

Assessment of student satisfaction with libraries' resources in the COVID-19 era: a case study in Portuguese academic libraries

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Abstract:

Higher education libraries are designed to provide access to information for students, teachers, and researchers, ensuring that they are satisfied. The objective of the study is to raise the perception of the students about the response of libraries during the COVID-19 pandemic to their information needs; and to assess whether they consider themselves prepared to research, evaluate, and manage the retrieved information now that they work autonomously and depend exclusively on digital content. Methods: Online questionnaire applied to three higher education libraries in Portugal – a public education institution, a polytechnic, and a private higher education institution. The questionnaire was submitted by institutional email and focused on the degree of satisfaction with the libraries and electronic resources made available, and self-perceived evaluation of their information skills. The first results point that students are satisfied with access to electronic resources remotely; the highest levels of dissatisfaction are associated with the library database and

B-ON; most are unaware of the availability of databases (Scopus, PubMed, and RCAAP); favorable perception of their behavior in information, in researching, citing and referencing, but findings show the inverse in the qualitative analysis of data; master's degrees reveal greater security of knowledge compared to undergraduate students.

Conclusions: It is necessary to increase the coverage, dissemination, and training of electronic resources in the academic libraries as a formative and pedagogical strategy and to formally implement it in educational policies.

Key Words:

Assessment of satisfaction; Higher education students; Self-perception; Competencies; Libraries; COVID-19; Portuguese academic libraries.

1. Introduction

Higher education libraries aim to provide access to information to students, teachers, and researchers, ensuring their satisfaction with their needs.

The behavior of the students in relation to the information is determined by their needs, generated from the methodological requirements of the activities to be carried out, the existing conditions for their performance, and the socio-psychological characteristics of each one. According to Núñez-Paula and Zayas-Caballero (2013), the need for information (while learning) generates a behavior, which translates into beliefs, motivation, enthusiasm, skills, knowledge, but also adaptability to circumstances to successfully achieve the answers to the original problem. Students, being one of the groups circulating in the academic community, do not have a linear or unique behavioral pattern. Even if integrated into the same context and under the same conditions, they are carriers of their own and unique experiences, generating performances that are also very own and unique. To understand the behavior pattern of students who attend libraries, it is necessary to know their motivations and their image, and their level of satisfaction with the service provided (Rapchak et al., 2018).

Libraries have the mission to satisfy all those who seek their space and services; a satisfied user will pass on a positive opinion to others, but a dissatisfied user will pass on a negative opinion to many more. Hernon and Altman (1996) state that “many libraries consider customers poor judges of the quality of information services... What the customer thinks about both the process and the outcome of the service is the important issue in customer's perceptions” (p. 7). In the context of higher education libraries, students may express a favorable or unfavorable opinion about the services provided by a library; this opinion will prevail as a determinant of the quality of the service, regardless of the beliefs of the organization. It means that if students are satisfied with the service provided and with the response obtained, i.e., “simply put, satisfaction is a sense of contentment that arises from an actual experience in relation to an expected experience” (Hernon & Whitman, 2001, p. 32). According to Lopes (2006), the most important thing in the future for libraries will not be the possession of books or access to sophisticated information technologies but having the largest number of regular users and highly satisfied with the products and services made available by libraries. In this context, the intention of the user satisfaction studies that have been developed in higher education libraries is to identify areas of scrutiny and measure the usability of services by the academic community. The same author considers that this is an evaluation process, which encompasses the users’ view, underlying a strategy of orientation on the part of the library, in the search to serve it and to gain its satisfaction (Lopes, 2006).

In the current context of great transformations and human and social adaptation, it is important to know the work developed by higher education libraries to respond effectively to their first and final clients – the students. It has never made so much sense to understand the perception and needs of users and potential users so that organizations, respecting their mission, can meet what people expect from them and which gives them a reason to exist, understanding if the information passes in time and without noise, and identifying who is doing this work in the institutions.

In this scenario, COVID-19 closed academic libraries in early March 2020 for an indefinite period (IFLA, 2020). With no time to plan, the libraries were physically shut down to protect the security of the entire academic community and turned into online services to work remotely. All the work spent over the years curating digital content,

building robust formative strategies with students, making them aware of electronic resources, defining typologies and suitability, providing information literacy skills, has taken the shape of a successful project, seemingly reassuring librarians, and libraries.

Faced with the pandemic scenario of COVID-19 and the social isolation to which they all found themselves, higher education students were suddenly confined to distance learning. Higher education institutions reinvented themselves, presenting a set of means to continue providing their services of excellence, which distinguish them, through which classes are given, evaluated and services that were usually in person are provided.

In this context, the three higher education institutions under analysis (a public college, a public polytechnic institute, and a private university institute), located in Lisbon (Portugal), with a total universe of 15,399 undergraduate and master's degree students from diversified fields of knowledge (arts, health sciences, business sciences, communication, education, engineering, and psychology), reinvented themselves and adapted to the pandemic scenario. Integrating the practice of teaching that privileges the integral formation of the individual, promoting citizenship, encouraging the active participation of students in the institution and the community, in the field of services, research, development, culture, and artistic creation never has the mission of the three institutions of higher education made so much sense.

It is therefore important to determine the satisfaction of the students of the three institutions with this new reality, in general for the institutions and in particular for the libraries, that is, to ascertain the students' perception of whether or not their information needs are satisfied, whether they know what the reliable sources of information are, if they use this new way of being in education and libraries they are allowed to access more or less reliable sources of information than when they are not in a pandemic – and they access the libraries in person –, if they feel their information needs are satisfied, if they feel supported in the information evaluation process, if they consider that the reference interview, carried out remotely, is satisfactory and meets their demands. The constraints to the physical presence in the campuses of the three institutions and their ten libraries, and specifically to the face-to-face service, have created challenges to the management of the organization and to the functioning of the services, namely in the service to students.

Thus, the objectives of this study were:

1. To perceive the satisfaction of higher education students about the response of libraries to their information needs, whether at the level of services or electronic resources.
2. To assess whether higher education students consider themselves prepared to search, assess, and manage the retrieved information now that they work autonomously and depend exclusively on digital content.

These goals are intended to answer the question: Will higher education students be satisfied with the distance services offered by their libraries during the current pandemic scenario? The answer will allow us to identify the expectations and difficulties perceived by students in defining procedures to improve the delivery of face-to-face and distance services of higher education libraries.

2. Methods

This study is exploratory, and the results were translated into percentage values.

2.1. Participants

The sample is non-probabilistic and consists of 434 students from the three institutions. Of these, 344 (79%) attended a degree, and 90 (21%) a master's degree. Regarding gender, 341 (78.6%) are female, 91 (21%) are male, and two (0.4%) indicated, without specifying, another gender. The participants' age ranges from 17 to 77 years ($M=23.81$).

Of the total number of undergraduate students, 54.7% were in 1st year, 12.8% in 2nd year, 27.3% in 3rd year, and 5.2% in 4th year. Of the master's students, 74.5% were 1st year, 20% 2nd year, 2.2% 3rd year, and 3.3% 4th year.

2.2. Instrument

A student evaluation questionnaire was designed on Office forms (https://forms.office.com/Pages/ResponsePage.aspx?id=jLt1jkQiC0mHbsmp_LLvY7bUgy_BzZZLiBAXTbm9Gs9UM1c0QjIUODY0Tk1aMTAzVEJOR0xTMk5CSy4u). The questionnaire was circulated in the three institutions, through institutional email, first in the second half of May 2020, a period that covered the beginning of social deconfinement

in Portugal, but in which teaching activities remained in the non-presential regime and libraries continued to ensure their service also at a distance. The questionnaire circulated again in October 2020, at the beginning of the academic year, when students began a new learning practice marked by the division of classes and by the alternate physical presence, week by week, in the institutions.

The questionnaire identifies the objectives of the study and the ethical questions regarding anonymity and confidentiality of data. It was structured in four sections: 1) the satisfaction of libraries' response to information needs; 2) the satisfaction of electronic resources made available by libraries; 3) the self-perceived assessment of students' information skills; and 4) socio-demographic data.

2.2.1. The aim of the **libraries' response to information needs** was to assess student satisfaction regarding access to electronic resources from home, information obtained through library websites, how to retrieve information (catalogs, databases), the digital resources made available, and, in general, the support provided by library teams. To express their degree of satisfaction a Likert scale was used: 1. Completely unsatisfied; 2. A little unsatisfied; 3. Reasonably satisfied; 4. Very satisfied; 5. Completely satisfied.

2.2.2. In view of the **electronic resources made available by the libraries**, the aim was to assess the degree of student satisfaction with digital resources (e.g., library catalogs, B-ON¹, PubMed, Scopus, Web of Science, E-books Academic Collection, RCAAP², SciELO, among others). To express their degree of satisfaction, students used the same scale as Likert of 2.1.1. It should be noted that the term 'library catalog' has been converted to 'library database', as the term 'catalog' has, for the academic community, another connotation than expected.

2.2.3. Because **students access the libraries' electronic resources in a non-presential and autonomous way**, it was intended to assess their level of satisfaction with the stages of the search, assess and retrieve information and their information skills, using

¹ Portuguese consortium that ensures access to a vast number of scientific journals and electronic services to the national academic and scientific community (www.b-on.pt).

² RCAAP portal aims to collect, aggregate and index open access scientific contents from Portuguese institutional repositories (<https://www.rcaap.pt/>). It constitutes a single-entry point for searching, discovery and recall of thousands of scientific and scholarly publications, namely journal articles, conference papers, thesis, and dissertations, distributed by several Portuguese repositories.

a Likert scale (1. I completely disagree; 2. I disagree; 3. I neither agree nor disagree; 4. I agree; 5. I completely agree).

2.2.4. The **socio-demographic data** contemplated age, gender, the cycle of studies, and course year.

3. Results

The results obtained allow the analyses described.

Overall, 88% of students are reasonably, very, or completely satisfied with access to electronic resources from home. This figure drops a little (83.6%) as to the degree of satisfaction with the information obtained from the library website (Table 1).

Table 1. The libraries' response to information needs by study cycles

Your satisfaction with the library's response to your information needs (%)					
	Undergraduate students / Master students				
	1	2	3	4	5
1. Your satisfaction in accessing electronic resources from home	4.65 / 5.55	8.43 / 2.22	32.27 / 16.67	35.46 / 45.56	19.19 / 30.00
2. Your satisfaction with the information obtained through the library website	3.49 / 5.55	13.66 / 7.78	37.50 / 18.90	31.10 / 53.33	14.25 / 14.44
3. Your satisfaction with the way to recover information (catalogs, databases) and to use it	3.20 / 5.56	8.43 / 4.44	44.48 / 34.44	30.23 / 37.78	13.66 / 17.78
4. I am satisfied with the digital resources made available by the Library because they helped me with my information needs	5.81 / 6.67	12.80 / 4.44	30.81 / 22.22	33.43 / 45.56	17.15 / 21.11
5. I am satisfied with the support provided by the library team	3.78 / 4.44	7.27 / 5.55	34.01 / 20.00	29.36 / 38.90	25.58 / 31.11

Note: Likert scale: 1. Completely unsatisfied; 2. A little unsatisfied; 3. Reasonably satisfied; 4. Very satisfied; 5. Completely satisfied. Percentage values.

Of the total responses, 88.7% were positive about how to retrieve information through databases and 53.9% are very or completely satisfied with the digital resources made available, because they feel they have helped them respond to their information needs.

Regarding the support provided by the library team during the pandemic period, 88.9% of the undergraduate students and 90% of the master's students express satisfaction.

Most libraries develop training sessions on the resources made available, in the library space, but also in a classroom context, in a culture of close collaboration with

teachers. The contents are varied, as well as their duration. This study highlights the percentage of students who are unaware of the existence of some databases (Table 2) – and because they are unaware, they do not answer the question. Undergraduate students are unaware of access to Scopus with 58.14%, RCAAP with 54.94%, PubMed with 51.46%, Web of Science with 50.87%, e-books database with 50.29%, and B-ON with 43.31%. More than half of the master’s students do not know that they have access to Scopus (52.22%), PubMed (44.45%), and the Web of Science (38.89%), exactly the three most important databases for the rationale of their research work. The library database is also unknown to 29.5% of students; it is also the database with the highest percentage of dissatisfaction among the total number of students.

Table 2. Assessment of student satisfaction with the electronic resources made available by libraries

Your satisfaction with the electronic resources made available by libraries (%)						
	Undergraduate students / Master students					NS/NR
	1	2	3	4	5	
Library database	2.91 / 5.56	7.85 / 3.33	29.65 / 18.89	27.33 / 38.89	9.59 / 20.00	22.67 / 13.33
B-ON	2.62 / 4.44	6.98 / 3.33	20.93 / 15.56	20.06 / 30.00	6.10 / 17.78	43.31 / 28.89
PubMed	2.03 / 6.67	2.91 / 1.11	18.02 / 12.22	17.73 / 22.22	7.85 / 13.33	51.46 / 44.45
Scopus	2.03 / 4.44	2.62 / 1.11	17.73 / 13.33	14.54 / 18.90	4.94 / 10.00	58.14 / 52.22
Web of Science	2.03 / 5.56	2.33 / 2.22	20.06 / 13.33	17.15 / 23.33	7.56 / 16.67	50.87 / 38.89
E-books Academic Coll.	2.32 / 3.33	3.49 / 3.33	21.22 / 14.45	15.99 / 27.78	6.69 / 13.33	50.29 / 37.78
RCAAP	2.32 / 3.33	3.49 / 4.44	16.57 / 10.00	14.83 / 25.56	7.85 / 26.67	54.94 / 30.00
SciELO	3.20 / 4.45	3.20 / 2.22	20.64 / 13.33	21.22 / 32.22	14.82 / 25.56	36.92 / 22.22
Other electronic resources	2.62 / 2.22	3.78 / 2.22	20.35 / 17.78	22.38 / 30.00	12.21 / 24.45	38.66 / 23.33

Note: Likert scale: 1. Completely unsatisfied; 2. A little unsatisfied; 3. Reasonably satisfied; 4. Very satisfied; 5. Completely satisfied. The option Does not know / Does not answer (NS/NR) was also included. Percentage values.

Of the electronic resources subscribed, B-ON is the best-known resource and with which master students feel most satisfied (30%). As far as open access resources are concerned, 56.6% of undergraduate students, who know and use them, are reasonable, very, or completely satisfied with SciELO, 43.6% with PubMed, and 39.24% with RCAAP. Masters students who know and use open access resources show reasonable or complete satisfaction with SciELO (71.1%), RCAAP (62.2%), and PubMed (47.7%).

Regarding the difficulties experienced, undergraduate students highlight the library database (10.7%) and B-ON (9.5%), while masters students also refer to the library database (8.8%) and then B-ON, PubMed, Web of Science and RCAAP (resources presenting the same percentage of difficulty: 7.7%).

Undergraduate students who know the electronic resources presented are reasonably, very, or completely satisfied with the library database (66.5%), SciELO (56.68%), other electronic resources made available (54.94%), B-ON (47.09%), Web of Science (44.76%), E-books Academic Collection (43.89%), PubMed (43.6%), RCAAP (39.24%) and Scopus (37.2%). Regarding master's students, they are reasonably, very, or completely satisfied with the library database (77.7%), other electronic resources (72.2%), SciELO (71.1%), B-ON (63.3%), RCAAP (62.2%), E-books Academic Collection (55.5%), Web of Science (53.3%), PubMed (47.7%), and Scopus (42.2%).

Analyzing the degree of student satisfaction with their information skills, by accessing electronic resources in a non-presential and autonomous way, students express agreement and an absolute agreement about their abilities to perform information searches (91.24%), being the master's students the ones who demonstrate the highest security (94.4%) (Table 3).

Table 3. Level of student satisfaction with their information skills

	How do you feel about your information skills? (%)				
	Undergraduate students / Master students				
	1	2	3	4	5
I feel comfortable doing information searches	2.32 / 1.11	7.27 / 4.44	21.51 / 6.67	48.55 / 61.11	20.35 / 26.67
I know how to recognize reliable information for my field of study	2.03 / 1.11	4.94 / 3.33	23.84 / 14.45	54.07 / 57.78	15.12 / 23.33
I can assess the importance of different information resources	1.45 / 0.00	6.11 / 2.22	18.31 / 7.78	57.27 / 52.22	16.86 / 37.78
I recognize the importance of correctly and adequately citing the work of others	0.58 / 0.00	2.62 / 0.00	10.47 / 1.11	42.73 / 43.33	43.60 / 55.56
I try to refer correctly and properly with the requested referencing style	1.16 / 0.00	2.04 / 1.11	9.88 / 2.22	45.35 / 40.00	41.57 / 56.67

Note: Likert scale: 1. I completely disagree; 2. I disagree; 3. I neither agree nor disagree; 4. I agree; 5. I completely agree. Percentage values.

Regarding the recognition of reliable scientific literature for their field of study, 71.6% of students show agreement or an absolute agreement. Also, in this parameter, the master's students, most of whom are already professionals, reveal 81.1% of certainty in their response.

Of the group of students, 77.4% agree and agree absolutely in the assessment of the importance of the different information resources, but the master's students answer with 90%, revealing to be able to distinguish and assess the importance of an article, book,

chapter, or thesis for their different works. They are also those who, in an almost absolute way (98.8%), recognize the importance of correctly and adequately citing the work of others.

In general, the average information skills shown are positive: very close to level 4 in most parameters and for all students and clearly above level 4 in the parameters of citation and bibliographical reference for master's degrees. Nevertheless, in the assessment of students' self-perception of their skills, and on a scale of 0 to 10 points, the average is 7.0 with master's students slightly higher (7.3) (Figure 1).

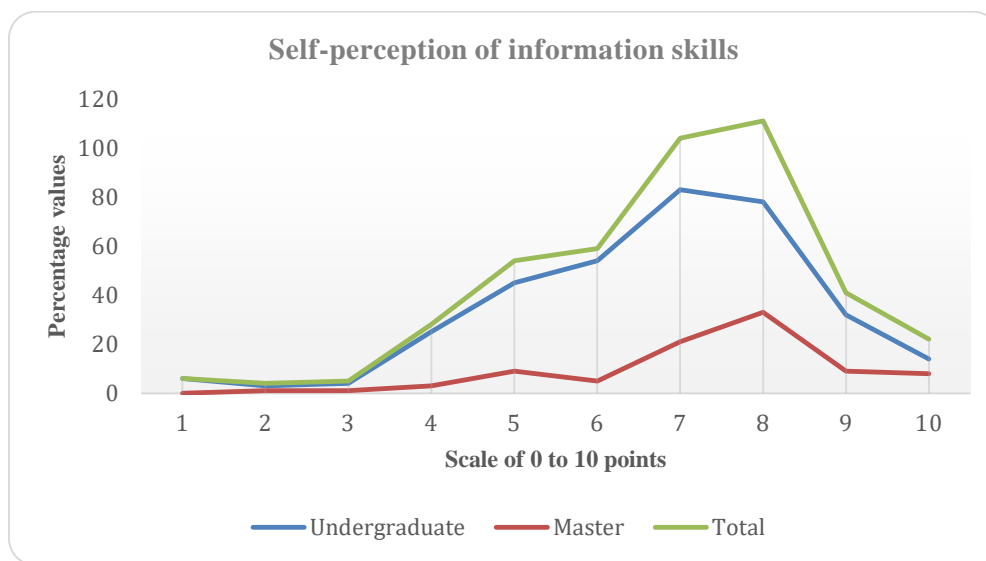


Figure 1. Students' self-perception of information skills.

At the end of the questionnaire, the students were asked about the greatest difficulties had been experienced in searching and retrieving information, the answer being intentionally left open. The analysis of the answers allowed listing a set of concerns described in Table 4.

Table 4. The students' concerns regarding search and information retrieval

Students' concerns regarding search and information retrieval
<ul style="list-style-type: none"> ▪ How to locate the Portuguese scientific information. ▪ Do not know where to search. ▪ How to work with so much information. ▪ How to select the best one from so many databases and frame it in the subject under study. ▪ How to define the most appropriate keywords. ▪ How to build a search equation.

- The time spent in the search.
- How to find resources that are reliable and of quality.
- Understanding the relationship between keywords and resources.
- How to extract the results.
- There are so few electronic books.
- How to access articles and books that are blocked. And why are they blocked?
- The dispersed and little user-friendly access to scientific works and with much access/consultation restrictions.
- B-ON does not give access to all full-texts.
- Do not be able to access B-ON.
- The location of references available only in printed books.
- Do not know that one could remotely access the contents.
- Do not know how to safeguard the data of a search and migrate them to Mendeley.
- Do not have a priori materials, tutorials, and other kinds of help.
- Ignore the existence of VPNs.
- How to work with the VPN.
- Lack of time.
- Lack of disclosure.
- Training is necessary!

It should be noted that only 30.1% of students responded that they had not experienced any difficulties in researching and retrieving information; of these, 24.4% were undergraduate students and 5.7% were master students.

4. Discussion

Higher education institutions, libraries, and their students are being affected by the COVID-19 pandemic, social confinement, but also progressive and adaptable deconfinement. But this is the opportunity for libraries to demonstrate that, even behind closed doors, they continue to provide essential services to ensure access to reliable sources of information for the academic community and to provide information skills, even remotely; this is the opportunity to rethink access to information, which is not free from doubts, technological difficulties, and asymmetry of knowledge (Tanus, & Sánchez-Tarragó, 2020).

The use of electronic resources has exploded in all higher education libraries. However, the results regarding their use are not favorable to the student community, because they reveal ignorance of their existence. The percentage is very high, which is worrying. These figures must be carefully analyzed as they imply the planning of a formative and pedagogical intervention that will guarantee the resolution of this problem. The electronic resources are subscribed in a global way in the analyzed institutions with the objective of supporting the study and research of the entire academic community. The

data in the present study points out a concern resulting from the students' ignorance of the resources made available by the institutions; it means that dissemination actions are not reaching all the interested parties, which is urgent to respond.

Regarding PubMed, being a biomedical database, it seems logical that its universe of potential users is mainly the students of health sciences, dance, biomedical engineering, and psychology. It is not surprising, therefore, that such a high percentage of ignorance of its existence is recorded. On the other hand, such a significant awareness of Scopus on the students' side, a database to which everyone has had access in recent years, seems to be very worrying and shows that the work of dissemination and training should be rethought.

In addition to the databases subscribed to by libraries and open access resources, students were also questioned about other electronic resources. The aim was to find out what other resources (other than printed resources) students consulted at home, that is, the varied digital content that was made available in open access or via VPN to students during the special pandemic period. It was about contents, by habit, available in closed access, but that exceptionally the publishers opened the access, but also contents associated with COVID-19; in this context, the health sciences students were privileged with a substantially higher and more diversified volume of information.

In the same context, and analyzing qualitatively the answers content to the open question, it is noted that the students themselves report having many difficulties to formalize a search for information, to organize their stages, to define the most appropriate and representative keywords, to build a search equation, to know what type of studies is most appropriate to answer to its objective, to determine which information is most reliable, to understand why there are open and closed contents, to safeguard the search results in a reference manager, to install a VPN and even to use it. This scenario identifies the lack of dissemination, the lack of knowledge, and the lack of training of students. It is therefore necessary and urgent to define an intervention strategy in information literacy skills.

As far as the libraries' website is concerned, it will strategically have to be viewed as a gateway into virtual space. Over the years, this issue has not received the desired prominence, but libraries must take an intervening role and rethink their websites now that they represent one of the main paths of interaction with students in distance learning.

Following the principles of usability, libraries' websites should evolve to be easier to use, reactive, and customizable.

Regarding the repository, libraries have, over the last decade, developed an alternative but secure way of disseminating research through their institutional repository, also supporting open access publishing. This is the time to strengthen the dissemination of these projects to the academic community. As an aggregating portal, RCAAP is, due to the results obtained, still unknown to most students; it is imperative to make it known, stimulating the research of academic products and the increase of research skills.

In the coming years, higher education will have to consider greater investment in the development of electronic content, which may be a challenge in face of decreasing budgets. More than ever, libraries now need the support of a network of libraries and librarians, content publishers, but also organizational leaders to plan and manage their response and ensure continued access to information for students wherever they are. Respond positively to the students' information needs has been the planning strategy of libraries in higher education over the years. In the future, greater access to streaming media and electronic books, which are abundant and relatively negotiable with publishers, should be considered.

Placing librarians physically in the flow of the teaching-learning process has also been a trend for years in higher education institutions. However, not all academies recognize this performance and not all librarians have access to the classroom, limiting themselves to the reference meeting in the library space. Providing information literacy skills, leading students to look at information resources more critically, stimulating reflective analysis of results, evaluating them, quoting them, and referencing them in an ethical, legal, and responsible manner are skills and behaviors to be deepened in students (García-López, Martínez-Cardama, & Pacios, 2019). This guarantees a safer way of being, especially when, in times of confinement, it was necessary to work individually and autonomously from home.

If classes are kept at a distance, deeper integration of both library resources and librarians into undergraduate and master's course management systems is essential to ensure the acquisition of information literacy skills by students. And although in some cases there have already been online training in this field, librarians can create and

streamline a closer and more effective collaboration with teachers, designing the strategy for exploiting digital content in the axis of research, location, assessment, and use of information by students (Downie, 2007). The leaders of the organization will be responsible for recognizing and formalizing this intervention.

5. Conclusions

The perception of higher education students about the response of their libraries in times of COVID-19 pandemic is satisfactory, recognizing as positive the support received. However, the use of available electronic resources has not been as expected; most students are unaware of the availability of reference databases on campuses and the possibility of using them remotely. As for information literacy skills, students manifest a favorable self-perception of their knowledge and skills regarding research, retrieval, citation, and referencing of information. But, when deepening the subject through their open answers, numerous difficulties and asymmetries were identified.

To mitigate some of these problems immediately, strategies were created to allow dialogue with students and improve their online interactions with available resources:

- At the polytechnic institute for each information resource, a reference librarian and a unique email were identified. The resources and their emails were disseminated by the community, enabling each student to contact the appropriate professional to answer their questions and problems. Distance training (via Zoom, Teams, and Skype) and real-time training of each database, in a class context and in customized meetings with each working group, were also prioritized.
- The public college directed all enrollments and reference questions to the email service, in a personalized answer for each student who had questions. There was also a greater concern in divulging assiduously the ebooks acquired, highlighting one of them monthly with a small review; the objective was to disseminate the collection of electronic books and generate curiosity, stimulating their access.
- In the private university institute, the OpenAthens platform was used as a remote access way to resources, and tutorials were created oriented to

learning how to use them. Personalized service was reinforced through several channels: email, Zoom, and microsite. A green way to digitalize teaching, learning and research support documents was created. Also, the weekly meetings of the team provided an adjustment of strategies in response to the needs of the community.

In addition to these interventions, this study aims to create deeper impacts in the medium and long term: the definition of formative and pedagogical strategies in information literacy skills among undergraduate and master students. It is, therefore, necessary to define the contents to be taught, the length of sessions, and the identification of the most appropriate moment in the academic year. It is also imperative that this strategy be extended and normalized, involving the various organic units, all librarians and libraries, and all study cycles. In this sense, it is necessary to raise the awareness of the leaders of the organizations and to formally implement them in an educational policy format.

This study had some limitations, namely: 1) the strictly descriptive approach of the results, through the calculation of percentages; 2) the period in which it was developed, in which students received many dozens of emails daily, from teachers, colleagues, and their institution, requiring extra attention so as not to lose information - the study email may have been lost; 3) students clearly prefer their personal email and sporadically access institutional email.

For future development it is intended to carry out the design and formal implementation of an information literacy program for undergraduate and master's students, analyzing *a posteriori* its results. As this is an exploratory study, it is intended in future studies to analyze the metric properties of the questionnaire and its validation using a data analysis through descriptive and inferential statistics.

In short, in the COVID-19 era, the role of higher education libraries is essentially the same as nine months ago – to support the academic community. However, it is once again challenged in its form and content. It is now necessary to pay more attention to digital resources and train for their full access and use, in order to benefit students and contribute to their academic success.

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