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GUEST EDITORIAL

Research Data Management in Higher Educational Institutions

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Research data management is an emerging area that has drawn the attention of professionals the world over. Western countries have taken the lead to manage data generated by researchers so that data can be collected, processed, analyzed, preserved and made discoverable to reuse whenever required. As a result, it becomes easy to foster interdisciplinary and cross campus research. Western world benefited from management of research data by avoiding duplication of research and validating the findings of research. However, managing research data is an expensive and methodological job. It needs dedicated and trained manpower. Every bit of data consumes space and money is required for its management. Thus, institutions must have a proper retention policy so that data can be discarded on a timely basis to reduce the cost involved in the management process. Project leaders of data management task must accentuate the need of a retention policy in the project plan itself to avoid conflicts at later stages of the data management process. Major inhibits in data management have been lack of policy in institutions, involvement of different departments, and deficiency of leadership to manage diverse teams responsible for data management. The aim of a project leader should not be confined to merely data management but also must include making the data FAIR compliant so that data can be found, accessed, interoperated and reused, which can contribute considerably in enhancing knowledge economy of the nation. Indian Government has taken a lead by notifying a Data Sharing and Accessibility Policy, 2012, which makes it mandatory for Ministries and Departments to share data generated by them. However, majority of these data repositories are not following common standards in data description and visualization. Besides this, no viable system exists in higher education and research institutions to avoid duplication of Doctoral and Post-Doctoral research, and verification of the credibility of research outcomes. Similar is the situation with funding agencies in choosing projects to be funded to conduct research. Thus, a national level policy can accelerate data management practices in higher educational institutions to initiate proper data management.

Libraries can take a lead by exploring the motivational factors and advocating the concerns of researchers that can give them a unique position within the academic community. Indian Libraries ought to explore the promotional factors workable in the Indian context so that researchers can be attracted to deposit their datasets in libraries, and information professionals can lead data management projects. This could be achieved by creating trustworthiness among the academic community. Indian libraries ought to develop systems which address security, misuse, intellectual property rights, scooping research outcome and other concerns of the academic community meticulously. Indian institutions should also take into account data citations and data sharing practices for recruitment and promotion of faculty members. Funding agencies should make such practices mandatory while giving grants for research projects.

Hence, to overcome such concerns, research data sharing can be incentivized, first by promoting the benefits of open data in terms of value to society and the potential to solve global problems; and second, through offering clear incentives to researchers to make the data openly available. Therefore, institutions must devise policies to promote and reward sharing of research data[1]. Data citation can help in promoting research data sharing and thereby help researchers receive recognition for sharing data. It has been pointed out that there are technical differences in research data management such as metadata standards, protocols, culture in sharing and reuse. Nevertheless, administrations of academic and research institutions must extend full support to open data. Challenges in research data management can be countered by libraries in a coherent manner. Indian research data repositories (RDRs) should have the provision of assigning permanent link identifiers to datasets so that researchers can discover and cite with convenience. It is apparent that Indian RDRs lack standardization. Indian RDRs lag behind in adopting standard tools and policies as compared to European and American RDRs. Therefore, funding agencies and institutions must frame guidelines for developers of RDRs. Libraries and Library Schools should organize data management training frequently so that library professionals can attract better job prospects. This can help reestablish the glory of library and information science profession. Librarians must provide training to researchers and faculty members in uploading data and adding the pertinent metadata. In contrast to Indian RDRs, global data repositories viz., Zenodo and Figshare, have provision to assign a permanent link and a DOI. These two data repositories also provide a permanent link to the dataset, even if the dataset is under embargo at the time of first citation. Consequently, these two platforms help researchers'

indirect involvement with publication of their datasets. Library and information science schools should teach the best practices in data management so that students can work with confidence on such projects.

Data repositories are the best means of making research data discoverable, reproducible and reusable. Therefore, authors need to identify the most appropriate research data repository for their data[2].

The Special Issue of DJLIT on data management accentuate the importance of data management in academic and higher educational institutions by including studies on various aspects ranging from literature review, content analysis of Indian research data repositories, user studies relating to researchers' perception in data management, case study in data management, open standard used in oceanography etc.

The Special Issue contains nine papers on a wide range of topics on data management aspects of which six are research papers and three are review papers. Collura et al. (2019) enunciated the research concierge service aimed at supporting the unique data needs of researchers. Authors also discuss the inhibits faced by their institutions in creating the team and the new service approach. The model suggested by the authors can be replicated in various other organizations. However, the model needs to be updated periodically. Authors have also found evidence that the new service is compelling, useful, and it assimilates the changes in research and data needs. Bhardwaj (2019) discusses Indian research data repositories and finds that Indian RDRs do not follow standards in metadata entry. Majority of RDRs do not have provision of persistent identifiers. The author suggests that librarians, researchers, data specialists and research office should work together so that data management practices can be transformed. Furthermore, the author suggests that further study may be conducted on the role and interaction of librarians with researchers in developing data repositories. Saeed and Ali (2019) conducted a study at Aligarh Muslim University to understand the perception of research scholars in research data management. Authors used a questionnaire to collect responses of researchers and used the random sampling method in choosing the researchers. The authors found that confidentiality and data misuse are the main concerns of researchers in data sharing. Francis and Das (2019) reviewed the resources in the field of access resources to enlist open data initiatives in India in the area of water and energy. The study also enunciates numerous initiatives relating to participation of institutions and application of licensing terms in open data governance in India. Mohammed and Ibrahim (2019) selected 5 universities using purposive sampling to investigate research data management practices in Iran. The study highlights challenges and practices in research data management in the country. Garg and Kanjiilal (2019) suggests a framework to harvest and prep-process data available on LIS Links. Authors define 14 metadata elements for forums and analyze the data using R programming language. The special issue contains three review papers also. The review paper by Hudson-Vitale and Moulaison-Sandy (2019) studied data management plans and focuses on thematic analysis and empirical research in the field. Authors raise the issue that potential of DMPs is not recognized fully and suggest further research exploring the utilization of DMPs. Boté and Tèrmens (2019) focus on reusing the data generated by academic, research and public institutions so that new knowledge can be generated. Further, authors address technical and ethical challenges associated with it. Another review paper by Payal, Awasthi and Tripathi (2019) studied literature on various aspects of research data management, ranging from RDM need, significance, and researchers' behavior in data sharing. Authors also mentioned various useful resources relating to RDM.

This Special Issue aims to address not only data management and related issues, but also addresses technical and social, managerial and practical implications associated with data management. It makes some significant and original contributions to foster research and development in the area of data management. Furthermore, it makes significant contributions to both understanding nuances in data management and development of the LIS profession. It is envisaged that the Special Issue will be vital to train manpower in various libraries in data management. This issue is an attempt to sensitize library community in India about the importance of data management and stimulate their interest in the subject. Consequently, data generated by researchers can be made available to the public following the principals of FAIR. This special issue also suggests future areas of research in data management.

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