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PERSPECTIVE OF THE INSTITUTIONAL DIGITAL REPOSITORY IN THE PROTECTION AND DIFFUSION OF ACADEMIC ACTIVITY

PERSPECTIVA DEL REPOSITORIO DIGITAL INSTITUCIONAL EN LA PROTECCIÓN Y DIFUSIÓN DE LA ACTIVIDAD ACADÉMICA

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Perspective of the Institutional Digital Repository in the Protection and Diffusion of Academic Activity

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ABSTRACT

Repositories emerge as an initiative to improve access to knowledge, constituting a digital-based alternative for academic communication. The need to develop a repository for the Universidad Privada María Serrana is proposed, given the need to create a space for disseminating and accessing academic works. The general objective was to analyze the perspective and transcendence of the institutional repository, and the specific objectives were to define the importance of creating an institutional digital repository, to determine the objectives and the content or type of materials, and to point out the benefits and difficulties that the development of the repository would have. It was a non-experimental, quantitative, descriptive, and cross- sectional research, applying an express questionnaire using Google Forms. The sampling was non-probabilistic, voluntary, and intentional, aimed at students and teachers from a population of 980 students and 130 teachers, with 105 students and 31 teachers participating. As the main results, all participants determined that creating an institutional repository was necessary, most of them considering that the objective would be to manage, preserve, and maintain the academic material in digital files. Regarding the reasons and importance of its creation, with most frequencies in the significant degree, they placed the option referred to the changes and technological advances.

***Keywords*:** academic activity, digital archive, diffusion, institutional repository

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Perspectiva del Repositorio Digital Institucional en la Protección y Difusión de la Actividad Académica

RESUMEN

Los repositorios surgen como una iniciativa para mejorar el acceso al conocimiento, constituyendo una alternativa digital para la comunicación académica. Se plantea la necesidad de desarrollar un repositorio para la Universidad Privada María Serrana, dada la necesidad de crear un espacio de difusión y acceso a trabajos académicos. El objetivo general fue analizar la perspectiva y trascendencia del repositorio institucional, y los objetivos específicos fueron definir la importancia de crear un repositorio digital institucional, determinar los objetivos y el contenido o tipo de materiales, y señalar los beneficios y dificultades que tendría el desarrollo del repositorio. Fue una investigación no experimental, cuantitativa, descriptiva y transversal, aplicándose un cuestionario exprés mediante Google Forms. El muestreo fue no probabilístico, voluntario e intencional, dirigido a estudiantes y docentes de una población de 980 estudiantes y 130 docentes, participando 105 estudiantes y 31 docentes. Como principales resultados, todos los participantes determinaron que era necesario crear un repositorio institucional, considerando la mayoría que el objetivo sería gestionar, preservar y mantener el material académico en archivos digitales. Respecto a los motivos e importancia de su creación, con mayor frecuencia en el grado significativo, colocaron la opción referida a los cambios y avances tecnológicos.

Palabras clave: actividad académica, archivo digital, difusión, repositorio institucional

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INTRODUCTION

Increasingly improved Internet connectivity enables obtaining information produced in different academic and scientific institutions, providing access to publications and electronic resources. It is how initiatives arise to provide better access to scientific knowledge. Institutional repositories constitute an alternative digital base for this purpose in a global infrastructure for scholarly communication.

An institutional repository is defined as an archive to collect, preserve, and disseminate digital copies of the intellectual production of an institution, constituting an alternative that has emerged as a channel for the promotion and strengthening of scientific and academic activity in digital content that may include didactic material, research, work reports or institutional reports, among others.

It is a digital archive of the intellectual product created by an institution's faculties, researchers, and students. It is accessible to users inside and outside the institution with little or no access barrier (Saini, 2018; Tiwari & Gandotra, 2018).

Five main characteristics define institutional repositories: digital content, with a focus driven by a specific community, institutional support, durable and permanent, and accessible content. It is an alternative shared by the community whose description implies that the material deposited in the repository is scholarly and is ready for public dissemination, such as preprints, conference papers, and other types of scholarly documents, with six essential functions: material submission, metadata application, access control, support, distribution and preservation (Gibbons, 2004).

Institutional repositories form a means of effective management and preservation of an institution's heritage, knowledge base, and intellectual assets, thus resulting in the content of institutional repositories expanding with a scope of not only electronic preprints, including research data, but e-learning materials and other forms of institutional intellectual products, which must secure in such a way that they remain accessible and retain their authenticity, reliability, and integrity (Prabhakar & Manjula Rani, 2018). The repository can contain extensive topics of study of a discipline, and it can include much more specific topics, depending on each institution's needs and interests. Thus, an institutional repository offers a possibility of the broadest possible exchange of research results through unrestricted access (Saini, 2018).

A university-based institutional repository is a set of services that a university offers to members of its community for the management and dissemination of digital materials created by the institution and members of its community and represents a collaboration between librarians, information technologists, archives and records managers, university faculty and administrators, and policymakers (Lynch, 2003).

The institutional repository has become one of the avenues of information communication through which academic and research communities make research results available to the public. The storage of information resources on scholarly works and the ability to search has become an opportunity to improve scholarly communication (Fernández García, 2016; Ngozi, 2018).

Storing data in repositories is part of the preservation part of the data lifecycle. Repositories can help make a researcher's data more recognizable and accessible and lead to its possible reuse due to the digital preservation of all types of documentation produced by scholars.

In this sense, digital preservation refers to the actions required to maintain access to digital materials beyond the limits of technological change. It is the management of digital information over some time with long-term maintenance and updating of files in digital format as storage media. It is digital preservation similar to institutional repositories in terms of protection and anticipated safeguarding of documents (Saini, 2018).

Sandí Delgado and Cruz Alvarado (2016), in a comparative study of two institutional repositories, SEDICI (Argentina) and Kérwá (Costa Rica), determined that they constituted an essential tool for Higher Education Institutions (HEIs) considering the high volume of content allowing the dissemination of research results. It also reports that the repositories allowed interoperability with other repositories on database information, books, or electronic journals, providing accessibility to information and other documentary sources. It identifies the need to make the repositories more efficient and secure tools for content preservation. It pointed out that the two repositories position well in each country due to disseminating research results.

Literature Review

Asadi et al. (2019) believe that institutional repositories have received considerable attention from researchers worldwide and across disciplines, potentially increasing researchers' and universities'

public value, ranking, prestige, and visibility. However, despite the significant and rapid growth of research in this area, more effort needs to be made to systematically review and integrate previous research studies' findings or examine the current state of scholarship concerning institutional repositories. The authors conducted research using a systematic literature review with the primary objective of providing a better understanding and in-depth review of the current state of the study for institutional repositories. Data were from primary studies published between 2007 and 2018 from the six significant databases: ScienceDirect, IEEE Explorer, Springer, ACM, Taylor and Francis, and Emerald Insight. These results indicated that lack of awareness of open access institutional repositories among scholars and institutions and inadequate information and communication technology infrastructure were significant challenges to the development of open access.

In another type of study on the type of content and its submission to an institutional repository, Odili (2017) discussed the needs of research managers, directors, and librarians to manage the repository to optimize its use effectively. The interviewees indicated that although there was an option for academics to upload their publications to the repository, this rarely happened. Also, the results indicated that research managers provided mediation services while the library was involved in the process remotely. The findings also showed name entries that identified an academic as the author of an article in the repository who inconsistently entered the corresponding data, compromising the metadata and quality of the institutional repository. The author recommended incorporating a content policy on guidelines for uploading materials, metadata, copyright, and responsibilities.

On using institutional repositories for scholarly communication, Gohain & Angadi (2020) showed that most users from Arts and Humanities, Social, Sciences, and Pure Sciences preferred publishing their research in open-access journals and self-archive in institutional repositories. It determined that most users used journal articles, final research reports, theses, dissertations, and conference proceedings. Many users needed to self-archive in the repository with knowledge of the submission process. The study recommends the promotion of self-archiving through training activities for academic staff. A specific study conducted in universities in southern Nigeria concluded that faculty members identified the institutional repository as a useful alternative mode of preservation and dissemination of information, and universities should encourage promotional activities geared towards creating

awareness of the importance of institutional repositories. They recommended each institution develop an institutional repository with an academic collaborative network as part of university management (Ogbomo & Muokebe, 2015).

Likewise, in a research conducted on the analysis of 49 institutional repositories of Spanish public universities through their website, it became evident that they constitute a type of alliance of universities to achieve, through open access, the organization, preservation, and dissemination of the deposited material, being doctoral theses the ones with the most significant scope followed by academic papers and scientific articles (Morcillo López, 2016).

Institutional repositories are vital for researchers and universities, potentially enhancing their overall value, rankings, and visibility. Although research on these repositories has significantly expanded, there's a pressing need for a systematic review of past studies and their current status. Challenges such as scholars' and institutions' lack of awareness about open-access repositories, insufficient technological infrastructure, and inconsistent data entries affecting repository quality have been identified. Effective management involves research managers, directors, and librarians, and it's recommended that content policies and guidelines for uploads, metadata, copyright, and responsibilities be implemented. Users across various fields prefer open-access journals and self-archiving in institutional repositories. Encouraging training for academic staff to promote self-archiving is advised. Faculty members highly regard institutional repositories for information preservation and sharing. However, there is a call for increased awareness and the development of these repositories, integrating them into university management through an academic collaborative network.

Institutional Repository

Using an institutional repository requires technological features and user guides that identify what can and cannot be publishable in open access, training programs for open-access publishing practices, and using the institutional repository. One strategy to provide such an experience is to place users at the center of the design process to add appropriate accessible features according to user preferences to develop an institutional repository site with attractive functionality based on its structural information rules. These results were evidenced through a qualitative study conducted with focus groups for data collection, taking as the central question the motivations and experiences, that users of an academic

community had when publishing scientific information in an institutional medium such as the repository. Also, half of the participants in the study indicated that they needed to be made aware of the functionalities of the institutional repository and its benefits. These results are in line with those related to the need to strengthen the digital sector of scientific community publications and thus also benefit open science (González-Pérez, Ramírez- Montoya and García-Peñalvo, 2021).

The construction of an institutional repository becomes necessary in the current scenario of the digital world due to the following changes and challenges related to technological advances, the significant increase in the global volume of research, the growing need for archiving and access to unpublished information, the increasing demand to access knowledge objects from anywhere and at any time, the growing uncertainty related to archiving and preservation of scholarly research materials (Prabhakar & Manjula Rani, 2018).

Bemal and Escobar de Morel (2014) developed a study to determine the feasibility of managing a repository through the Central Library of the National University of Asuncion, considering the open access requirements, technologies, and personnel needed for its implementation. As the main result, it established that they effectively had the operating resources digitized documents related to the research and academic work of the institution, with the need to have a copyright regulation. Another aspect to consider is the acceptance of teachers, researchers, and students regarding their active participation in the assurance and permanence of the repository since they would be the producers and recipients of the academic material and to whom guidance services should be offerable in order to facilitate the process of self-archiving and structuring of documents González-

Pérez, L. I. (2019).

In descriptive research using the mixed methods strategy through the convergence of quantitative and qualitative approaches, Pereira da Costa and Lima Leite (2019) analyzed institutional repositories in Latin America, showing whose results evidenced progress, considering institutional repositories as effective platforms to promote open access. Regarding the type of material, research articles predominated. It implies that the repository's origin and purposes link to the scientific information supported by the articles of a scientific journal. Likewise, the significant existence of dissertations, theses, and degree works was verifiable among the documents, with undergraduate theses growing.

Torres and Hartley (2019) argue that despite the growth of repository institutions, there is no explicit recognition by national authorities and agencies regarding the academic research presented in them as a type of content since there are no mandated policies regarding the need, construction, and implementation of this type of repository. They propose the promotion and strengthening of the use of disciplinary, institutional repositories, recognizing the efforts made to increase the quality of research in the region, mainly in strengthening the reproducibility and replicability of the research developed, as well as the establishment of guidelines on visibility, operating policies, legal aspects, descriptive metadata for publication, records and statistics, security standards, authenticity and integrity of data and functionality.

These articles emphasize the requirements for successful institutional repository usage, including technological functionalities, educational resources for open access, and user-friendly design. It reports on a qualitative study revealing users' limited awareness of the repository's capabilities, emphasizing the need to enhance digital scholarly publication methods for open science. It highlights the increasing demand for archiving and accessing unpublished educational data in the evolving digital era. Studies emphasize the need for open access compliance, showcasing the repository's digitized resources, particularly academic work, with an emphasis on copyright. The involvement of educators, researchers, and students is crucial for effective repository utilization facilitated by guidance services. Institutional repositories highlight their role in open access, particularly housing research articles and academic works. Despite their growth, recognizing mandatory policies is necessary to enhance research visibility, reproducibility, and comprehensive operational guidelines for repositories.

The need to develop an institutional repository for the Universidad Privada María Serrana states in the referential framework and state of the art on the significance of institutional repositories that allow academics, researchers, and students to archive and self-archive results of academic production to achieve visibility and use of their work and consequently, the projection and image of the institution. Its creation is on the need to create a space for the dissemination and access to the academic works of the university community. In this sense, the question arises regarding the importance, the reasons for creation, the expectation of use, the type of materials, and the limitations and advantages of an institutional digital repository. Based on this approach, it was a general objective to analyze the

perspective and significance of the institutional digital repository according to the teachers and students of the Universidad Privada María Serrana, to define the importance of creating an institutional digital repository, to determine the objectives, reasons and content or type of materials for the creation of the institutional digital repository and to point out the benefits and difficulties that the development of the repository would have.

MATERIALS AND METHODS

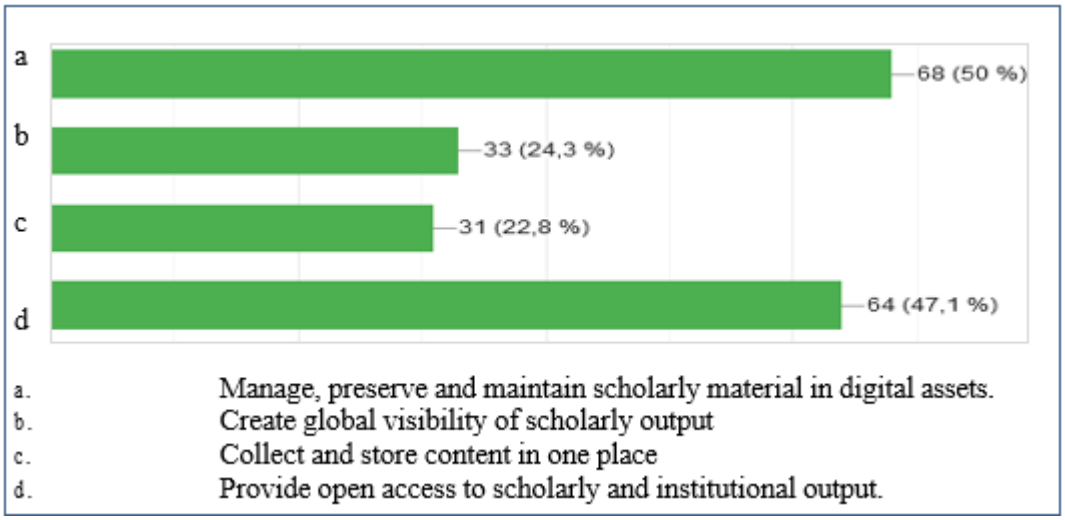
It was non-experimental, quantitative, descriptive, and cross-sectional study, through the application of an express questionnaire using Google Forms and sent electronically via email and digital messaging, which underwent validation by the judgment of 5 experts who corroborated the accuracy and adequacy of the content of the instrument according to the objectives of the study. The content of the questionnaire included questions to identify whether there were students or teachers and what career they were studying or teaching, whether they considered the creation of an institutional repository important, why and to what degree they considered it necessary, the objectives, content or type of materials, benefits, and difficulties. The sampling was non- probabilistic, voluntary, and intentional, aimed at students and teachers of the Universidad Privada María Serrana, Asunción, Paraguay, from a population of 980 students and 130 teachers of the careers of Medicine, Psychology, Nursing, Commercial Engineering, and Business Administration for the second semester of 2021. A total of 105 students and 31 teachers participated to form a sample size of 136. The data were analyzed and processed in the Excel program with results in percentages and frequencies, presented in figures for visualization.

Findings

Of the students participating in the study, 59.8% corresponded to Medicine, 11.4% to Nursing, 9.8% to Psychology, and 19% to the rest of the careers distributed in Business Administration and Commercial Engineering. The results of the responses of both teachers and students were 136, the total number of units of analysis in the study. All participants thought creating an institutional repository at the Universidad Privada María Serrana was essential. Regarding the reasons and importance of creating an institutional repository to a significant degree, 101 responses were in the changes and technological advances, followed by 96 frequencies by the high demand for access to knowledge from anywhere and

at any time, and in third place with 94 responses for the preservation of academic material in digital archives.

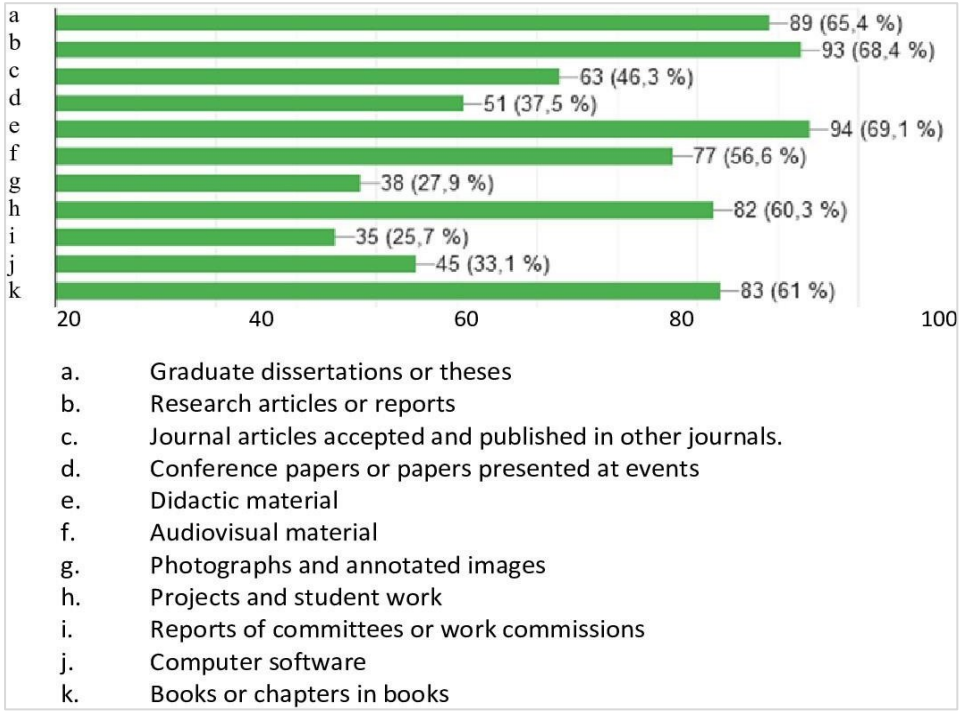
Figure 1. Objectives of the Creation of the Institutional Digital Repository According to the Perception of Teachers and Students



Source: Own elaboration

Figure 1 shows the results of identifying the objectives for creating an institutional digital repository. According to the most reiterated reasons, 50% remarked the need to manage to preserve and maintain academic material in digital archives, 41% to provide open access to institutional academic production, and 24% to create global visibility for academic production.

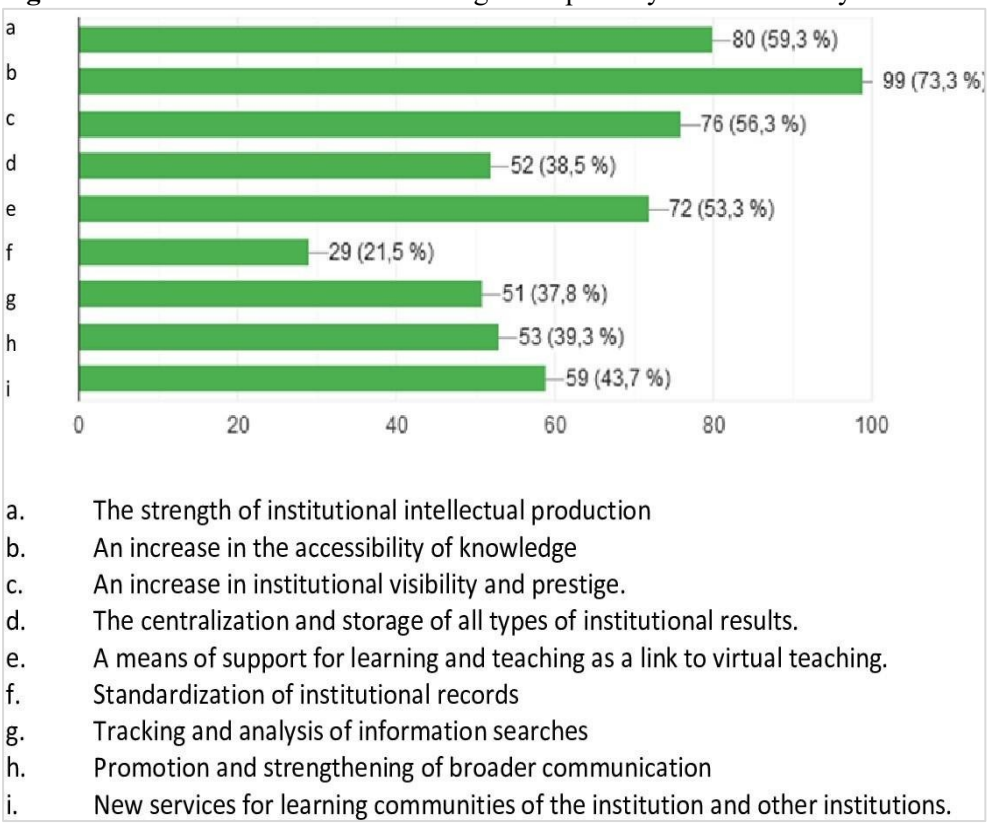
Figure 2. Content or Type of Materials in the Institutional Digital Repository as Perceived by Teachers and Students



Source: Own elaboration

Figure 2 shows the results regarding the content or type of materials included in the institutional digital repository. It shows that 69.1% of the responses placed didactic material, 68.4% articles and research reports, 65.4% graduate dissertations or theses, and 61% books and chapters in books.

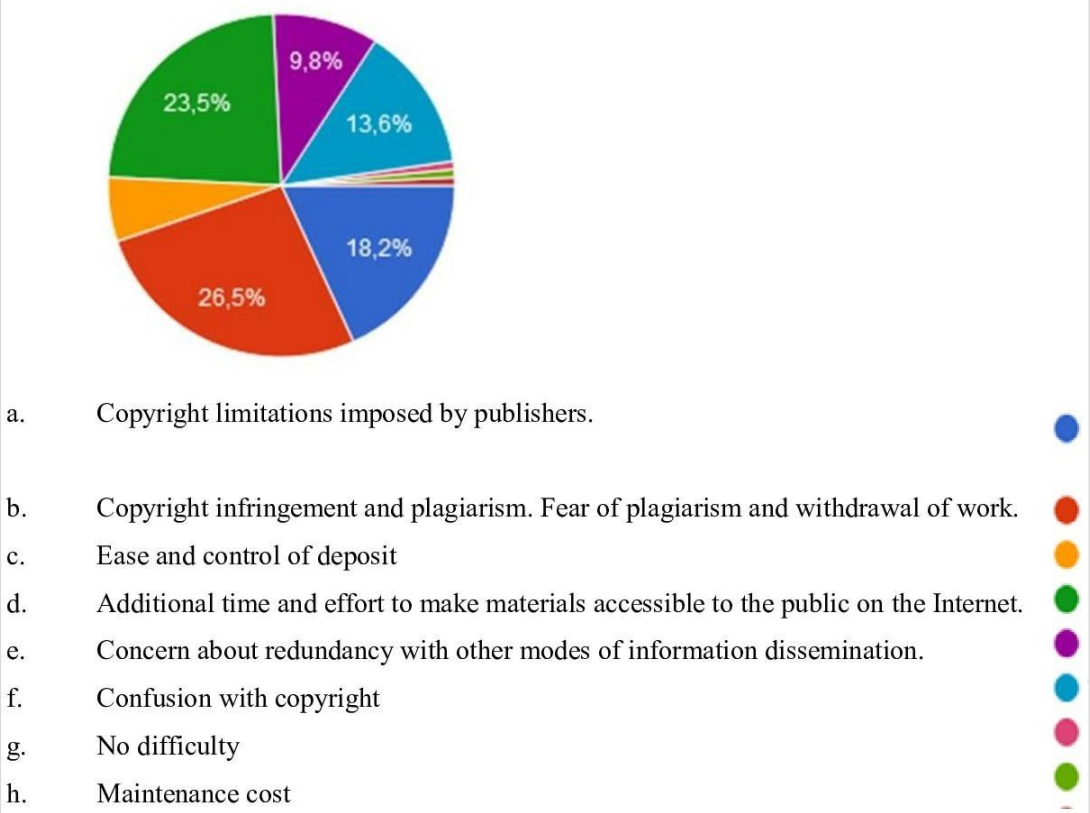
Figure 3. Benefits of the Institutional Digital Repository as Perceived by Teachers and Students



Source: Own elaboration

Figure 3 shows the results regarding the institutional digital repository's benefits. Some 73.3% of the responses were in the option related to an increase in the accessibility to knowledge, 59.3% in the strength of institutional intellectual production, 56.3% in the increase of institutional visibility and prestige, and the same percentage of responses were in the option as a means of support for learning and teaching as a link to virtual teaching.

Figure 4. Difficulties in the Implementation of the Institutional Repository as Perceived by Teachers and Students



Source: Own elaboration

Figure 4 represents the results of the difficulties that the implementation of the institutional repository would have. Twenty-six percent felt it would be copyright infringement and plagiarism, 23.5% additional time and effort to make materials publicly accessible online, 18.2% copyright limitations imposed by publishers, and 13.6% confusion with copyrights.

DISCUSSION

All participants felt that creating an institutional repository for the Universidad Privada María Serrana was essential. The majority determined the reasons and importance of creating it based on technological changes and advances, followed by the high demand to access knowledge from anywhere and at any time and as a mechanism for preserving academic material in digital archives. A similar position by authors such as Prabhakar and Manjula Rani (2018), Sandí Delgado and Cruz Alvarado (2016), and Tiwari and Gandotra (2018), who affirm that through institutional repositories, it is possible to disseminate scientific knowledge product of research results offering accessibility to information and other documentary sources, becoming a source of innovation for university

education institutions by implementing the use of technological tools regarding the management of information. Open access models have emerged to support the publication of online journals where academics are interested in submitting and publishing research. In this scenario, institutional repositories can be a vital means to enhance the visibility of an institution's intellectual output to the broader community through open-access publishing (Saini, 2018). Through institutional repositories, the institution can disseminate knowledge and disseminate research results globally to the scientific and academic society (Asadi et al. (2019).

It considers that managing, preserving, and maintaining academic material in digital archives and providing open access gives visibility to academic production in identifying the objectives for creating an institutional digital repository. Morcillo Lopez (216), Ngozi (2018), and Tiwari and Gandotra (2018) have established in their works that repositories have a similar mission to disseminate research and scholarly work production.

Institutional repositories to manage, preserve, and maintain the digital assets, intellectual output, and histories of scholarly institutions, create global visibility for an institution's scholarly research, collect content in a single location, provide open access to the institution's research output, and provide self-archiving of institutional scholarly research outputs (Prabhakar & Manjula Rani, 2018).

The content or type of materials included in the institutional digital repository determines research articles and reports, graduate these books, and book chapters. Gohain and Angadi (2020) identified similar materials of importance in the communication of academic work, having as benefits the increase in accessibility to knowledge, strength in institutional intellectual production, increased visibility and institutional prestige and means of support for learning and teaching as a link to virtual teaching (Fernández García, 2016; Sandí et al., 2016). Asadi et al. (2019) similarly found that, through institutional repositories, the visibility of the academic institution had improved, increased local and global rankings and rankings, greater prestige and public value, and improved teaching, learning, and research due to access to knowledge being development the academics of the institution the primary beneficiaries of institutional repositories.

On the type of content Demetres et al. (2020) in their work of systematic and comprehensive literature review considering Ovid MEDLINE, Ovid EMBASE, Cochrane Library (Wiley), ERIC

(ProQuest), Web of Science (Main Collection), Scopus (Elsevier) and Library, Information Science & Technology Abstracts (EBSCO) databases defined the impact of repositories by content and institutions. Nevertheless, the literature suggests that institutional repositories can be an essential alternative for submitting final research reports, mainly when using preprints.

However, the difficulties with institutional repository implementation are copyright infringement and plagiarism, additional time and effort to make materials publicly accessible online, and copyright limitations, establishing similar findings in González-Pérez et al. (2021). The increased complexity of the repository development process has been identified and reaffirmed in the coordination between repository administrators and academics, problems related to uploading the document to the institutional repository, and problems associated with copyright (Saini, 2018).

Indeed, on the one hand, for the establishment of an institutional repository, it is essential, in addition to having staff, technological infrastructure, document digitization, and functionality, to have a regulation that allows managing what is related to copyright, among other legal aspects (Bemal and Escobar de Morel, 2014; Torres & Hartley, 2019).

On the other hand, it is necessary to develop actions to encourage and promote the importance of institutional repositories in the academic community by promoting the creation of academic collaborative networks of university management and the preparation or training of the use of the repository in terms of self-archiving and structuring of materials (González-Pérez, 2019; Ogbomo & Muokebebe, 2015).

CONCLUSIONS

Most of the participants in the study considered the creation of an institutional repository important due to technological changes and advances, the high demand for access to knowledge from anywhere and at any time, as well as to guarantee the preservation of academic material in digital archives offered in open access, creating global visibility of academic production. Regarding the content or type of materials, teaching materials, research articles, and reports were mainly selected. The majority considered that it is beneficial to increase the accessibility to knowledge and the strengthening of institutional intellectual production.

Indeed, the institution is growing concerning the generation of final reports of research projects and

degree theses, which would allow generating an alternative space for the preservation in digital format and the dissemination of this material, as well as all material related to teaching activities such as guides, manuals, and presentations, which could be usable as study and reference material from a digital platform such as the institutional repository. Likewise, the institutions and the authors of the works would provide an alternative to share content for different audiences from any institution. Knowledge management, research evaluation, and open access to academic research are available through the institutional repository as a digital repository.

The creation of the institutional repository constitutes an online database that allows to systematically organize and classify information based on the knowledge generated by university students and teachers, thus managing all academic information.

The university has the personnel and an access platform to the virtual library with some degree works already digitized; however, others, such as research works and theses, should be processed. It is imperative to consider a regulation that allows the establishment of copyrights in addition to the structure and platform required for the operation of the institutional repository.

Although the results showed the importance of creating an institutional repository, it is essential to develop actions aimed at making teachers and students aware of the need for its establishment to be sustainable in terms of the production or generation of material permanently in order to maintain updated information on the university's academic activity.

The Institutional Digital Repository Universidad Privada María Serrana would be created as an open access, accessible, and open digital archive in order to store, preserve, organize, and disseminate the results of the academic and research activity of teachers and students of the different careers of the university and the university community in general.

The results of this research could be useful to other higher education institutions in determining the goals and scope of a digital repository. In addition, they could guide the typology of materials that can be preserved and made available as the academic production of an institution, alternatively, they can be organized around other criteria of topics or disciplines, e-books, articles, theses, dissertations, artistic works, journals, reviews and legal documents, among others considering the benefits and foreseeing difficulties such as some of those pointed out in this research.

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