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**Deficiência auditiva e ensino superior: percepções de estudantes e profissionais em uma
Instituição Pública Brasileira**

**Hearing impairment and higher education: perceptions of students and employees in a
Brazilian Public Institution**

**Deficiencia auditiva y educación superior: percepciones de estudiantes y profesionales
en una institución pública brasileña**

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Resumo

O objetivo deste estudo foi identificar a percepção de alunos com deficiência auditiva e de profissionais do Núcleo de Acessibilidade de uma Instituição de Ensino Superior pública sobre as políticas e ações de acessibilidade e permanência no ensino ofertada na instituição na qual estão vinculados. Verificar associação entre a Modalidade Linguística preferencial dos alunos com deficiência auditiva com as respostas quanto às políticas de acessibilidade e permanência no ensino em uma instituição de ensino superior. Além de identificar as barreiras arquitetônicas e comunicacionais que interferem no desempenho acadêmico destes alunos. Participaram deste estudo 14 alunos com deficiência auditiva e cinco profissionais do Núcleo de Acessibilidade da Instituição de Ensino Superior. A coleta ocorreu por meio de questionário online. Os resultados identificaram que os dois grupos não obtiveram percepções semelhantes quanto a acessibilidade e permanência. Não houve diferença estatística entre a modalidade linguística e as respostas quanto a acessibilidade e permanência no ensino superior. Os estudantes relatam como principais barreiras arquitetônica e comunicacionais: sala de aula, dificuldade de aprendizagem e dificuldade em acompanhar os conteúdos durante as aulas. Esta pesquisa verificou que há divergência entre as percepções dos alunos e dos profissionais. Independente da modalidade linguística preferida, os alunos com deficiência auditiva possuem as mesmas percepções sobre acessibilidade e permanência no ensino superior. As barreiras arquitetônicas e comunicacionais foram identificadas na amostra estudada.

Palavras-Chave: Perda auditiva; Educação Superior; Auxiliares de Audição; Inclusão Educacional

Abstract

The aim of this study was to identify the perceptions of the hearing impaired students and the Accessibility Center employees of a Public Higher Education Institution regarding the policies and actions of accessibility and permanence in the education offered in the institution in which they are linked. Also, to verify the association between the preferential linguistic modality of the hearing impaired students and their responses regarding the policies of accessibility and permanence in education in a Higher Education Institution. As well as to identify the architectural and communicational barriers that undermines the academic performance of these students. 14 hearing impaired students and 5 Accessibility Center employees of a Higher Education Institution participated in this study. The data collection occurred through an online questionnaire. It was verified that the two groups did not obtained

similar perceptions regarding accessibility and permanence. There was no statistical difference between the linguistic modality and the responses regarding accessibility and permanence in higher education. The students report as main architectural and communication barriers: classroom, learning disability and difficulty in following the contents during classes. This research verified that there is a divergence between students and employees' perceptions. Regardless of the preferred linguistic modality, students with hearing impairment have the same perceptions regarding accessibility and permanence in higher education. The architectural and communicational barriers were identified in the studied sample.

Keywords: Hearing Loss; Higher Education; Hearing Aids; Mainstreaming (Education)

Resumen

El objetivo de este estudio fue identificar la percepción de los estudiantes con pérdida auditiva y los profesionales del Centro de Accesibilidad de una institución pública de educación superior sobre las políticas y acciones de accesibilidad y permanencia en la educación ofrecida en la institución a la que están vinculados. Verificar una asociación entre la modalidad de idioma preferida de los estudiantes con discapacidad auditiva y las respuestas con respecto a las políticas de accesibilidad y permanencia en una institución de educación superior. Además de identificar las barreras arquitectónicas y de comunicación que interfieren con el rendimiento académico de estos estudiantes. 14 estudiantes con discapacidad auditiva y cinco profesionales del Centro de Accesibilidad de la Institución de Educación Superior participaron en este estudio. La recolección se realizó a través de un cuestionario en línea. Los resultados identificaron que los dos grupos no obtuvieron percepciones similares con respecto a la accesibilidad y la permanencia. No hubo diferencia estadística entre la modalidad lingüística y las respuestas sobre accesibilidad y permanencia en la educación superior. Los estudiantes informan como principales barreras arquitectónicas y de comunicación: aula, discapacidad de aprendizaje y dificultad para seguir los contenidos durante las clases. Esta investigación encontró que existe una divergencia entre las percepciones de los estudiantes y los profesionales. Independientemente de la modalidad de idioma preferida, los estudiantes con pérdida auditiva tienen las mismas percepciones sobre accesibilidad y permanencia en la educación superior. Las barreras arquitectónicas y de comunicación se identificaron en la muestra estudiada.

Palabras clave: Pérdida Auditiva; Educación Superior; Audífonos; Propensión (Educación)

1. Introduction

When the subject is the inclusion of the deaf or hearing impaired student in Higher Education, the guarantee of access and permanence in education are relevant pillars that merit reflection. In this context, it is known that although there are legislative regulations, these students face barriers to an active participation within the universities.

The National Policy of Special Education on the perspective of Inclusive Education (Brazil, 2008), elaborated by the Ministry of Education mentions that besides guaranteeing access to Higher Education, it is necessary to ensure inclusive education during the learning process, in order to maximize the academic and social development. In addition, this Policy recognizes the difficulties faced by these students and therefore aims to guarantee the inclusion and permanence of these students in Higher Education Institutions (HEI) (Brazil, 2007; Martins, Leite and Lacerda, 2015).

In this context, Brazilians HEIs seek to adapt themselves to the laws, providing vacancies in the selective processes for people with disabilities (Omote, 2016), one of which is the hearing impairment. Therefore, increasing the number of these students in all the undergraduate courses available in the HEI (Moura, Leite and Martins, 2016). Recent research shows that, in recent years, there has been a high growth in the educational level of the hearing impaired (Moura, Leite and Martins, 2016). From data of the Census of Higher Education of the year of 2013 there are a total of 8,676 hearing impaired students in Brazilian's HEIs (Brazil, 2013).

Although improvements in inclusive practices are observed, political and social principles have not yet been fully incorporated into everyday classroom settings and other educational settings. Considering the permanence of these students, it is emphasized that this does not only imply the guarantee of the presence of the student inside the classroom, other demands are necessary.

In such cases, it is essential that the technical-administrative employees and professors become aware of the specificities of the hearing impairment effects and the communicative needs of these students. Thus, obstacles related to the education and learning process of the deaf or hearing impaired student will be relieved (Omote, 2016).

Based on the above, this study aimed to identify the perception of the hearing impaired students and the Accessibility Center employees of a federal public HEI regarding the policies and actions of accessibility and permanence in the education offered at the institution in which they are linked.

It was also investigated the association between the preferential language modality of

these students with perceptions regarding such policies. In addition to exposing the architectural and communicational barriers that interfere in the academic performance of the self-declared hearing impaired students.

Therefore, this study aimed to identify the perceptions of the hearing impaired students and the Accessibility Center employees of a Public Higher Education Institution regarding the policies and actions of accessibility and permanence in the education offered in the institution in which they are linked.

2. Metodologia

Ethics

This is a descriptive study with a quantitative-qualitative approach. The ethical precepts recommended by the National Health Council Resolution 466/2012 were faithfully followed in all stages of the study. The approval by the Ethics in Research Committee of the HEI where the study was conducted was issued in Opinion N° 1.570.981 and the CAAE N° 55467616.9.0000.5346. All participants signed the written informed consent.

Participants Recruitment

As inclusion criteria, it was considered: students with self-reported hearing impairment enrollees in undergraduate courses of the HEI in question and the Accessibility Center employees of the same institution who performed activities with hearing impaired students.

The participants excluded from the research were those who did not enter the HEI through the vacancies destined to people with disabilities and, also those linked to high school or postgraduate courses, as well as the Accessibility Center employees who did not perform activities with the hearing impaired students.

A previous survey was performed in the mentioned institution and it was verified that the target population was estimated in 59 students and 30 Accessibility Center employees.

Of the 59 students and 30 employees, only 14 students (23.7%) and five employees (16.6%) were available to answer the questionnaire, constituting the sample of the study.

Data Collection

The data was collected through an online questionnaire, available in the Google docs platform, which all the students and employees who agreed to participate in the study

answered to.

Procedure

A questionnaire was developed to identify the participants' perception regarding the policies and actions of accessibility and permanence in education. Such questionnaire contained objective and multiple choice questions in order to allow a quantitative analysis of the responses.

The questionnaire performed with the students was composed of six questions and contemplated the following questions: What is your linguistic modality? What sound amplification resources and/or Libras interpreter do you use? Is the accessibility available at the university sufficient to guarantee your needs? Does the university offer actions and policies that enable your permanence and learning? What barriers do you come across in architectural accessibility policies? What barriers do you find in the communicational accessibility policies offered in your institution that undermines your academic performance?

For the employees, the questionnaire contained two questions: Is the accessibility available at the university sufficient to guarantee the needs of the students? Does the university offer actions and policies that enable the permanence and the learning process of the students?

Sample's Characteristics

Among the possible responses, students should mark the options based on their own experiences and the employees should consider their experience with the self-declared hearing impaired students assisted by the Accessibility Center.

Regarding the characteristics of the students' sample group, the following were observed: average age of 28 years, four females, eight males and two with no gender specification.

As for the undergraduate courses that such students were enrollees, it was identified: Chemical Engineering, Computer Network, Law, Humanities (Portuguese-Literature major), Psychology and Medicine.

The audiological report evidenced that eight students had bilateral profound sensorineural hearing impairment, two had bilateral severe sensorineural hearing impairment, two had bilateral moderately severe conductive hearing impairment, and two did not have a defined hearing diagnosis.

Regarding the linguistic modality, seven students declared themselves as oralised, four

as literate in Brazilian Sign Language (Libras) and three as bilingual. The resources mentioned by the students were: seven users of hearing aids, three users of Cochlear Implant, two users of the Modulated Frequency System and five required a Libras Interpreter.

As for the characteristics of the employees' sample group, it was verified that this group was composed of graduates in the following courses: Biological Sciences, Special Education and Physical Education. The time of performance with the hearing impaired students was distributed in: two employees with performance from three to six years, two from nine to 12 years and one not informed.

Data analysis

For the students' data analysis, a statistical association analysis was carried out using the Fisher's Test, in addition to descriptive analysis. And, due to the sample size, the employees' responses were analyzed descriptively. A significance level of 0.05 (5%) was defined for this study and all confidence intervals were constructed with 95% of statistical confidence.

3. Results

The responses of the hearing impaired students and the Accessibility Center employees regarding the policies and actions of accessibility and permanence in education were analyzed in a descriptive way. The data in table 1 show that the majority of the students stated that the policies and actions of accessibility and permanence in education were not enough to guarantee the students' needs.

Table 1: Perception of the hearing impaired students and employees of the Accessibility Center regarding the policies of accessibility and permanence in education offered in a higher education institution

Is the accessibility available at the university sufficient to guarantee the needs of the students?	Students		Employees	
	N	%	N	%
Yes	4	28,6	4	80
No	10	71,4	1	20

Does the university offer actions and policies that enable the permanence and the learning process of these students?	Students		Employees	
	N	%	N	%
Yes	5	35,7	4	80
No	9	64,3	1	20

Subtitle: N= number of subjects; %= percentage

It was verified that there was no association between the preferential linguistic modality of the hearing impaired students and the perception regarding the policies and actions of accessibility and permanence in the HEI. These data were evidenced in table 2.

Table 2: Association between the preferential Linguistic Modality of students with hearing impairment and answers regarding the policies and actions of accessibility and permanence in education in a higher education institution

Linguistic modality	Accessibility in education	Permanence in education
Oralised	P = 1,000	P = 0,265
Libras	P= 1,000	P = 0,220
Bilingual	P = 1,000	P = 1,000

Fisher's test

Figure 1 presents the barriers related to the architectural accessibility of the institution in question exposed by the students. It must be observed that the same student could mark more than one variable mentioned below.

Figure 1: Barriers encountered regarding architectural accessibility offered at a higher education institution exposed by students with hearing impairment

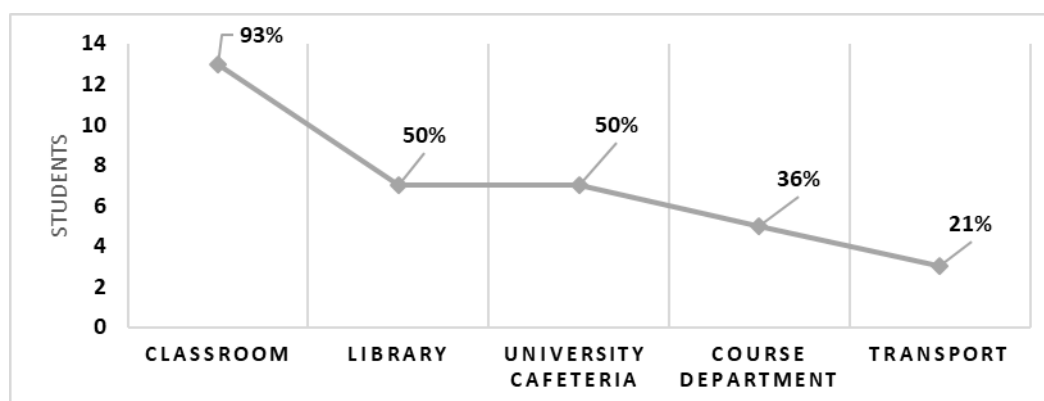


Table 3 shows the percentages regarding students' perceptions of the barriers found in communication, which undermine their academic performance.

Table 3: Barriers found in the communicational accessibility offered in a higher education institution which interfere the academic performance of the hearing impaired students.

Variables	Students	
	N	%
Social difficulty	13	93
Learning difficulty	13	93
Struggle to accompany the content during classes	13	93
Inappropriate behavior of classmates and professors	11	79
Difficulty to understand classmates and professors	10	71
Hindered from performing any activity	9	64
Difficulty to perform lip Reading	7	50
Inadequate resources in classroom	6	43
Difficulty to read and write in Portuguese	6	43
Difficulty to access didactic content	6	43
Difficulty to submit papers	5	36
Not being understood by classmates and professors	4	29
Difficulties in accessing information	4	29

Legend: N= number of subjects; %= percentage;

4. Discussion

One of the parameters to be discussed is the low percentage of students and employees' participation observed in the participant index presented in the methods, evidencing the non-adherence to the research. Regarding the students, it is believed that the low participation may be associated to the difficulty of understanding the questionnaire, due to difficulties in the reading process. Another possibility would be the lack of knowledge regarding the importance of research of this nature by both groups.

It should be highlighted the difficulty to find studies that analysed the adherence to research in public institutions in the national literature. Only one study was found which performed a survey through questionnaires for the Accessibility Centers of Brazilian institutions and obtained only 30% of feedback from the invited population (Ciantelli and Leite, 2018), which is approximate to the data of the present study.

The results obtained in this study indicate that the majority of the hearing impaired students demonstrated negative perceptions towards the policies and actions of accessibility and permanence in the education offered in the institution in which they are linked. However, the Accessibility Center employees demonstrated an opposite view when compared to the students' perception (Table 1).

The findings of the present study support the consulted literature and emphasize that the institutions, in general, present policies and actions that regulate the accessibility of the

hearing impaired students in higher education, however, these actions are not effective in practice and, as a consequence, do not guarantee the accessibility and permanence of these students in the institutions (Santana, 2016).

Authors believe that it is necessary that the team of Accessibility Center employees and professors receive training and information, aiming to enable these professionals and faculty members to provide appropriate actions to the specific needs of the student with disability (Díez, Gavira and Molina, 2015; Ciantelli and Leite, 2018; Mieghem, Verschueren, Petry and Struyf, 2018). Such professional capacitation would ensure the development of inclusive practices and the implementation of inclusion with its real meaning, i.e., a truly inclusive educational environment.

In the year of 2013, 55 Brazilian public HEI that owns Accessibility Centers were identified in the Ministry of Education's website (Ciantelli and Leite, 2018). Considering the Brazilian educational field of higher education, this number becomes small and demonstrates that reality does not match the inclusion speech, since the Census of Higher Education, in 2013, identified 8.676 deaf, hearing impaired or deaf-blind students enrollees in HEI (Brazil, 2013).

The literature indicates that although there are still obstacles regarding it's policies, the presence of an Accessibility Center straightens inclusive actions in an institutional level (Melo and Araujo, 2018). In addition, a study reports that the most faced barriers by the students with disabilities are institutional barriers (Strnadová, Hájková and Kvetonová, 2015). In this context, it is understood that the absence of Accessibility Centers increases the difficulties of implementing policies and accessibility actions that guarantee the needs and permanence in education for these students.

There was no association between the students' linguistic modality and their responses regarding accessibility and permanence in HEI (Table 2). This result shows that, regardless of the linguistic modality, the hearing impaired students demonstrated the same answers regarding the policies and actions of accessibility and permanence in the education offered by the institution in question. It can be deduced that regardless of whether the student is oralised, bilingual or literate in Libras, the actions of accessibility and permanence in this particular HEI are the same. Therefore, the students do not perceive the implementation of specific actions towards their educational demands.

When questioned about what barriers were found regarding the architectural accessibility offered, the students highlighted the classroom, the library and the university cafeteria as hostile environments to their academic performance. A study pointed out that in

Brazilian southeast federal universities, the architectural accessibility varies from bad to regular (Pletsch and De Melo, 2017). With the identification of this barriers, authors refer that the elimination of this architectural barriers is fundamental to ensure the inclusion of the student with disability (Pletsch and De Melo, 2017). Regarding the classroom, it is known that such locations are not acoustically suitable for hearing impaired students, for reasons related to reverberation, student positioning in the classroom, especially those who are not users of the Modulated Frequency System, high levels of internal noise, among others (Cruz, Angelo, Lopes, Guedes, Alves, Fidêncio, Moret and Jacob, 2017).

Besides the architectural barriers, the communicational barriers merit emphasis in this study, since they influence directly the education and learning conditions of these students (Powell, Hyde and Punch, 2013; Gavaldão and Martins, 2016). Furthermore, the communication is considered a predictor for the academic success of the student with disability (Convertino, Marschark, Sapere, Sarchet and Zupan, 2009).

From the results of the present study, it was observed that the communicational barriers that most negatively interfere the academic performance of these students were: social difficulty, learning difficulty, struggle to accompany the content during classes, inappropriate behavior of classmates and professors and difficulty to understand classmates and professors. Such perceptions are also faced by students from another study, supporting the data of this study (Strnadová, Hájková and Kvetonová, 2015; Santana, 2016). Within these aspects, researchers report that the difficulties increase when the professor projects video without subtitle, explains the contents manly orally, not using others resources such as writing, and speaks in a low intensity (Santana, 2016).

Attention is drawn to the high number of students who report finding barriers regarding accessibility in the classroom, befitting the high rate of students who reported the others difficulties listed above. These results reflect the non-contemplation of the educational needs of the hearing impaired students, also showing the absence of effective communication between professors and students.

In this context, the literature points out that the professors' lack of information regarding the hearing impairment and the consequences arising from it, as well as the lack of communication strategies directly influence the difficulties encountered in the learning process of students with hearing impairment (Delgado-Pinheiro and Omote, 2010; Omote, 2016; Santana, 2016).

It should be highlighted that the professor's knowlegde regarding the hearing impairment and it's attitudes towards the inclusion process are essential to obtain success in

the inclusive proposals (Martins, Leite and Lacerda, 2015). Thus, it is considered educational strategies: use a resource such as writing to support the professor's speech, access to the professor's face to perform lipreading and a sufficiently audible intensity in the professor's speech (Santana, 2016). In addition, a study reports that for the students who are literate in Libras, the presence of an interpreter in the classroom is a factor that facilitates the permanence and guarantee the access to even more effective learning process of these students (Martins, Leite and Lacerda, 2015).

The barriers regarding the architectural and communicational accessibility stated by the students in the higher education context need to be surpassed, since they result in an obstacle to the academic success of these students (Convertino, Marschark, Sapere, Sarchet and Zupan, 2009). It is necessary to establish an alignment between the educational practices and the inclusive education principles, in order to guarantee a quality higher education for the hearing impaired students (Mazzotta and D'Antino, 2011; Moriña, 2017; Pletsch and De Melo, 2017; Melo and Araujo, 2018).

Finally, it is reported that the inclusive education proposals established by the National Curricular Parameters of Special Education foresee that inclusive education goes beyond promoting education in a common space, since it requires diverse transformations in the educational scope. These actions are the basis for an egalitarian education that aims to guarantee equal rights, opportunities and obstacle overcome to the student with disability (Leonel, Leonardo and Garcia, 2015; Moura, Leite and Martins, 2016).

5. Conclusion

It was observed a divergence between the students and employees perception regarding the policies and actions of accessibility and permanence in higher education of the institution. Regardless of the preferred linguistic modality, students with hearing impairment present the same perception regarding it's policies in higher education. As architectural and communicational barriers were identified in the sample studied especially those of classroom and learning difficulty, respectively. Thus, it is understood that although the existing Accessibility Centers, the policies and actions of accessibility and permanence in higher education of the institution merit attention, since there are still many inclusive practices within the educational environment that need to be rethought. Additionally, further research should be done to maximizes the actions of accessibility and permanence towards the hearing

impaired students developed by the accessibility center employees, aiming to improve the quality of the service offered by the institutions to this population.

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