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ORIGINAL ARTICLE

Evaluating the Information Architecture in the Noormags Scientific Information Database: Perspectives of Information Science and Epistemology Experts

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EXTENDED A B S T R A C T

Introduction

In today's knowledge-driven environment, the ability to access, organize, and retrieve information efficiently is a cornerstone of academic research and professional decision-making. Information architecture (IA), which encompasses the systematic design and organization of information, directly affects how users interact with databases and retrieve relevant content. Scientific databases, as repositories of peer-reviewed research and scholarly content, must offer a coherent and user-friendly IA to ensure that information can be located accurately and promptly. Noormags, a leading Iranian scientific database, provides extensive access to scholarly articles across various disciplines, serving students, researchers, and faculty members nationwide. Despite its widespread use, a comprehensive assessment of Noormags' IA from the perspective of specialists in Information Science and Knowledge Studies has not been conducted. Evaluating IA in such scientific databases is crucial for identifying strengths, uncovering weaknesses, and suggesting improvements to enhance both usability and information retrieval efficiency. This study aims to systematically evaluate the IA of Noormags, focusing on its navigation and search systems, through the insights of domain experts. Specifically, the research examines the effectiveness of global, general, and auxiliary navigation systems, as well as search interface, search space, advanced search, and search query functionalities.

Methodology

A descriptive-analytical research design was employed to evaluate Noormags' IA from the perspective of 66 specialists in Information Science and Knowledge Studies. The research population included 81 faculty members from public universities across Iran, and 66 fully completed responses were collected following random sampling based on Cochran's formula. Data were gathered using a 43-item questionnaire developed by Sajadi (1400), which measures participants' perceptions of navigation and search system components on a five-point Likert scale. The content validity of the instrument was confirmed through the collective judgment of specialists in the field of Information Science and Knowledge Studies, and reliability was established through Cronbach's alpha, which yielded a high score of 0.936, indicating excellent internal consistency. . Data collection was conducted through digital forms, facilitating convenience and accuracy, and the collected data were analyzed using SPSS for descriptive and inferential statistics. Means, standard deviations, t-tests, and Friedman tests were applied to assess differences and relationships among the components of IA, ensuring a

comprehensive analysis of navigation and search systems. Ethical considerations were strictly adhered to, including obtaining informed consent and guaranteeing the confidentiality of all participants.

Findings

The demographic characteristics of the participants were carefully examined to provide insight into the composition of the research sample. Among the 66 participants, 41 individuals (62.01%) were female, and 25 participants (37.09%) were male. Regarding academic rank, 24 participants (36.04%) were associate professors, 16 participants (24.02%) were instructors, 16 participants (24.02%) were assistant professors, and 10 participants (15.02%) held the rank of full professor. These data reflect a diverse sample in terms of both gender and academic rank, ensuring that the perspectives captured in this study are representative of various subgroups within the target population.

Evaluating the navigation systems revealed that the general navigation system received the highest mean score of 3.60 ($t=12.283$, $p<0.001$), followed by the global navigation system with a mean of 3.42 ($t=11.119$, $p<0.001$) and the auxiliary navigation system at 3.19 ($t=3.001$, $p=0.004$). These results indicate that Noormags' general and global navigation features are effective in facilitating users' access to information, while auxiliary navigation shows moderate effectiveness and potential areas for improvement. For the search system, the advanced search functionality was rated highest with a mean of 3.67 ($t=12.502$, $p<0.001$), demonstrating its critical role in supporting precise information retrieval. The search interface scored a mean of 3.51 ($t=6.683$, $p<0.001$), the system review function 3.49 ($t=10.266$, $p<0.001$), sorting capabilities 3.48 ($t=6.787$, $p<0.001$), search space 3.46 ($t=8.508$, $p<0.001$), and search query 3.30 ($t=4.127$, $p<0.001$). These scores indicate that while all components of the search system contribute positively to user experience, advanced search and interface elements are particularly strong, whereas search query features may require optimization to fully meet users' expectations.

When analyzing the combined effectiveness of navigation and search systems, a mean score of 3.57 ($t=11.028$, $p<0.001$) was observed, reflecting that the integrated design of these systems supports accurate and efficient information retrieval. The overall IA evaluation yielded a mean of 3.47 ($t=11.410$, $p<0.001$), indicating high functionality and effectiveness. Statistical analyses using Friedman tests confirmed significant differences among IA components, with $\chi^2=411.96$ for overall IA impact and $\chi^2=118.241$ for navigation systems ($p<0.001$), demonstrating that some elements, particularly general navigation and advanced search, are more influential in improving user experience than others.

Discussion and Conclusion

The overall analysis indicates that Noormags' information architecture (IA) demonstrates satisfactory efficiency and effectiveness, playing a positive role in facilitating access, enhancing retrieval accuracy, and improving research productivity for expert users. The significance of the statistical test results and the overall mean of 3.47 confirm that the database's information structure, at a macro level, aligns with the expectations of the academic community and largely fulfills the fundamental objectives of IA, namely efficiency and ease of access.

Analytically, the findings reveal that Noormags' success primarily relies on the effective design of "general navigation" and "advanced search"—components that, through clear pathways, logical content organization, and precise definition of search scope, provide a coherent and reliable user experience. This integration of navigation and search has shortened, structured, and focused the information retrieval process, enabling users to make more accurate and informed research decisions.

At the same time, the analysis shows that "auxiliary navigation" and "search query" components have not yet reached an optimal level, revealing a significant gap between the actual needs of expert users and the current capabilities of these sections. Deficiencies such as weak visual guidance, insufficient structuring of secondary content, and the lack of intelligent search functionalities, although not critically hindering the system's performance at present, could become major challenges in the future as information volumes grow and research needs become more complex.

Overall, the findings indicate that Noormags' IA performs well in terms of functionality, user experience, and alignment with expert user needs. However, maintaining and enhancing this status requires targeted improvements in weaker components. Emphasizing the enhancement of auxiliary navigation and the implementation of smarter search query processes can complement existing strengths, ensure the long-term efficiency of this scientific database, and better prepare it to meet future developments in scholarly information retrieval.

KEY WORDS

Information Architecture, Scientific Database, Normgs, Information Science And Epistemology, Information Systems Evaluation, Information Search And Retrieval.



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