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ORIGINAL ARTICLE

Why deemed and private universities are lagging in publishing their research online with India's national repository?

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ABSTRACT

Objective. The Indian national online PhD theses repository, "Shodhganga," published approximately 584,000 theses. The top 10 universities that contributed approximately 25% of the total were all central and state universities. In contrast, the number of theses contributed by deemed and private universities was comparatively limited. This study explored the factors contributing to the limited contributions from deemed and private universities and proposed strategies to enhance their engagement in research dissemination.

Design/Methodology/Approach. To obtain a comprehensive understanding of the subject matter, 15 research experts from deemed and private universities in India were interviewed. A qualitative data analysis methodology was employed. Thematic analysis was employed to extract common views.

Results/Discussion. The expert group posited that faculty members from deemed and private universities exhibited a greater propensity for academic social networks such as ResearchGate and Academia.edu. The national repository should provide feedback features analogous to those offered by ResearchGate and Academia.edu. It was anticipated that a substantial online research publication would be made available to the public if the deemed and private universities enhanced their contributions.

Conclusions. The Indian national repository, Shodhganga, achieved notable growth in its publication of PhD theses, with a total of 584,000 records currently available. However, the repository's development revealed some concerns regarding the inclusivity of institutional representation. The majority of contributions originated from government-owned state and central universities, suggesting an imbalance in institutional engagement. Deemed and private universities contributed a comparatively smaller share of theses to the repository. This study made a novel contribution to the field by highlighting problems of national repositories that may see uneven growth. To ensure that the research shared was representative of all the stakeholders, they ought to work toward inclusive growth.

Keywords: theses repository; universities; dissemination of research; online publication of research.

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1. INTRODUCTION

As of January 31, 2025, the Indian national PhD theses repository, "Shodhganga," had published approximately 584,000 theses online (Shodhganga, 2025a). Three categories of universities contribute their research to the national repository. One is the government-owned universities (central and state). Secondly, the deemed universities must be considered. Thirdly, private universities merit consideration. Deemed and private universities are autonomous universities that are subject to a minimal number of regulations imposed by the government. In accordance with the memorandum of understanding (MoU) that has been established, academic institutions formally agree to contribute their research output, which has been made available through online publication by the national repository, ensuring its dissemination under the provisions of open access. A total of 957 universities have formally endorsed an MoU with the repository, with 440 being government universities, 197 deemed universities, and 320 private universities (Shodhganga, 2025c). The actual contributing universities number 822, of which 378 are government universities and 444 are deemed and private universities (Shodhganga, 2025b). Consequently, more than 50% of the contributing universities are deemed and private universities. However, their contribution in terms of the number of theses is minimal: 64,931 theses, representing only 11% from the deemed universities and 53,283 or 9% from the private universities (Shodhganga, 2025b). As illustrated in Table 1, a summary is provided.

Sr. No.	Type of university	Number	Theses uploaded	Total (%)	Average contribution
1	Central and state	378	466,012	80	1,233
2	Deemed	169	64,931	11	384
3	Private	275	53,283	9	194
	Total	**822**	**584,226**	**100**	**711**

Table 1. University type and their theses contribution to repository. **Source.** Shodhganga (2025b).

This study seeks to elucidate the factors contributing to the underrepresentation of research disseminated by deemed and private universities within the national online repository. The initiative also pursues methodologies that would enhance the involvement of deemed and private universities in the research dissemination endeavor.

> Institutional repositories are digital collections that capture, collect, manage, disseminate, and preserve scholarly work created by constituent members from individual institutions. The establishment of institutional repositories in the developing countries ensures that their national research becomes mainstream and contributes on an equal footing to the global knowledge pool. (Lihitkar *et al.,* 2009, p. 1)

Shodhganga is the preeminent Indian national online repository for PhD theses, with approximately 584,000 theses as of January 31, 2025. However, the contributions to online publications have been found to lack inclusivity. The expansion of the online repository is desirable, as significant research is happening at deemed and private universities. Shodhganga is frequently regarded as India's extensive digital repository of electronic theses and dissertations (ETDs), which is maintained by the INFLIBNET Centre. The appellation itself synthesizes two concepts: The term "Shodh" is derived directly from the Sanskrit term and signifies the act of research or discovery. The term "Ganga" is a reference not only to the subcontinent's holiest and longest river but also to a flowing symbol of cultural legacy. In essence, Shodhganga serves as a comprehensive digital repository, aggregating India's intellectual heritage under a unified virtual structure. It is noteworthy that this repository utilizes an open-source system known as DSpace, a platform that was developed by MIT in collaboration with Hewlett-Packard and designed to adhere to internationally recognized standards. In general, DSpace aligns with international protocols for interoperability, thereby ensuring its reliability as a framework for such

a pivotal archive. Researchers can submit their PhD theses here, thereby disseminating their work to a broader professional community. The system's functionality extends beyond mere storage; it is designed to capture, identify, and distribute ETDs in a manner that underscores its commitment to academic sharing (Shodhganga, 2025a).

The advent of technology has facilitated unprecedented access to electronic content, services, and training, thereby reinforcing the pivotal role of libraries in contemporary society. This assertion is further substantiated by researchers, who contend that technological advancements have augmented the significance of libraries to a considerable extent (Bennett, 2003). Digital libraries can be defined as sizable, well-structured repositories of knowledge. Digital libraries are information repositories that facilitate the dissemination of knowledge. Software designed for these libraries can empower nonspecialists to create, compile, develop, and share new information collections. This phenomenon carries profound societal ramifications, as it facilitates the democratization of knowledge and functions as a regulatory mechanism against commercialization endeavors in the domains of entertainment and information (Witten, 2005). Information repositories have undergone a substantial transformation in their dissemination platforms, adopting novel strategies in response to the advancements in information and communication technologies (ICTs). In the contemporary era, libraries and other institutions that serve as repositories of information are making considerable efforts to maintain relevance in the 21st century. Libraries are obligated to cater to the requirements and demands of 21st-century users. Contemporary libraries assume novel roles and provide information to their patrons by leveraging a variety of technologies, including social media and mobile devices (Shonhe, 2017). Consequently, there has been a marked rise in the importance of digital libraries and repositories as significant sources of information dissemination. Consequently, it is imperative that they aspire to attain growth that is inclusive. While this study focuses on the Indian national repository, its findings and implications can be extrapolated to national repositories worldwide grappling with inclusive growth. This study is the inaugural investigation of its kind, underscoring the necessity for institutional repositories to broaden their scope of inclusivity, encompassing engagement from deemed and private universities as well. The expectation is that a significant online research publication will be made available to the public if deemed and private institutions augment their contributions.

2. LITERATURE REVIEW

A review of literature pertaining to the dissemination of research and its publication was conducted, with particular emphasis on the role of institutional repositories. Adam and Kaur's (2022) findings indicate that the performance of institutional repositories in countries such as South Africa, Nigeria, Sudan, Kenya, and Egypt is suboptimal, with performance metrics falling below the established mean. According to Mncube and Mthethwa (2022), the concept of open educational resources (OER) represents a novel approach that aims to facilitate innovative pedagogical practices and enhance the quality of education at the tertiary level. Despite the encouragement of OER adoption and development by numerous institutions, many still require the establishment of requisite policies and development standards. Bashir *et al.* (2022) demonstrate the numerous advantages of institutional repositories. Consequently, users gain access to information that would otherwise remain inaccessible. Frequently, commercial academic outlets employ paywall and subscription models to restrict access to supplementary content, including unpublished reports, working drafts, multimedia clips, learning objects, and specialized items such as bibliographic references, datasets, and lecture notes. Balogun and Kalusopa (2022) present a framework for web archiving that ought to be included in the framework for digital preservation policy on institutional repositories from South Africa. Turgut *et al.* (2022) found that 75% of academicians are aware of open access and that most of the information they receive about it comes from peers and the Internet.

Tabak *et al.* (2012) have proposed three models for the dissemination and implementation of research. These models are as follows: the creation of an inventory of models, the synthesis of information, and the provision of guidance for

selecting the appropriate model and execution. In their study, Song *et al.* (2010) found that the dissemination of research conclusions and findings is likely to be biased and that specific circumstances influence these biases. Ashcraft *et al.* (2020) found that the dissemination of research is highly effective when it is initiated early; garners support; utilizes brokers and champions; considers contextual factors; is relevant, timely, and accessible; and is informed by a thorough understanding of the process and relevant actors. As posited by Bell *et al.* (2005), librarians encounter challenges in persuading faculty members to contribute, given the complexity of aligning contributions with the users' needs and work practices. Creaser *et al.* (2010) found that, while there was a general appreciation and understanding of the ethos of open access, scholars from different disciplines had divergent understandings of open-access repositories and the need to deposit articles with them. A study by Armbruster and Romary (2010) identified the barriers and challenges to repository growth. The efficacy of content tagging is paramount, as it facilitates the accurate and efficient organization of content. The process entails the meticulous labeling of content, ensuring its proper placement within the system. Additionally, it involves the delineation of access privileges and the method by which services are utilized. The maintenance of a comprehensive and functional content tagging system is a continuous and ongoing endeavor. Ejikeme and Ezema (2019) observed that Nigerian universities frequently demonstrate deficiencies in leveraging these digital repositories to disseminate research more extensively. Various stakeholders and government bodies are called upon to collaborate in the development of a framework that can support the sustained growth and maintenance of repositories in Nigeria. This framework is intended to address the need for a comprehensive and coordinated approach to the management and expansion of these repositories, ensuring their long-term viability and functionality.

Orduña-Malea and Delgado López-Cózar (2015) have stated that the number of studies related to repositories is limited, with most focusing on specific geographic areas, such as the United States. Chan and Costa (2005) have expressed optimism by stating that developing countries now have an opportunity to disseminate their research through repositories thanks to low-cost technology. Westell (2006) conducted a comprehensive analysis of Canadian institutional repositories, which revealed their remarkable success in achieving growth and development through integration with existing research practices at universities. Saini (2018) has identified several barriers to the development of institutional repositories, including cost, software selection, and maintenance. Kakai *et al.* (2018) observed that East African universities had yet to adequately implement open access, with only 40 out of 145 libraries having established institutional repositories. Furthermore, there were issues regarding the awareness of institutional repositories among researchers. Jabbar *et al.* (2020) conducted a case study of an institutional repository from Pakistan and found that researchers access the repository infrequently and have limited access to the publications. Novak and Day (2018) discovered that repositories may possess discordant objectives, namely those of scholarly communication and research administration. Swanepoel and Scott (2018) have stated that despite the proliferation of institutional repositories, their growth has been impeded by the underrepresentation of faculty participation. This phenomenon can be attributed to researchers' predilection for academic social networks such as Academia.edu and ResearchGate.

According to Mannheimer *et al.* (2019), there are three concerns regarding the qualitative data-sharing process in data repositories. (1) There is the matter of obtaining informed consent from participants regarding the sharing of data and its subsequent scholarly reuse. (2) There is the necessity of ensuring that the qualitative data are shared in accordance with both ethical and legal standards. (3) There is the issue of sharing data that cannot be de-identified. Tapfuma and Hoskins (2020) have noted that significant research has been conducted on Indigenous Knowledge Systems (IKS) at African universities; however, the results of this research remain inaccessible due to their distribution across the offices of researchers. Universities are well-positioned to consolidate and disseminate information, ensuring its security and accessibility. Vásquez *et al.* (2018) posit that effective alignment between the researcher, the

university, and the nation is imperative for enhancing research visibility. In their work, Rodriguez *et al.* (2012) have discussed the problems encountered by researchers in applying machine learning or statistical techniques to software engineering repositories. Aljohani and Blustein (2015) have stated that the number of institutional repositories that are part of the university's digital libraries has increased substantially in recent years. However, these institutional repositories are not widely used. Employing Nielsen's heuristics method, the authors identified 66 usability problems, which were subsequently evaluated by experts and novice users. Garoufallou *et al.* (2013) have described software tools to overcome aggregation problems of Greek educational and cultural repositories so that they can contribute their content to Europeana.

Siddiqui and Ahmad (2017) have stated that researchers, professionals, and practitioners can exploit the potential of mining software data using well-established data-mining techniques and tools. This will enable them to understand and manage their projects better. It will also allow them to develop highly reliable software systems that are delivered on time and within the estimated budget. Rousidis *et al.* (2014) have stated that, despite the focus of several authors on the data quality aspect related to the datasets stored in the repositories, there is a paucity of knowledge about the metadata's quality-related problems that are used to describe these datasets. As a component of strategic initiatives undertaken by academic institutions, institutional repositories can contribute to stewardship by mobilizing scientific research data for learning and e-research purposes (Cragin *et al.,* 2010). Truong *et al.* (2021) have stated that the development of institutional open educational resources (IOER) in Vietnam is constrained by five categories of challenges: technological and infrastructure matters, economic constraints, sociocultural characteristics, pedagogical concerns, and legal limitations. A thorough examination of the portable document format (PDF) documents uploaded to university repositories revealed a general lack of concern on the part of universities regarding the provision of access to these documents. A multitude of challenges have been identified in the management of PDF documents, and a range of solutions have been proposed by authors to enhance accessibility (Acosta-Vargas *et al.,* 2017). In a 2012 study of six academic institutions in Nigeria, Ivwighreghweta (2012) found that researchers were reluctant to deposit their research in institutional repositories, despite being well aware of the open-access system provided by these repositories. The researchers cited two primary reasons for this phenomenon: the lack of funding from the government and the universities.

Tripathi *et al.* (2015) posit that a collaborative effort between universities and industry is necessary to promote the development of mining software repositories research. Makori *et al.* (2015) conducted a study related to institutional repositories connected with the University of Nairobi, Africa. The study's findings indicated that institutional repositories were not properly integrated with standard library information services. It is often the case that students and staff are not aware of the potential benefits that institutional repositories can offer as a resource for information. This is primarily due to the fact that many individuals do not take the time to recognize the available content. The integration of diverse media elements, such as pictures, videos, and sound clips, has the potential to appeal to a more extensive audience, including individuals with accessibility requirements. Additionally, there is a growing recognition that a significant rebranding initiative, characterized by its boldness and directness, in conjunction with a novel marketing strategy, could potentially serve as the catalyst for garnering the necessary attention for these repositories. Singh (2017) has provided an example of Indian State University (Maharshi Dayanand University, Rohtak, Haryana). The author has highlighted how, with the help of software packages, the thesis submitted by research scholars to the state university is stored in the university and is further uploaded to Shodhganga, the national repository. In a report on the African institutional repository, de Mutiis and Kitchen (2016) found that staffing issues were prevalent, with most universities having only one or two staff members handling the entire responsibility of the repository. In their study, Ukwoma and Ngulube (2019) identified the primary barriers to the utilization of institutional repositories. These barriers

included infrastructural inadequacies, a lack of awareness and sensitization among academics, and a paucity of technical skills. Kumar and Balasubramanian's (2019) study revealed that scholars, students, and staff members exhibited a lack of awareness regarding digitized repositories. Additionally, their research indicated that users encountered issues with the availability of e-resources and the quality of service provided by library staff. Arthur (2020) has asserted that open-access repositories facilitate the most extensive possible dissemination of knowledge, thereby promoting greater social inclusion and contributing to the development of a more equitable and just global society.

The majority of research in this field is oriented towards underscoring the challenges faced by institutional repositories. A number of studies have noted the underutilization of institutional repositories. However, no research has been carried out in the past looking into the participation of deemed and private universities in a national institutional repository. This study thus seeks to address two research inquiries:

- RQ1: Why are the deemed and private universities lagging behind in their contribution to research publications in the national online repository?
- RQ2: How can the situation be improved?

Furthermore, a study employing a contextual framework of Indian national online published research is not documented. It is hypothesized that the results of this study will benefit researchers and institutional repositories in developing countries by elucidating the factors impeding deemed and private universities from publishing their research online through national repositories. Additionally, the study will explore strategies to incentivize these universities to adopt more transparent practices in disseminating their research.

3. METHODS

Primary data were collected through qualitative research methodology, as the two research questions posed were of a "why" and "how" nature. The first research question addressed the issue of why deemed and private universities were lagging in their contribution to the national repository. The second research question addressed how this situation could be improved. In the case of the qualitative method of interviews with experts, a sample size of 15 was determined to be sufficient. The sample size was based on the opinion of expert researcher Dworkin (2012), who has said,

> While some experts in qualitative research avoid the topic of "how many" interviews are "enough", there is indeed variability in what is suggested as a minimum. A substantially large number of articles, book chapters, and books recommend guidance and suggest anywhere from 5 to 50 participants as adequate. (p. 1319)

The sample size was then compared with the findings from several qualitative studies to assess its adequacy (Khaire *et al.,* 2025; Kumar *et al.,* 2025; Singh *et al.,* 2024). The sample sizes of these studies were 5, 10, and 10, respectively. The selection of 15 experts was made from a group of researchers who are regarded as leading experts in their respective fields and who have accumulated over 20 years of professional experience. These experts are affiliated with both deemed and private universities. The participants were selected through the implementation of purposive sampling, a technique that is generally applied in qualitative methodologies (Ahmad & Wilkins, 2024). A significant aspect of the selection process involved evaluating the applicants' work experience at a deemed or private university, which was considered a crucial criterion for inclusion. The experts were provided with data on the contributing universities. The researchers sought to obtain responses through the implementation of personal interviews.

The average duration of the interviews was approximately 30 minutes (15 minutes for causes and 15 minutes for suggestions); the maximum duration was approximately 40 minutes, and the minimum was around 25 minutes. Two open-ended inquiries were formulated: (1) It is imperative to ascertain the reasons behind the underperformance of deemed and private universities in terms of their contribution to the national repository, Shodhganga. (2) In order to determine the ways in which the situation may be improved, it is necessary to consider

the methods by which underperforming universities may be encouraged to enhance their contributions. Prior to the commencement of the interview, the interviewees were furnished with two tables that illustrated the discrepancy in thesis contributions to the repository by the various categories of universities. The interviewees were informed that, in the context of the evident discrepancy, two inquiries were to be addressed (as previously stipulated), with an estimated time allocation of approximately 15 minutes for each response. Consequently, the sequence of responses was meticulously orchestrated, with the initial 15 minutes dedicated to the articulation of causes, followed by a subsequent 15-minute segment allocated for the proposal of ameliorative measures. Subsequently, the responses were documented. The recorded interviews were meticulously analyzed to identify common themes across both sets of questions. Thematic analysis was conducted on a set of 15 responses, with the themes identified and their frequencies and prominence calculated. The themes were subsequently coded and validated in accordance with the protocol established by De Hoyos and Barnes (2012). The causes were coded as C1-C4, and the suggested measures were coded as S1-S4. The ensuing section will present the results of this study. The ethical considerations were reviewed and endorsed by the institutional review board of a regional educational institution.

4. DATA ANALYSIS AND DISCUSSION

A total of 15 expert group members were included in the study, with eight representing deemed universities and seven representing private universities. Of the subjects, 11 were male and 4 were female. The members of the group had accumulated a minimum of 20 years of experience in research.

4.1. Causes for lower participation of private and deemed universities

4.1.1. Absence of feedback on published research

The consensus among the 15 experts was that researchers from deemed and private universities demonstrated a heightened level of engagement with academic social networks, such as Academia.edu and ResearchGate. These networks offer immediate feedback to researchers, including metrics such as the number of views, downloads, and citations. A survey of the "Shodhganga," the national repository, reveals that such features are not present. "It feels more like a one-way process—once a document is uploaded, there's little further interaction," said E2. Conversely, a network such as ResearchGate offers weekly statistics comprising minute particulars regarding the readership of research works. "Researchers are increasingly motivated to broaden the reach of their work and to receive feedback on their research; however, such provisions are currently not available on Shodhganga," said E9. Therefore, the absence of a feedback mechanism in the research was a significant factor that deterred faculties from deemed and private universities from publishing their research online through the national repository, Shodhganga. "A thesis represents a significant scholarly contribution, and researchers reasonably expect that their work will be cited and referenced by others over time. It is natural for them to wish to understand how their work is being received—specifically, who is citing it and how frequently. The ability to track such engagement is therefore highly valued by researchers, said E5.

E14 added, "Researchers often take great pride in their publications and develop a strong sense of attachment to their scholarly work. As a result, they are naturally curious and eager to understand how their research has been received within the academic community. Gaining feedback and insights into its impact is of significant interest to them." The group considered the feedback to be a significant source of motivation for the researchers to contribute further. The presence of an update, such as a citation, has been demonstrated to have a positive impact on morale, thereby fostering an environment that encourages increased contribution. "Feedback is especially important for early-career researchers, for whom even a single citation can be highly encouraging. Recognition, even at a modest scale, can serve as a strong motivator. Consequently, they are particularly interested in understanding the extent to which their research has been successful and well-received", opined E10. ResearchGate is a digital platform that fosters continuous

engagement between researchers. The platform provides weekly statistics and immediate notification of all developments, including citations. This interaction with the researcher fosters a sense of affiliation and inclusion. "Continuous engagement through platforms such as ResearchGate fosters a sense of active participation among researchers within the global scholarly community. In contrast, platforms such as Shodhganga currently offer limited opportunities for interaction, leading to a perceived sense of disengagement among users", added E5.

4.1.2. Lack of compulsion to deposit the theses

The experts identified a secondary rationale for the absence of research outputs in the national repository. They attributed this to the absence of mandatory requirements imposed by deemed and private universities on researchers to submit their research outputs to the repository. "Only a limited number of universities (both deemed and private) have encouraged or required researchers to deposit their work with Shodhganga," said E1. The mean number of theses contributed by these individuals is approximately 300. A comparison of the aforementioned data with the mean contribution of 378 government universities, which is approximately 1,200 theses, illuminates a significant disparity. The data suggest a notable correlation between the signing of the MoU and the contributions made by deemed and private universities, although these contributions appear to lack a strong sense of active engagement. This may be attributed to the absence of binding requirements for research scholars to follow the outlined guidelines. While a key clause of the MoU recommends that scholars and institutions submit their research to the national repository, the practical implementation of this provision has been limited, which may hinder the realization of the MoU's core objectives. "The MoU currently remains more theoretical than operational, highlighting the need for its implementation both in principle and in practice," opined E8.

Another expert (E12) pointed out that the regulations mandate that research scholars submit soft copies of their theses to their respective universities. However, a key concern is that these theses often remain within the repositories of Deemed and Private Universities and are not consistently forwarded to the central repository, limiting broader accessibility and visibility. One interesting comment came from an expert, E7. She said, "It is noteworthy that researchers are not currently required to deposit the datasets associated with their research. In contrast, most leading academic journals now actively encourage data sharing and maintain standardized policies that recommend making research data publicly available to support transparency and reproducibility." A number of additional experts from the group expressed views that were similar to those previously stated. There was a notable emphasis on the imperative for mandatory data sharing. Consequently, the group concluded that researchers should be obligated to deposit their theses, along with the associated datasets, in a mandatory manner. This compulsion would enhance transparency and is regarded as a commendable research practice. The dataset can be deposited in public repositories, and an access link should be included in the research work so interested readers can easily access the underlying data to gain deeper insights.

4.1.3. Fear of quality exposure

The subsequent rationale proffered by the experts pertained to the quality of the product. It was posited that certain deemed and private universities engage in research of a quality that is not commensurate with the standards expected by the academic community. These institutions have expressed reservations about the prospect of disseminating their research findings through a national repository, citing concerns about the credibility and visibility of such publications in the public domain. In support of their claim, an expert cited a news item from a national daily. The expert quoted an eminent member from the University Grants Commission (UGC), the apex body in India that regulates universities (The Hindu, 2019), "Many PhD scholars do not know what they are doing. If you sit over 15-20 books and then write something, that is not what research is. Without original thinking and innovation, they will not make any dent." The member of the UGC offered commentary on the commission's resolution to undertake an examination of PhD

theses from the preceding decade. This initiative was precipitated by concerns regarding the substandard quality of these academic works, as evidenced by the conspicuous absence of Indian research from global rankings. An expert E11 made a sarcastic remark, stating, "What is the rationale behind publishing the research and thereby inviting complications?" It was hypothesized that the quality of research conducted by some private and deemed universities was significantly compromised. It was asserted that it would be preferable for such research to remain unpublished in the public domain.

"Research methodology and statistical analysis appear to be areas where challenges are often observed. There seems to be a lack of consistent expertise, and it is unclear whether the appropriate tools have been employed in some instances. Concerns have been raised regarding the validation and reliability of data collection instruments. In some cases, hypothesis testing may not be conducted with the necessary rigor, and there are instances where the findings and conclusions do not always align with the original research objectives. These factors may contribute to uncertainties about the quality of research, which could influence some universities' decisions to withhold their research work," said an expert E5. Another expert E15 opined, "If researchers are aware that their work will be accessible to others, it is likely that they will exercise greater caution throughout the research process. This increased attention to detail could contribute to an overall improvement in the quality of the research." The group as a whole arrived at the conclusion that the prevailing practice of non-sharing research effectively protects the substandard work of numerous researchers. The act of sharing will enhance transparency and hold researchers accountable for the quality of their work. It is evident that they will exercise meticulous caution to guarantee that their work aligns with the requisite minimum quality standards once they become aware that it is subject to public scrutiny. "Establishing accountability for research is essential, and this can be fostered through sharing research with the academic community. By making their work publicly available, researchers may be subject to inquiries or scrutiny on specific aspects of their research, which can encourage greater vigilance and precision in their work", said E12.

4.1.4. Cumbersome procedures

As posited by the experts, a further rationale pertains to the procedure for uploading the theses, which was found to be somewhat cumbersome. Researchers from deemed and private universities are already encumbered with substantial procedural compliance requirements of their respective universities. Furthermore, engaging in an additional procedure drill to upload the thesis to the national repository may prove to be a discouraging process. The uploading of content necessitates the creation of numerous PDF files, a task that may prove to be arduous for researchers. "At times, internet connectivity can pose challenges, particularly when uploading large volumes of files. Slow or unreliable access to the repository can create significant frustration and hinder the efficient submission of research materials," said E13. Another expert E12 said that frequent difficulties in accessing the online repository may arise due to internet connectivity issues. Other factors, such as a lack of awareness, also contribute to the low rate of participation.

4.2. Suggestions for improvement

In response to the query regarding potential enhancements to the situation, the experts proffered specific recommendations that addressed each of the underlying causes in a targeted manner.

4.2.1. Feedback to be provided on published research

It was posited that the online repository should offer features analogous to those found on ResearchGate and Academia.edu. Researchers who have uploaded their work to the national repository for online publishing should receive weekly feedback on the viewership of their research. Feedback is a crucial component for researchers, as it plays a pivotal role in shaping their future endeavors and contributing to the advancement of their field. "Researchers should get real-time updates on citations of their work. Such updates can be sent to the researchers on their email accounts", suggested E4. Another expert E12 said, "Increasingly, metrics such as impact factor, citation score, and other

indicators are receiving greater attention. As a result, it is essential to establish a robust feedback system that allows researchers to track the developments related to their work after publication." The group expressed a resounding endorsement for the implementation of a robust feedback system by the repository Shodhganga. Regular feedback constitutes a form of communication with the researcher, thereby fostering a sense of continuous engagement and inclusion in the research process. It is imperative that Shodhganga engage with researchers and do so at regular intervals. To that end, it is imperative that they employ technological resources to facilitate this process. "Shodhganga should consider adopting technology-driven platforms, similar to ResearchGate, to facilitate ongoing engagement with researchers. The repository should maintain continuous communication with researchers, providing regular updates on the developments and activities related to their research", said E2.

4.2.2. Compulsion of depositing the theses

It is imperative that universities mandate the publication of research findings by scholars from both deemed and private universities in online platforms. A salient clause of the MoU signed between the online repository and the universities stipulates that the universities and their researchers are obligated to deposit their research work with the online repository. However, the successful implementation of this initiative necessitates the active engagement and participation of researchers affiliated with deemed and private universities. It was the consensus of experts in the field that universities should be required to submit an annual statement to the central repository. This statement would include the number of PhD's awarded during the year and the number of theses uploaded to the central repository. The discrepancies, if any, will be exposed, and the universities must be held accountable for them. The central repository is responsible for identifying unmet needs and encouraging universities to submit theses that have not been previously deposited. In essence, the MoU should be scrupulously adhered to, ensuring that the number of doctoral degrees conferred aligns precisely with the quantity of theses submitted to the central repository. It is imperative to establish mechanisms that ensure the accountability of universities in fulfilling their commitments. With regard to the matter of quality, the experts expressed the opinion that the concerns raised by the deemed and private universities lack a rational basis. Instead of operating under the assumption that the situation is as it is and continuing as usual, it is imperative that they undergo rigorous quality checks and implement the necessary corrective measures. "Researchers are encouraged to adopt a constructive perspective toward the dissemination of their work, recognizing it as an integral part of the research process. Rather than limiting access to their findings, it is beneficial to strive for high-quality research that can withstand public and scholarly scrutiny. By engaging professionally and taking pride in their contributions, researchers can enhance the collective body of knowledge. Dissemination should be viewed as a valuable opportunity for knowledge exchange and advancement," said E10.

4.2.3. Easy procedures for uploading the theses

With regard to the protocol for uploading documents, the subject matter experts recommended that the concerned university accept theses in digital formats compatible with the specifications of the online repository. The thesis submitted to the university should be readily transferable to the online repository. It is imperative to note that the requirement to upload the thesis to an online repository is not necessary. It was also proposed that academic institutions implement training programs to educate research scholars on the process of uploading their scholarly works. Experts underscored the necessity for academic institutions to possess advanced software and hardware capabilities to enhance the capture and transmission of research scholars' theses to the national repository, Shodhganga. It was noted that while most state and central universities have developed these facilities, the deemed and private universities have not. It was determined that the investment should be considered a one-time expenditure, undertaken with the objective of enhancing the dissemination of research outcomes.

4.2.4. Sharing of datasets

The experts reiterated the imperative for mandatory data sharing. This will establish trust and confidence. An expert E4 said, "Other researchers can benefit from access to the datasets for their work. As quality research is data-driven, researchers should be encouraged to share their theses and datasets." This demand from experts is well-founded, as all international journals are particularly stringent in their data-sharing policies. A survey of the relevant literature reveals that all of the journals have well-crafted data-sharing policies, and they encourage researchers to share their datasets. This has enhanced the transparency and reliability of research in the context of international work. It is imperative to emphasize that this procedure necessitates meticulous adherence to protocol to ensure the confidentiality of the respondents. It is imperative that the datasets do not disclose any personally identifiable information about the respondents, whether they be individuals or organizations.

4.3. Finer analytical discussion

The initial cause, the absence of feedback on published research, reflects a lack of empathy in the national online repository towards the researchers. The interests and needs of researchers have been disregarded. Researchers are keen to receive timely and constant feedback on their published research. However, the national online repository, Shodhganga, has demonstrated an indifferent attitude towards this requirement. In the contemporary academic landscape, characterized by its dynamism, researchers find themselves compelled to disseminate their scholarly endeavors in venues devoid of structured feedback mechanisms. This phenomenon is further compounded by the prevalence of online platforms such as Academia.edu and ResearchGate, which offer detailed updates on feedback. The importance of timely feedback has been previously emphasized in works by Zehra *et al.* (2015), Lurie and Swaminathan (2009), and others. The national online repository's guidelines strongly discourage researchers from participating in the broader data-sharing system, despite this being a crucial aspect of their work. The absence of any compelling motivation to submit these theses—the second cause—once again highlights an attitudinal dimension. This finding suggests a deficiency in the commitment to adhere to regulatory mandates exhibited by both the national online repository and private, accredited universities. The negligence or disregard of established protocols during the execution of a mandate can hinder inclusive participation by private and deemed universities. Academic mandates are typically not accorded significant seriousness. Private and deemed universities exhibit a low degree of reliance on state agencies, a factor that contributes to their substantial operational autonomy. It is evident that they do not anticipate any repercussions for their noncompliance, such as the cessation of funding or the withdrawal of affiliation. The mandate is devoid of any substantive weight, and consequently, it has remained in the form of a document (MoU). The national online repository appears to be content with the provision mandating the deposit of research by universities. However, in practice, it is insensitive to non-implementation, reflecting a casual attitude.

The third cause, fear of quality exposure, is also an attitudinal issue on the part of private universities. The researchers exhibited a negative attitude toward concealing their research from public access. This predicament is indicative of a systemic issue, underscoring the pervasive challenges in the quality of research conducted within private and university domains. This finding suggests a paucity of oversight regarding research activities within both private and university domains. A considerable portion of this research is indicative of the preponderance of quantity over quality. In the private sector of education, commercial considerations have assumed a predominant role. A paucity of academic rigor, ethical considerations, and methodological approaches has been observed, resulting in substandard research that institutions seek to conceal from public scrutiny. This issue, being as it is a broad one, constitutes a serious concern within the overall academic environment of a nation. This phenomenon is not exclusive to India. Literature that critiques the substandard quality of research can be encountered in studies such as Altman (2004). The fourth cause is the presence of cumbersome procedures, which represent a systemic

issue. These procedures demonstrate a lack of empathy towards researchers from the national online repository. Systems and procedures must be designed with the user in mind, ensuring ease of use and accessibility. In the absence of such measures, users may be disincentivized from utilizing the platform. Popular models in this field include the technology acceptance model (TAM), first proposed by Davis (1985). The TAM posits that users' perceptions of ease of adoption are a critical factor in their acceptance of new systems. The national online repository has overlooked a pivotal aspect that is imperative for the effective implementation of a system: ease of use.

A thorough examination of these factors illuminates their underlying underpinnings. While some issues are attributed to an individual's attitude, others are systemic in nature. Systems are implemented by people. Therefore, attitudes are a salient factor in this context. Factors such as a lack of empathy for users can impose significant restrictions on the actual usage of the systems. This phenomenon is exemplified by the present case, wherein private and university researchers have been reluctant to share their research with the national online repository. The failure to consider these factors, including the needs, motives, requirements, and interests of these stakeholders, does not bode well for the broader acceptance of the research-sharing initiative. The national online repository has not examined the system from the researchers' perspective, which indicates an indifferent attitude. Systemic issues are more readily addressable than attitudinal ones. The modification of attitudes necessitates a substantial increase in the level of effort and a shift in cognitive frameworks. However, this is a complex issue that must be resolved. An evaluation of the suggestions for improvement reveals a strong alignment with the factors currently hindering effective participation by researchers from private and deemed universities in research dissemination. The initial proposal entails the implementation of features analogous to those observed in prominent online repositories such as ResearchGate and Academia.edu, a suggestion that is arguably reasonable. In an era characterized by significant advancements in data science, machine learning, and artificial intelligence, it is imperative that the national online repository utilizes technology to its fullest potential. Moreover, it is essential that researchers receive timely feedback on a regular basis. Maintaining continuous engagement with the researcher is a priority for a national online repository. Feedback has been shown to enhance performance and act as a significant motivator. This fundamental principle of performance cannot be disregarded. Feedback systems have been identified as critical components of the control loop (Sanfilippo & Valle, 2013).

The second suggestion, the compulsion of depositing theses, is logical. When private and deemed universities have signed an MoU with the national online repository, it must be implemented with sincerity and seriousness. Conversely, the absence of such a mandate suggests that the national online repository prioritizes the mere augmentation of MoU signings over the implementation thereof. It is futile to increase the quantity of MoUs if the fundamental clause of mandatory thesis deposit has not been adhered to. Noncompliance with these terms renders the MoU effectively null and void. The national online repository is charged with the responsibility of addressing noncompliance issues with the requisite rigor. It is imperative to emphasize that leniency should not be tolerated, as this would render the mandate ineffective. In the event of noncompliance, appropriate penalties should be imposed. In the absence of strict punitive measures, the mandate will remain a mere document, failing to translate into tangible action. The third recommendation, which pertains to the establishment of streamlined procedures for uploading these theses, is a systemic issue that necessitates resolution by the national online repository. The present requirement of separate uploading of the thesis on the national online repository should be eliminated, and the theses uploaded at the private and deemed university repositories should automatically be transferred to the national online repository. This phenomenon appears to be incongruent with the hypothesis that a researcher would undertake two uploading efforts within a short time period. Conversely, the national online repository and private and deemed universities must develop system integration through appropriate technology. Furthermore, it is imperative that the thesis be uploaded once.

The fourth recommendation, which pertains to the sharing of datasets, is of paramount importance and must be given due consideration by the entire research community. The dissemination of research datasets has emerged as a standard global practice; consequently, doctoral candidates must embrace this practice in India as well. The reluctance to share research datasets can give rise to fundamental concerns regarding the integrity of the research. Consequently, researchers are strongly encouraged to disseminate the underlying datasets. The thesis will not be accepted by the guide unless the research data are shared. Presently, there is a prevailing belief that the findings documented in these theses are substantiated by reliable data. However, this assumption is not without its inherent risks. It is imperative that researchers adopt a transparent and open policy. The dataset is of significant importance and must not be left to chance. The basis of these recommendations can be traced back to the adoption of a positive and emphatic attitude, with due consideration for the interests of researchers. Furthermore, the imposition of a requirement for the submission of theses by the national online repository would necessitate a greater degree of determination on the part of the repository in order to implement the mandate. The implementation of leniency has been demonstrated to result in an absence of discipline. Therefore, the proposal for the utilization of a robust approach by the national online repository is a well-founded suggestion. Moreover, there have been calls for systemic changes, including the simplification of the upload process. Systemic changes have been demonstrated to offer a long-term and high-value proposition; therefore, they should be implemented with rigor.

The evaluation of the etiology and proposals is conducted with a focus on their significance and pragmatic pertinence. While the absence of a feedback mechanism may appear to be a salient factor, the absence of compulsion to deposit the thesis by private and deemed universities appears to be the primary impediment. Presently, private and deemed universities have no apprehension regarding the non-sharing of theses and other materials subsequent to the endorsement of the MoU. Nevertheless, the primary impediment to the dissemination of research findings is the non-implementation of the mandate. The absence of strict implementation of the MoU suggests that there will be only a negligible improvement in the situation. Issues such as procedural challenges can be readily addressed. However, unless both the national online repository and the private and deemed universities implement a significant attitudinal change in their respective MoU implementations, the status quo will persist. With regard to the suggestions, the feasibility of providing feedback, simplifying the procedures for uploading the thesis, and sharing datasets appears to be within a reasonable range of possibility. By contrast, enforcing stricter compliance with the MoU presents significant challenges, especially considering the influence that political networks may exert on many private and deemed universities in India. These institutions hold a prominent position within the higher education landscape and often possess considerable institutional influence. Government-led enforcement of such policies would require strong political will, which may not currently be evident in the broader political climate. This may be partly attributed to the overlapping roles of politicians and government functionaries in policy decision-making.

5. CONCLUSION

The Indian national repository, Shodhganga, has achieved notable growth in its publication of PhD theses, with a total of 584,000 theses currently available. However, the publication exhibits a conspicuous lack of inclusivity. The aforementioned universities are predominantly state-owned, with a significant proportion being administered by the central government. Deemed and private universities have demonstrated significant underperformance with respect to their percentage share in the overall contribution. A noteworthy observation is that the proportion of contributing universities that are deemed or private exceeds 50%. However, their average contributions are significantly lower than those of their government-funded university peers. This development is disconcerting for the research community, which had anticipated the availability of research from all universities, including the deemed and private universities. The expert group interviewed by the authors thinks that faculties from these

universities are turning to academic social networks such as ResearchGate and Academia.edu, which offer excellent feedback to researchers on their research. This feature is not currently present in the national online repository. The present findings of this study corroborate the perspectives previously articulated by Swanepoel and Scott (2018). These scholars expressed a sense of dissatisfaction with the diminished engagement of faculty members, a phenomenon that is particularly salient in the context of the widespread popularity of digital repositories such as ResearchGate and Academia.edu. Secondly, the deposit of research in the online repository is not mandatory for faculty members at deemed and private universities. Another reason cited by the expert for the low rate of online publication of research was poor research quality. A portion of the research conducted by deemed and private universities is not disseminated through the national repository due to its sensitive nature. This research is not exposed to the public domain and is therefore not published. The underrepresentation of participants can also be attributed to a lack of awareness, which is a salient issue in this context. The expert group has also proposed a series of solutions aimed at ameliorating the situation.

The implications of our study are twofold: first, they pertain to the national online repository, Shodhganga, and second, they pertain to the deemed and private universities. It is imperative that Shodhganga enhance its visibility among deemed and private universities, as well as their research scholars. The institution has the capacity to conduct specialized seminars in this area, with the objective of persuading participants of the advantages associated with the dissemination of national-level research findings. It is imperative that deemed and private universities assume greater responsibility in implementing the MoUs they have established with the central repository. The dissemination of research conducted at universities at the national level is in their interest. On a broader scale, the implications extend to national repositories across the globe that might face situations of uneven growth. It is imperative that they endeavor to achieve inclusive growth, thereby ensuring that the research disseminated is representative of all constituents.

Conflict of interest

The author declares that he has no conflicting/competing interest arising out of this study.

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Statement of data consent

The data generated during the research can be found in the article. ●

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