

## **The Role of the Academic Library in the Socialization of Education Research Results: Qualitative Findings in Four Mexican Universities**

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**Abstract:** The findings of education research are shared with peers and the general public. Academic libraries require a detailed identification of their current and potential role in supporting their researcher users as creators of new knowledge in order to provide a better service. In this text, we share the qualitative advancements of a study which had the objective of retrieving the elements that define the current and potential role of the library in the context of the meanings and actions linked to result socialization processes for education researchers, who address priority processes for Mexican society. The data comes from semi-structured interviews with four academics belonging to two public and two private universities, diverse in their size and geographic location. The analysis used the Grounded Theory method, and analysis categories were generated for each institution through various technological supports. Although the results are specific to each researcher and university, we can identify some common aspects about the role of the library in the socialization of research results; one example would be reviewing literature through electronic databases. Previous results establish that libraries are a benchmark in the researchers' trajectory and may have a key role in formation, for creating informational materials and establishing alliances to situate research results on specialized and general platforms.

**Keywords:** Library Research; Diffusion and Dissemination of Education Research; Qualitative Methods; Grounded Theory; Library Support for Research Socialization

## 1. Introduction

In all areas of knowledge, research findings are shared with peers and the general public; these processes are respectively known as diffusion and dissemination (Espinosa Santos 2010). Both diffusion and dissemination as well as the evaluation related to knowledge generation are fundamental topics for universities and university libraries (Gorina-Sánchez, Martín-Rivero and Alonso-Berenguer 2018).

The publishing of scientific journals, one of the most traditional expressions of research diffusion, has experienced a digital revolution in the last decade with a massive adoption of online publishing. However, the fundamental structure of the research article has remained relatively unchanged by this shift in support, and online academic publishing has yet to make the most of the potential offered by the World Wide Web. Scientific publications are making use of technology's advantages; for example, for diffusing knowledge derived from education research in the medical field, Twitter (now X) is being used to spread article abstracts, and as a result their full text is being consulted more frequently (Rodrigues 2021). These new technologies affect the role, usage and impact of libraries (see for example Zukerfeld et al. 2023).

Academic libraries eager to know the context of their users in general, and researchers in particular, need to delve into research result socialization processes. The real and the potential role of the library in the activities of users who share their findings is revealed by exploring these users' practices in a wide sense. We seek to understand the particulars of each case, and based on this, identify the real and potential role that the library plays or could play in these processes.

The results of this research, carried out in four Mexican universities, allow us to propose support models to be used by libraries. These models would be focused on their communities and more closely aligned to the actions and processes through which researchers share their results. Furthermore, they could improve existing information services or propose new support experiences from the university library. For this, we follow Oakleaf's (2010) suggestions, which underline the importance of making decisions based on rigorous research, especially that of a qualitative nature.

The focus of our research is made up of education researchers who address socially relevant topics, who, as Gorina-Sánchez, Martín-Rivero and Alonso-Berenguer suggest, contribute to the analysis and resolution of social problems, as "it is through research that we gain critical knowledge of what the university must do in their attention to social needs and for the rational change of reality" (2018, p.19). By knowing the result socialization processes for the works of education researchers with a focus on social topics, we will be able to identify whether the university library can collaborate with one "of the main challenges

which make the citizen role possible in decision-making for problems which affect the quality of life of present and future generations. In this process, the role of the scientific community [and the disclosure of their research results] are decisive” (Espinosa Santos 2010).

Motivated by a deeper knowledge of the socialization processes for education research with a social focus in order to contribute from the academic library, this work begins by reviewing the relevant literature. Next, we present the methodologic qualitative focus used in the research phase presented herein. Then, we list and discuss the obtained results. Finally, we establish the relevance of the results as well as that of the method for library science and information services in an academic context.

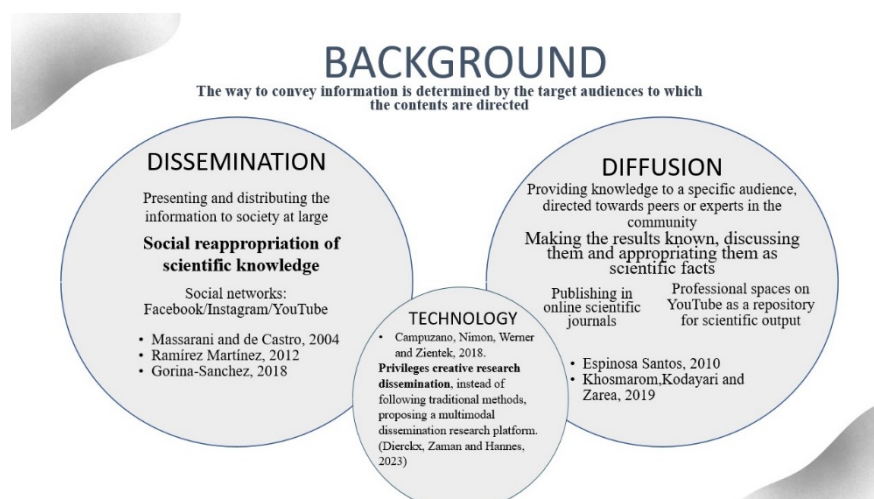
In the next section, we will review the concepts of diffusion and dissemination, as well as literature related to the impact (or lack thereof) of the library in research result socialization processes.

## 2. Background

When studying the socialization of knowledge, there is a generalized consensus about how to divide it for its study based on the audience and the use of this knowledge (Ramírez-Martínez, 2012):

- Scientific dissemination is directed towards *society in general* for presenting research results, integrating science into general culture. Accordingly, it uses simple language meant to be understood by anyone, even those who lack specialized knowledge (Massarani and de Castro 2004, Espinosa-Santos 2010).
- Scientific diffusion allows *researchers and other specialists* to know, discuss, and accept or reject research results as scientific facts. Accordingly, their structure includes key factors to evaluate the shared knowledge (Espinosa Santos 2010).

Libraries can play a role in any of these categories, but the way in which they must do so is different in each case. We will explore what the literature says regarding how libraries support the knowledge socialization, and the strategies that education researchers use to disseminate and diffuse the fruits of their research (see Figure 1).



**Figure 1:** Literature about the dissemination and diffusion of research results.

University libraries tend to have staff educated in scientific dissemination techniques, such as the creation of infographics (Luna-Gijón 2022), the use of social networks (Arciniegas-Tinjacá et al. 2018, Rodrigues 2021) and online publishing (Rodrigues 2021).

Despite the adoption of online publishing and piracy (Zukerfeld et al. 2023), the primary means of spreading knowledge continues to be the scientific journal (Rodrigues 2021). Many academic libraries compile their researchers' academic output into institutional repositories (Álvarez-de-Toledo-Saavedra 2012) and carry out a specialized work of bibliographic data verification and author identification, delivering bibliometric reports (Caraballoso-Granado et al. 2019). For researchers, journals are the primary means of diffusion, largely because this is the key product through which their productivity is measured (Shotton 2009), and they also use social networks to increase the publications' reach (Rodrigues 2021), in some cases making bad use of these tools (Khoshmaram et al. 2019). Another significant diffusion activity is publishing conferences on YouTube (García 2022 and Ojeda 2022, Buitrago and Torres-Ortiz 2022, Vizcaíno Verdú 2020).

The reviewed literature mentions challenges faced by the researchers, which could provide indications about the libraries' work and the role they could play in the future:

- Researchers are not professionalized in the use of technology (Zientek, Werner, Campuzano and Nimón 2018) and they use a diffusion focus on social networks, that is, they publish for experts. Since they are competing directly with more professionalized dissemination resources, and indirectly with any other video on YouTube, their reach decreases (Alba 2022 and Ojeda 2022, Buitrago and Torres-Ortiz 2022, Vizcaíno Verdú 2020). Libraries could train researchers to use an entertaining tone and language for the general public, in order to be able to compete with influencers.
- Researchers find it difficult to locate informational resources for disseminating and diffusing their findings (Zientek, Werner, Campuzano and Nimón 2018), an experience which also manifests when managing information, adapting it, and turning it into infographics (Luna-Gijón et al. 2022).
- Dierckx, Zaman and Hannes (2023) suggest that the curriculum for researchers in training lacks the consideration of alternatives for diffusing and disseminating their findings. Another challenge for new researchers is that they do not have a secured position or financing, and they seek all the help they can get in order to advance their career (Rodríguez-Bravo & Nicholas 2022). These are roles that the libraries could cover.
- Likewise, Vizcaíno Verdú (2020) also recommends educating the public to evaluate scientific contents.

When fulfilling this role, libraries have their own challenges:

- The displacement of their traditional role by new technologies, “90% [of researchers] who have answered the survey indicate that they have used sites such as Sci-Hub, LibGen and such” (Zukerfeld et al. 2023). It is worth noting that, despite not using the library, they suggest that the library will continue to be useful “for students” (Ibidem).

- Silva-de-Carvalho, et al. (2021) highlight the challenges faced by academic libraries in managing research data, including: the lack of financial resources, staff shortage, the awareness of researchers and librarians, the need for effective policies and data management plans, and the lack of a unified focus in the theory and practice of bibliometric services.
- Caraballosa-Granado, et al. (2019) highlight the importance of managing information in the research process: information searching, retrieval, handling, usage and evaluation. On the other hand, Álvarez-de-Toledo-Saavedra (2012) states that in some academic libraries, there are problems in collecting and spreading the researchers' output. Likewise, there is the fact that the existence of university repositories is not enough to diffuse and disseminate knowledge, but a visibilization effort must be carried out.

When the state of the art is reviewed by researchers and from the library, we ask whether the challenges would be the same in the context of the universities we studied.

## **Method**

This study seeks to create frameworks of understanding that would allow us to identify diffusion and dissemination for the findings of education researchers, based on their voices, practices and output. Based on grounded theory, we seek to understand information handling activities beyond library spaces, which allow us to identify the role of the library in supporting its users (Rivera-Aguilera, Solano-Aguilar, Salazar-Robles, Herrera-Solís, & Cruz-Vázquez 2018). To accomplish this, we adopt an inductive perspective, which examines the real and potential role of the library in the socialization of research results. This perspective is centered on the researchers' voices, practices, and diffusion and dissemination outputs in social impact topics. In this work, we present research advancements, with a particular focus on the conducted interviews.

The study was carried out in two public and two private Jesuit universities (see Table 1). The voices about diffusion and dissemination were collected through semi-structured interviews with initial project researchers who were invited to participate via email. The researchers agreed to a joint work group as a convenience sample, considering an initial exploration of each researcher's contribution to the field and their institutional role.

We used a guide with questions grouped by themes, opening the interview with an invitation to "know how your research results are diffused and disseminated." This interview was grouped into questions about general data, trajectory, how they share their research, perceptions about impact and incidence, participation in academic networks, social networks, communication towards the public, and how they perceive the role of libraries.

Besides interviews, there were viewings of videos about diffusion and dissemination practices and bibliographic output retrieval which will complement the results reported herein.

We collected data from education researchers in social and environmental topics through individual interviews in order to construct models that will explain the gathered data according to Grounded Theory approximation, identifying categories and relations (Charmaz 2000). This implied:

1. Selecting education researchers with social impact topics from the four participating universities.
2. Initial open codification of actions and processes reported from the start of the data collection.

3. Grouping and diagramming codes into families; conceptualizing these in order to make them into explanatory categories and identifying relations between codes.
4. Focused codification using the families and enriching them with data and relations at a family level. In the case of one university, we used artificial intelligence for the data analysis.
5. Reflective writing in dialogue with the narrative, the researcher's thinking, and the relevant literature.
6. Construction of an explanatory model of the study object separately for each institution.
7. Preparing a report.

Next, we present Table 1 with the description of each university, named with Roman numerals from I to IV, as well as the criteria for selecting the participants, the details of the transcription process, and the data analysis.

	University I	University II	University III	University IV
Description	Private institution of Jesuit inspiration which offers higher secondary education, research and social development in the center of the country	State-owned higher education institution, public and autonomous, most recognized in the southeast of the country	Private university of Jesuit inspiration in the west of Mexico with research programs in various areas and considerable academic output	Public higher education institution with a national and international reach, listed as one of the best universities in the world
Researcher selection	The selection of the researchers was based on a structured sample in order to maximize the variability of the researchers' features and achieve data saturation			
Transcriptions	Tactiq and manual review	Google Speech-to-Text and manual review	Automated transcription and manual review	Google Speech-to-Text and manual review



Codification and family extraction	ATLAS.ti and Excel were used to codify the data and understand the emerging categories	The interns carried out focused codifications using Excel. Subsequently, the codified data were filled into ATLAS.ti	ATLAS.ti was used for data analysis based on the grounded theory method with a constructivist perspective (Charmaz)	The data was codified based on the use of artificial intelligence in ATLAS.ti
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Table 1: Features of the methodology applied in each university.

A fundamental aspect of the qualitative method is reflecting on the process itself. We want to highlight that, as an interdisciplinary research group, we have identified points of convergence which link us (Montes 2020). These points include social impact and the libraries' commitment to addressing the needs of their users and adapting to the digital environment in order to maintain their relevance in knowledge generation and socialization, as well as its diffusion and dissemination aspects. Our linking occurred based on our participation in the Mexican Association of Librarians (AMBAC) (Rivera Aguilera, A. B., et al. 2022a), the Metadata Seminar of the Institute for Library Science and Information Research (IIBI-UNAM), and the Mexican Jesuit University System (SUJ).

The data analysis that each institution carried out, based on Grounded Theory, allowed us to generate analysis categories which show what role the library has in knowledge diffusion and dissemination. This analysis is complemented in one university's case with the use of artificial intelligence for data analysis, showing similarities regarding library's role in the socialization of research results.

Next, we present the results obtained through the application of this method.

#### 4. Results

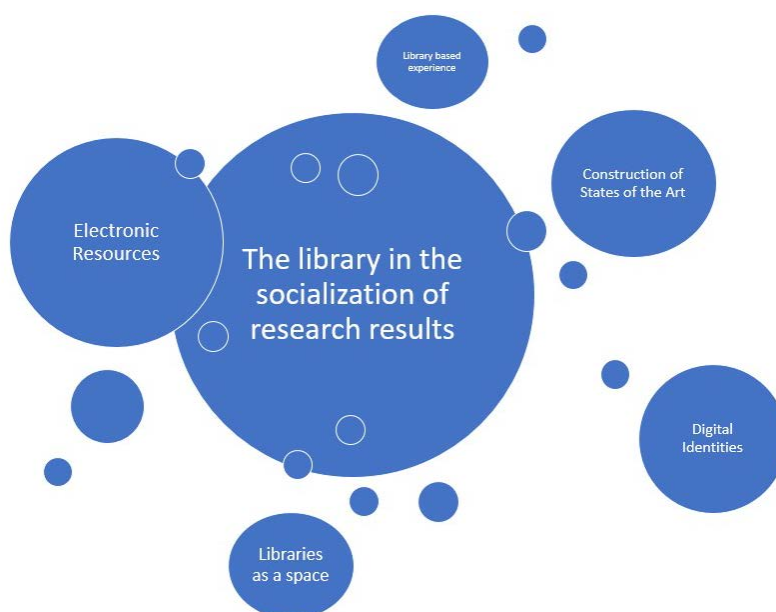
In this section, we present our findings about the socialization of education research results with a social focus in each university (Table 2), as well as diagrams that outline the role of each library in the socialization process (Figures 2, 3, 4 and 5). Each finding is exemplified with a relevant quote from the education researchers referring to the library's role.

Institution	Central category	Associated categories	Quote
U I	Continuous formation to socialize research results	Diffusion practices and output; Commitment to give the knowledge back to society; Audiences; Teamwork; Human aspects; Library; Research topics and processes	<i>Since I was researching [...] I learned [...] that what isn't spread isn't published, it doesn't exist, [...] if it is not made known, there's no sense to it, so in the research process I always contemplate an output stage, one of knowledge diffusion that could be through articles, through books, it could be videos, I have videos like that which are research results (Researcher 1).</i>
U II	Research styles and collective actions	Open publishing platforms; Information centers; Knowledge; Research methodologies and diffusion; Dissemination; Social impact	<i>It's difficult because of the kind of work I do with transdisciplinary participative action research, since for me the most significant thing is that you and I are here now, the creation processes of making communities, collaboration networks and the creation of other possible worlds, I could say that the whole network of dialogue circles, of health circles, that whole community and those permanent spaces that never run out aren't related to papers and those things anymore, they're not disconnected, but that's not the central point, what's central is that research is still alive because it lives on through the emotional links and the dialogue of doings and knowledge that are produced as a result of their collaboration processes (Researcher 2).</i>
U III	Trajectories based on context and relations with peers	Spaces; Topics; Information sources; Processes and methods; Attitudes; Impact; Problems and dissemination	<i>What has it contributed to me? Changing realities, transforming. Well, one thing, the possibility of interacting with others is very rich. I was fortunate enough, as I was telling you, to do this with interdisciplinary teams, which was no longer just education, but in these teams there were other people, then it was very rich because you could discuss, practice, enrich, with other people's points of view (Researcher 3).</i>
U IV	International Cooperation	Higher education; Education research; Research topics; Academic achievement; Emotions and experiences; Institutional critique and Bibliography	<i>Much more important as collaborative research, because for me the regional chapter was something I made with all my work groups which are in the Department's network [...]. I inaugurated that initiative and now there's a regional chapter in Africa, a regional chapter in Asia, a regional chapter in eastern Europe and we've done very well in Latin America (Researcher 4).</i>

Table 2: The socialization of education research results about social impact topics in Mexico, preliminary results.

*University I - Library*

In University I the library is seen as a support resource for research, especially for the construction of states of the art and literature reviews in its digital resource component, both commercial and open.



**Figure 2:** Diagram about information and libraries (University I)

The services are also associated with the promotion of digital identities (such as ORCID) and the diffusion of the researchers' own publications in networks with a wider reach. The researcher frequently made use of the library in her basic and university formation, and as she shares, she has not managed to recover that habit in her current practices, even though she wishes to do so.

*(...) it's as if the library will assume another role in the university, of placing what the researchers produce, sharing it with other networks that you have and we don't, and where it can better reach another audience, other spaces, that would be a very good thing for us (Researcher 1).*

From this diagram, libraries are not resource centers, but it is the library practice itself which allows new connections with other research support communication practices:

*(...) I believe that libraries play a really important role here, don't they? And well, I also got to see the evolution from librarianship as a technique to librarianship as a science which generates knowledge and makes research, and well, I believe that transit is totally natural because that's where the information is (...) You'll also have to talk about how new librarians are formed (Researcher 1).*

Regarding connections with peers, libraries can become knowledge nodes directly related to research:

*(...) so the role that I've seen that you're playing now in everything to do with knowledge dissemination is something that I think is wonderful, I think everything that has happened is wonderful and I believe that it has to continue down that path, and well, since now you're working on this research, right? I think it's fundamental for you to consider, how can knowledge be disseminated? What is our research as researchers? Since we're about to be in communication with a tiny group of academics who write just like we do, who think just like we do (Researcher 1).*

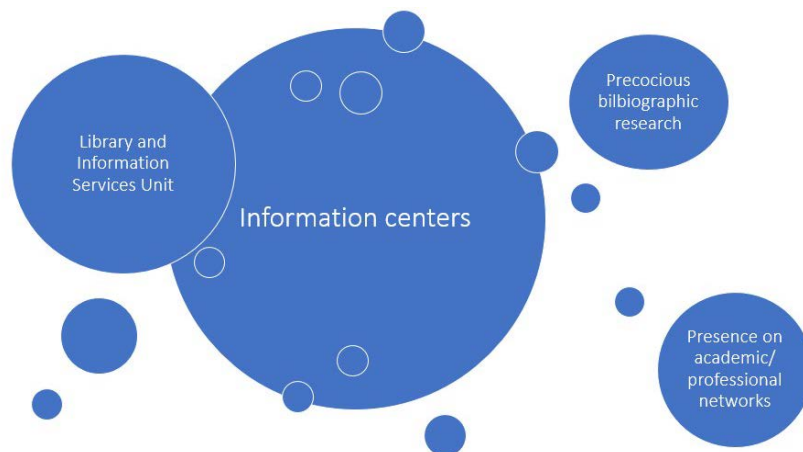
Regarding centers with a differentiated access to knowledge, libraries have an opportunity to guide research efforts, going along with the nodal topics that researchers work on and venturing in their impact, which is a complex subject for both researchers and libraries:

*And that's why science doesn't have an impact, that's why nothing happens, so to speak. In this project that I'm involved with about the universities and sustainability, you have to look for them like a needle in a haystack, the universities that have an impactful vocation (...)*

*there are very few, the rest are in their ivory tower, it's a very cozy lifestyle but one that ends up consuming itself, biting its own tail, and I think that libraries can help us remove that. I believe that you can help us break that vicious cycle, because you have all the ideas of how to bring all the knowledge to light, of how to group similar knowledge and be able to carry out studies based on that which are impacting real problems. I love it, because the library has always been seen as a service area and it is much more than that, it generates knowledge (Researcher 1).*

*University II – Information Centers:*

In this diagram, the information centers are conceived from an institutional perspective as Library and Information Service Units, which support the researcher in the early stages of the research process and in the creation of a solid presence in academic and professional networks. These centers stand out as key spaces for the diffusion and dissemination of research results.



**Figure 3:** Diagram about information and libraries (University II)

In university II, the diagram is made up of a vision of the library which is open towards other functions, beyond informational resources. These changes brought a more holistic and transdisciplinary vision of information centers:

*(...) of making the library into a transdisciplinary area, that all [libraries in the network] would have an area of at least about 50, 100 transdisciplinary books (...) what we're working on to get out of the disciplinary areas that people usually look for in the books and topics that they already know, but instead that attitude of looking in the places that you don't know and allowing yourself to be surprised, that's what amazes me the most about a great library (Researcher 2).*

The spaces and distributions were part of the consultation; however, these were crossed by the transition to remote consultation practices, as in the case of the pandemic:

*(...) right now, with the pandemic, the libraries were almost sentenced to death, but it's important to try and rescue libraries as recreational spaces for competencies and living research towards students and researchers (Researcher 2).*

*(...) what helps me is research, and something I use a lot is that the students who collaborate with me, collaborators, I constantly tell them, let's locate a topic or a series of topics, go to the library and walk through the aisles and look for it, and they come back with wonders that they love, that's the part that's the most useful for me currently, but there is a great need for strategies (...) (Researcher 2)*

From this diagram, the role of the library is directly related to the formation of research competencies based on collections and access to resources; however, this is not its primary purpose, but the promotion of an everyday practice:

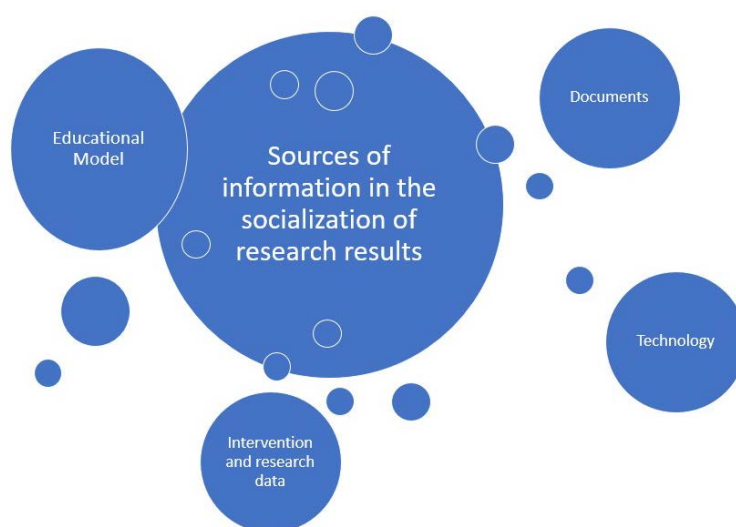
*For me, universities should be able to put returning, updating and forming academics and researchers as a neural point of their development strategy, so that students and academics could rescue the library or delve deeper and increase the arrival of students and academics who would go to the library as an everyday activity (Researcher 2).*

The communication of research results in this sense is potentialized from the way in which the library is perceived, where beyond diffusion or dissemination, it is framed in an organic practice in which libraries can participate in construction processes for more complex knowledge:

*(...) the library is a foundational space for relearning practices and processes that academics and university students have to perform to be able to integrate themselves in these interdisciplinary collaborative collectives (Researcher 2).*

#### *University III – Information sources*

In this diagram the library is important as a support for education work carried out by the researchers, especially in the formation of other frames, always related to the resources.



**Figure 4:** Diagram about information and libraries (University III)

They are related to desirable aspects within the field, to recognizing the value of historical archives, and to support in libraries for informational and formative activities, yet always for consultation.

*(...) when we were teaching we asked the library, tell us how we can do searches, that is the part we do a lot. Or what authors do you suggest, look, search for these authors, they're there in the library, or search for these theses. Since you have some knowledge of how it is and where, it's up to you to figure it out (Researcher 3).*

The library is important because of its support functions, its historical importance is recognized; however, it is only important in the initial stages, while we develop a personal library that allows for our own development, an aspect which derives from the absence of researchers in libraries for consultation, with the exception of consulting databases (remotely) which continue to be relevant for research.

*Well yes, what I was telling you was how you walk on the shoulders of giants, because this literature of books is something I have at home, but these productions of magazine articles and all that, I do take from the library (Researcher 3).*

*Mind that I don't go. I had a very big vice which was buying a lot, many, many books. Because I bought all the books (...) Then I have research books, and I have them classified in my own way (...) The library is something that I use more, but databases, in that sense (Researcher 3).*

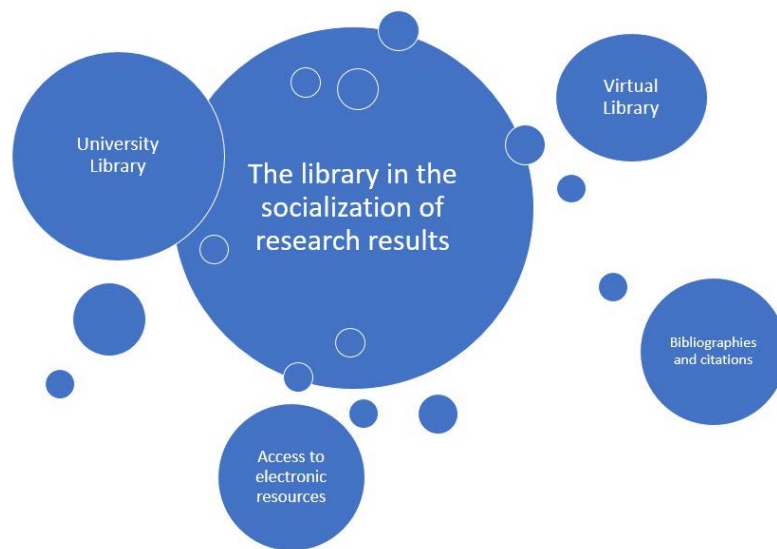
The way in which libraries support these functions is related to information filtering and the ordering they can provide as a discovery service, another angle aligned with information services, moreso than in other spaces.

*Look, it's in the use, I say that the key to all this is the use you give it. To the library, to research, to what you know, so if you don't you use it, then why bother? Yes! You use it. Use it! If you don't use it... and let others use it, of course. The same happens with the library, since you can have it very tidy, but if you don't use it. (Researcher 3)*

#### *University IV - Bibliography*

In the context of education research socialization in university IV, having a university library with virtual collections is highly valued, but especially so is the support service that librarians offer.





**Figure 5:** Diagram about information and libraries (University IV)

Access to electronic resources is important for constructing bibliographies and citations in research, generating results, and especially traditional and emerging citations as impact indicators which require a complete bibliography and adequate citations in the generated texts.

*I get contacts daily, they're reading you in Iztapalapa or in Morocco or in Kuala Lumpur, et cetera. Your article was cited for a magazine in Latin America, in Europe or in Asia or in Africa, so we already have constant references of the impact that our works have, moreover now with this Alt-metrics business, you can see the impact precisely. [...] What we do get, according to my subject, which they have in my institute's library or in UNESCO, they know the subjects I have, they send me article recommendations [...] I get 50 or 60 article recommendations a month, sometimes even more, with their link to access them. (Researcher 4)*

A diagram based on information procuring services oriented to the collection and circulation of integrated resources in education research in an international context:

*(...) go into [library A], I have several things published there, in [library B] everything's there, or in [library C], and when that's not the case, in other libraries or institutions (...) Who doesn't know how to access that kind of database or obtain their credentials or access via http, is obviously someone who's outside of the real academic world (Researcher 4).*

*(...) libraries have to be up to date, not everything has to be done in situ, that's why my topic is putting lots of emphasis into the need for research to have a comparative international component. (Researcher 4)*

In regards to other audiences, libraries do not form a part of communication strategies; however, we do detect a need to widen the communication framework, for example, through impact:

*(...) a communication between the librarian and my work for the purpose of dissemination, no, that line is not present yet (Researcher 4).*

*We have a debate, there are already documents, even many approved ones, many of them, and it's basically Europe and Latin America in the University's libraries and in other institutions, we're looking at the way to evaluate, to have the part not just from scientific or academic impact, but social impact (Researcher 4).*

Regarding the library as a research space, it is associated with its educational component, but more so the sense of the search for resources that students perform in their learning curve to study informative works related to the field:

*(...) what do you recommend for my subject, what bibliography do you recommend, couldn't you make me a listing of the most resonant articles about a topic (...) Get in the library, you, your responsibility (is) also to search for texts. So I do that with my students, if I tell them you do the research, et cetera, I can recommend authors, but you*

*should check where the authors are, what magazines they're in, cite well, don't plagiarize (Researcher 4).*

## **5. DISCUSSION**

Thanks to its qualitative design, this research allowed us to approach the complexity of research results socialization processes, to identify the academic library's role in this process. The preliminary findings presented here allow us to initially identify the role of library and information services in each university's singular models.

In the last decades, education research, like many other disciplines, has incorporated multiple technologies and the transformations derived from these.

Research topics were important elements of the narrative that contrast with educational objectives, also part of libraries. Each interviewed researcher associated their personal trajectories and institutional obligations with their subjects, with different ways to engage with publishing, with diffusion and dissemination activities, with what the impact of their works and the purpose of libraries implies.

The selected researchers had ongoing, institutionally recognized projects related to social and impact subjects in which they were involved with multiple researchers. In contrast to focusing on the isolated impact of their works, when asking about the researchers' trajectory, a key aspect emerges: research socialization responds to academic interests and personal motivations such as recognition, individual satisfaction, and meeting institutional, local and national productivity demands. For example, the abundant academic production and the excess of publications represent a constant risk for the researcher: "publishing for the sake of publishing". This practice can become a real obstacle for the consolidation of a true education researcher, because it conflicts with more personal aspects of research, such as impact and the careful selection of topics. At the same time, it opens up the possibility of incorporating criteria for alternative metrics (altmetrics) which don't usually consider these elements.

It was important to perceive the positive assessments about the formation of students (even from new researchers), with the role that libraries play in the shaping of information searching abilities (many of them related to searching for

more traditional books and articles). This was not the case when they addressed other abilities different from information searching, such as communicating contents to different audiences, informative academic design and specialization to communicate in social networks, which can also be complemented from libraries in each referenced institution.

In these works, potential roles for libraries are identified and they allow researchers to acquire other communication abilities related to their trajectories in forming communication styles and selecting the results to be communicated. Researchers don't make a distinction between diffusion and dissemination. This could be attributed to "expert blindness", which is the cognitive bias in which experts cannot see a beginner's perspective. Since they don't have a theoretical framework for dissemination and don't focus their message on a non-specialized audience, their message becomes less effective. Libraries could train researchers to present information in a more effective way and highlight the importance of disseminating when they use mass media. This is fundamental, as even though science communication literature clearly differentiates between diffusion and dissemination (Ramírez Martínez 2012; Massarani and de Castro 2004; Espinosa Santos 2010), said distinction is not always clear to researchers.

The researchers constantly referenced the two concepts, but from different styles, in which the purposes and audiences tended to mix or subordinate themselves to the purposes with which they communicate according to their formations and trajectories. For some specialists, social networks are a tool for maintaining dialogue with the population without necessarily expecting the same social impact they achieve with other dissemination activities. In this sense, the crucial thing is not the medium, but how the communication is carried out. For example, a post on social networks can serve as a link to an academic article (to promote and highlight the researcher), or the academic article can become an act of dissemination written in an accessible language, directed to peers and to a wider audience. In addition, training courses for teachers and professors, considered as potential researchers, represent another important space for education research dissemination.

However, this may not be enough to spread academic output. We need more than having a bibliographic control of researchers' output contained in repositories, because we need to collaborate with the researchers in order to systemize and spread academic and scientific output.

## **Conclusions**

This study has explored the construction of meaning around research result socialization, analyzing how researchers understand the concepts of diffusion and dissemination. These findings have an influence in the library's role,

allowing for a better understanding of information needs at the different stages of the research process, especially in result socialization.

Addressing trajectories allowed us to contrast with normalized criteria used to describe researchers according to each university's institutional guidelines, which are based on academic output registered on formal networks. Some profiles, particularly those of the younger researchers, can go unnoticed based on the volume of their output, which could be a limitation for this kind of evaluation.

When the researcher reflects on the process and meaning of socializing their results, the role the library in this process becomes evident. There were central elements in the four universities (see Table 2) which were very closely related to the education models, but also to the researchers' personal trajectories. In this work, Formation (UI), Collective work styles (UII), Trajectories and contexts in relation to peers (UIII) and International Cooperation (UIV) frame the library's role.

Research results are published beyond university environments, they are spread through arbitrated and indexed publications, in databases; and they are increasingly disseminated through electronic media such as personal and professional social networks. What tools or dissemination processes must we use from the library in order to bring the academics' research closer to the needs of society? Is it possible that diffusion done from the library allows researchers to better cover knowledge fields in order to socialize them with their peers?

Libraries can assist their users in the use of digital tools and guide them in differentiating between diffusion and dissemination, optimizing their communication in the digital media they use. This work should be broadened in later stages of research. Beyond personal styles, libraries can get more actively involved in more complex research processes, in their communication and impact channels. For example, in the way in which libraries participate in citizen science experiences.

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