criteria, scientometric indicators, university library, Uzbekistan, world scientific database.*

I. INTRODUCTION

There are countless research databases available today, each offering unique collections of resources tailored to specific fields of study. Examples include interdisciplinary databases such as EBSCOhost, Springer, Francis Taylor, as well as the ProQuest dissertation database, specialized platforms such as PubMed for the medical sciences or IEEE Xplore for engineering and technology, and JSTOR for the humanities and social sciences. However, not all databases are equally relevant or suitable for every academic discipline or research purpose. However, not all databases are equally relevant or suitable for every academic discipline or research purpose.

While multidisciplinary databases provide broad coverage across various fields, they may lack the depth needed for specialized research. Conversely, highly focused databases excel in delivering in-depth resources for a single discipline but may fail to address interdisciplinary research needs. This diversity highlights the importance of carefully evaluating and selecting databases based on the specific requirements of researchers and institutions. The ideal database should align with the goals of the research, the scope of the subject, and the accessibility needs of its users [1].

Electronic databases are now necessary for research because they give researchers remote access to a wider range of relevant information. Emmasiegbu and Anahobi expressed that the use of databases in the

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academic setting had both direct and indirect effects on academic staff efficiency[2]. In addition to teaching and community service, academic staff members are expected to conduct high-quality research and impart ideas relevant to their areas of expertise. In the digital transformation, e-books, e-journals, e-databases, and e-magazines have replaced print books, magazines, and journals as knowledge centres[3].

TABLE 1 DATABASE SELECTING CRITERIA

Universities	Criteria
American Library Association (ALA)[4].	a. Relevance b. Suitability of physical form c. Suitability of subject and style d. Cost e. Importance timeliness f. Relation g. Attention (critics and reviewers) h. Potential i. Requests
University of Bath Library (United Kingdom) [5].	a. Relevance b. Geographical coverage c. Bias d. Quality e. Cost f. Licensing
Brown university Library (United States) [6].	a. Relevance b. Scope and content c. Depth d. Quality e. Currency and timeliness f. Bibliographic accessibility g. Price h. Language and country of origin
The Southern California online User Group (SCOUG)[7].	a. Consistency b. Coverage/Scope c. Timeliness d. Accuracy/Error rate e. Accessibility/Ease of Use f. Integration g. Output h. Documentation i. Customer Support and Training j. 10. Value-to-Cost Ratio
By authors	a. Relevance to the field of research being conducted b. Scope and content c. Price d. Potential e. Language and country of origin

When selecting online databases for a university library, you can consider things like:

- **Relevance:** What types of documents the database index
- **Suitability of physical form:** refers to how well the physical characteristics of an item (such as a book, journal, or digital resource) match its intended use and environment.

This concept is important in library science, publishing, and information management.

- **Suitability of subject and style:** refers to how well the content and writing style of a resource (such as a book, article, or database) match the needs of its intended audience and purpose.
- **Importance timeliness:** refers to how crucial it is for information, content, or resources to be current, up-to-date, and relevant to the present time or situation. In the context of libraries, research, and publications, timeliness ensures that the materials being used or provided reflect the latest developments, trends, or data.
- **Relation:** refers to the connection or association between two or more things, concepts, or entities. In various contexts, it can describe how items are linked, how they influence one another, or how they are relevant to each other
- **Attention (critics and reviewers):** refers to the focus, consideration, or scrutiny given by critics and reviewers to a particular work, performance, or product, such as a book, movie, research article, or artwork. It highlights how the piece is evaluated, discussed, and analyzed by those who have expertise or influence in a particular field
- **Potential:** refer to the factors considered when evaluating the ability of a database to meet future needs and growth. In the context of database selection, "potential" often refers to the long-term value, scalability, and capacity of a database to adapt to evolving user demands and technological advancements.
- **Requests:** Refer to the specific factors or guidelines used when selecting a database to fulfill particular requests, whether for research, academic, or business purposes. When selecting a database, various criteria help ensure that it will meet the needs of users effectively and efficiently.
- **Depth:** refers to the extent and comprehensiveness of the content within a database, determining how much detailed, in-depth, or specialized information it offers on a specific subject or field. Depth assesses how thoroughly a database covers a particular topic, including the richness of its content and the ability to provide users with detailed insights.
- **Currency and timeliness:** in database selection criteria refer to the relevance of the database's content in terms of its up-to-date information, ensuring that it reflects the

latest developments, trends, research, and data. These criteria are crucial for ensuring that the database provides users with current and accurate materials that are relevant to ongoing research or decision-making.

- **Bibliographic accessibility:** in database selection criteria refers to the ease with which users can access, search, and retrieve bibliographic information (such as citations, references, and metadata) within a database. It focuses on the availability of structured, well-organized data that makes it simple for users to locate relevant materials and sources.
- **Language and country of origin:** in database selection criteria refer to the linguistic diversity and geographic relevance of the database's content. These factors ensure that users can access resources in their preferred language or relevant to their specific country or region.
- **Geographical coverage:** Whether the database covers a specific region
- **Bias:** Whether the database has any inherent bias in its coverage
- **Quality:** Whether the database provides high-quality resources
- **Cost:** Whether the database is affordable, especially if the library can get a consortial price
- **Licensing:** Whether the database has the correct licensing and license management [4][5][6].

Electronic database is a collection of structured data or information that can be searched and retrieved quickly using a computer system. Index/bibliographic databases (like Scopus, CiteSeerX, WorldCat, and Ulrichsweb) and full-text databases (e.g ScienceDirect, Springer, and EBSCOhost) make up the majority of these databases. There are additional types such as subject-based databases (like IEEE, Library and Information Science Source, Business Source Complete, AGORA, and PubMed/Medline). Meta-databases (such as ConsensusPathDB, Entrez, and Neuroscience Information Framework). Statistics/numeric databases (like Bureau of Labor Statistics, American Factfinder - US Census Bureau, and Balance of Payments Statistics - IMF eLibrary). Image/video databases (such as Pickup Image, 3D online action dataset and Audio-Visual Event (AVE) dataset). Subscription databases (e.g. IEEE, Emerald and ScienceDirect). Free/Low-cost databases (e.g. ScienceOpen, CORE, Eric, Jstor, HINARI and PLOS) [5].

Electronic databases can enhance academic work at the university. When faculty members become aware of the extensive use of these resources, it improves their

teaching performance and other academic-related activities at the university [6].

Sivakami and Rajendran surveyed awareness, access, and sage of e-resources among faculty members in Arts and Science colleges in India. The findings revealed that both male and female users were aware of the availability of e-resources. The quality of research output by lecturers in the university community is assessed by their awareness of electronic databases. Even though other factors, such as training, availability, accessibility, and the skills of the user or computer literacy level, may positively or negatively influence the successful use of these databases, poor internet challenges may negatively influence it.[8]

Electronic databases have excellent potential for research, teaching, and learning, but many hindrances may tend to retard their usage in the library. A lack of training, poor infrastructure, and high usage costs hinder the full use of database resources [9].

A similar study was conducted in 2021 among four libraries in the state of Andhra Pradesh. Different types of electronic resources are either subscribed or purchased by the libraries of GITAM, KL and VU as per the requirement of various colleges, institutes and departments in the university. The found that majority of users are found to be using IEEE database, EBSCO database, DELNET Database, Springer, DELNET Database in libraries. Majority of users not using properly the following databases ASCE, ASME, ASTM, Emerald Database, Oxford University Press Database, Taylor & Francis Database, JGATE database, JSTOR Database, McGraw-Hill Access Engineering Database, NPTL & SONET Videos service. User Opinion about Effectiveness of electronic resources shows majority of users considered it as somewhat effective. The study observed the coverage of use of electronic resources especially online databases subscription is low in the libraries surveyed [10].

Furthermore, the study advised that the university libraries in South East Nigeria should enhance their financial plans to address the expenses of digital materials and for the education of personnel responsible for managing the digital collection growth. It also suggested that the libraries should undertake a bold strategy of obtaining digital resources via a consortium to benefit from the reduced rates linked with consortium membership [11].

In another research at central university libraries in India: in online databases, usability is heavily influenced by data retrieval features: the more efficient the techniques, the more likely it is that online databases will be used. In Project Muse, the usability percentage was highest followed by Emerald, JSTOR, and Elsevier. There is an efficient correlation between facilities and usability [12]. This trend suggests that users prioritize platforms with superior data retrieval capabilities, indicating a strong correlation between usability and efficient search functionalities. Consequently, online databases should

focus on enhancing these features to improve user engagement and satisfaction.

II. MATERIALS AND METHODS

The purpose of the article is to determine the most important criteria for evaluating scientific and educational databases in academic libraries based on a survey conducted among teachers and students of technical universities of the Republic of Uzbekistan.

To achieve the goal, the following tasks are being implemented:

- a) examine the extent of awareness of electronic databases for teaching and research by universities Uzbekistan;
- b) identify the means through which awareness of electronic databases are created; and
- c) determine the frequency at which universities in Uzbekistan, use electronic databases.

The study adopted survey method. In this survey, bachelor's students, master's students, assistants, senior lecturers, associate professors, and professors participated, making up a total of 91 participants.

III. RESULTS AND DISCUSSION

The educational qualifications of those who participated in the survey were as follows: 28 students (bachelor), 31 students (master), 12 assistants, 11 senior lecturers, 2 associate professors, 1 professor, 6 others.

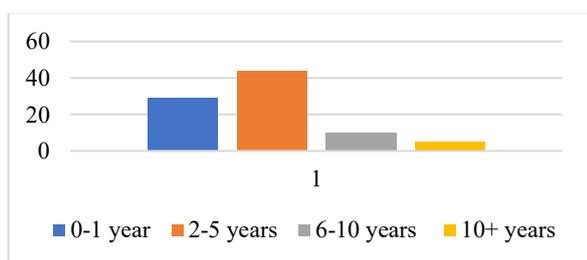


Fig 1 . Distribution of the respondents by years of work experience.

The following results were obtained regarding the years of work experience of the respondents: 29 participants had work experience between 0-1 year, 44 participants had experience between 2-5 years, 10 participants had experience between 6-10 years, and the remaining 5 participants had experience of more than 10 years.

In addition, it was determined how often the participants used the library of the organization in which they worked to meet their scientific needs. The majority of the participants said that they used the library of the organization in which they worked several times a week, which included 23 participants. 22 participants said that they used it several times a month. There were also participants who used the libraries regularly, that is, every day, and these participants amounted to 16 participants. It was found that 8 participants used it several times a year, 7 participants used it once a week, 7 participants did not

use it at all, 5 participants used it once a month, and 3 participants used it once a year.

TABLE 2 DISTRIBUTION OF THE RESPONDENTS NEEDS FOR RESOURCES

Type of resources	Number of selected resources	Response rate
Collection of scientific articles	58	63,7 %
Dissertations	40	44 %
Fictions	32	35,2 %
Conference materials	25	27,5 %
Periodicals (newspapers and magazines)	20	22 %
Monographs	17	18,7%
Encyclopedias	11	12,1%
Other	1	1,1 %

Next, the information needs of the participants were determined. From the results, we can see that 58 participants (63.7%) have a great need for collections of scientific articles. 40 participants (44%) indicated a need for dissertations, 32 (35.2%) for fiction, 25 (27.5%), 20 (22%) for Periodicals (newspapers and magazines), 17 (18.7%) for Monographs, 11 (12.1%) for Encyclopedias and one participant indicated a need for other resources.

The majority of the survey participants (69.2%) consider scientific articles and research to be important for their scientific activities. In addition, we can find that scientific literature and textbooks (51.6%) and video tutorials and webinars (36.3%) are also important in meeting their needs. Some participants also considered technical documents and standards (16.5%) to be important, depending on their field.

In addition, when participants were asked which areas they would use to search for information in world databases, 40 (15.2%) of the participants said they needed information related to artificial intelligence. The remaining participants also chose areas related to various information technologies. The digital economy accounts for the largest share of these areas (11%).

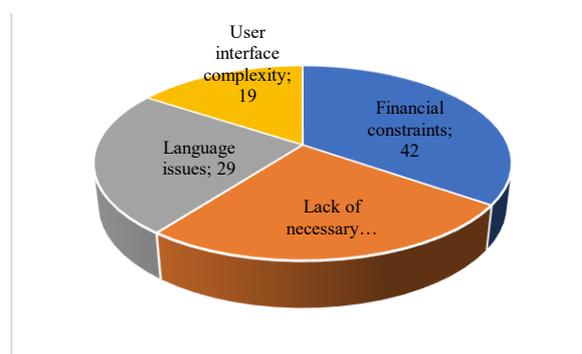


Fig 2. The main problems encountered in using world scientific databases.

When asked about the problems faced by the participants in using global scientific databases, 42 (34.7%) of them answered Financial constraints, 31

(25.6%) Lack of necessary resources, 29 (24%) Language issues and the remaining 19 (15.7%) User interface complexity. It is clear from this that financial problems are one of the most common problems in using world scientific databases.

We know that analytical systems are also important in the process of scientific activity. Therefore, we checked whether the participants had information about analytical systems. The question was asked about the importance of analytical systems in the process of scientific activity. We can see an analysis of this in Fig 3.

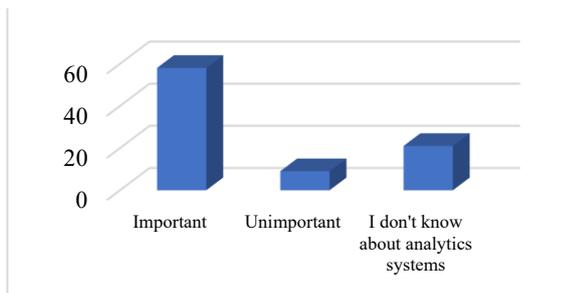


Fig 3. The importance of analytical systems in scientific activity.

When asked about analytical systems, 58 (65.9%) of the participants considered analytical systems to be important. 9 (10.2%) of the participants considered these systems to be unimportant. Unfortunately, the majority of the participants 21 (23.9%) said that they were not aware of these systems.

There are many indicators in analytical systems to assess scientific activity and identify changes (increase or decrease) in it. The participants' opinions on these indicators were also determined Fig 4.

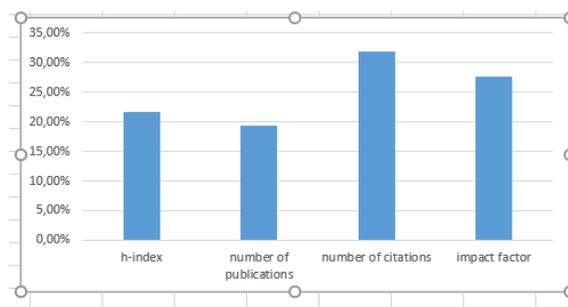


Fig 4. Scientometric indicators.

According to the participants, scientific metrics such as the number of citations to an article (31.8%), Journal Impact Factor (27.1%), h-index (21.7%), and number of published articles (19.4%) are considered important in conducting scientific activities.

At this point, the question may arise: what is the role of scientometric indicators in selecting global databases for universities? In fact, the main goal of selecting world scientific databases for universities is to increase the

university's rating by improving the scientometric indicators of researchers conducting scientific activities.

TABLE 3 ANALYTICAL SYSTEMS FOR ANALYZING SCIENTOMETRIC INDICATORS

Analytical systems	Number of selected resources	Response rate
Web of Science	44	50%
Scopus	44	50%
GoogleScholar	44	50%
Researchgate	16	18,2%
SciVal	5	5,7%

It is clear from this that most of the participants use the most popular analytical systems to analyze their scientific activities. These are Web of Science (WoS), Scopus, and Google Scholar.

IV. CONCLUSION

The selection of research databases for university libraries requires a holistic approach that balances traditional criteria with emerging priorities. By incorporating factors such as accessibility, technical integration, and open-access content, libraries can better align their resource offerings with the diverse needs of their users. The expanded criteria proposed in this study provide a robust framework for evaluating databases and ensuring their relevance, usability, and cost-effectiveness in an evolving academic landscape. Future research should explore the application of these criteria in diverse institutional contexts to further refine and validate the framework.

In addition to the theoretical framework, this study included a survey conducted among university library users, including students, faculty, and researchers. The results revealed a strong and growing demand for access to global information resources, analytical platforms, and interactive database systems. These findings underscore the importance of not only maintaining core academic subscriptions but also expanding access to tools that support advanced data analysis and international scholarship.

By integrating user feedback with a strategic evaluation model, libraries can make more informed decisions that enhance the academic experience, support research productivity, and respond to the rapidly changing landscape of scholarly communication. As higher education institutions continue to digitize and diversify, the role of libraries in curating relevant, high-impact resources becomes increasingly vital.

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