

*The Application of the Bilingual Online Dictionary Brazilian Sign Language/Portuguese
in a Brazilian Higher Education Institution*

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The European Conference on Education 2023
Official Conference Proceedings

Abstract

This work supports the issue of accessibility for deaf students in Higher Education, developed by the Inovar+ project with support from CEAD (Coordination of Open and Distance Education). Its objective is to understand, from the perspective of Brazilian Sign Language (Libras)/Portuguese Translators and Interpreters (TILSP), the use of the Bilingual Libras/Portuguese Dictionary as a pedagogical tool in the communication process in the classroom, in a Higher Education Institution (HEI) in the Zona da Mata Mineira region. To glimpse the possibilities of support provided by the Dictionary in this context and data collection, we applied workshops with this audience, taking into account the qualitative approach of the research in two campuses of the same institution. Thus, the workshops with TILSP focused on presenting the Dictionary as a translation tool, using it as an instrument to consult the signs of the areas of knowledge of the disciplines taught. Thus, throughout the interaction process with the workshops, we perceived the obstacles and potentialities of the ICT (Information and Communication Technology) in question. As results, we verified TILSP pointed out positively the viability of the tool as support in the process of acquiring Libras as second language for hearing individuals. Therefore, we hope that after data collection and necessary improvements, the tool will be used in the classroom as support in the teaching and learning process of deaf students in Higher Education, aiming to minimize obstacles that hinder this process.

Keywords: Accessibility, Libras, Dictionary, Translator and Interpreter

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Introduction

The formulation of public policies and affirmative actions, specifically with regard to higher education, supported initiatives to generate equity, given the historical exclusion of social groups that did not fit into socially constructed standards (be they religious standards, aesthetics, social insertion, political position and economic power). This context strengthened struggles that culminated in the formulation and approval of different prescriptions on inclusion in Higher Education (HE), such as Law 12.711/12, which refers to the entry into Brazilian Universities of self-declared black, brown and indigenous people, from families who have income equal to or less than 1.5 minimum wage per capita, and who attended high school in public schools (Brasil, 2012). Law 13.409/16 changes the first, by determining that there is a reservation of vacancies in secondary and higher technical education institutions for people with disabilities (Brasil, 2016).

The entry of deaf people into Higher Education (HE) brought changes to formal education and highlighted major challenges for the permanence of these subjects and the completion of their undergraduate courses. The situation of school evasion was quickly evidenced by the institution that covers the research. Among the four deaf students who were enrolled shortly after Law 13.409/16 came into effect, two dropped out in less than a year.

Empirically, we evidenced the need for initiatives and structural and methodological adaptations to support the redefinition of teaching practice, such as the elaboration of signed classes, cataloging of signs referring to scientific terminologies and production of online teaching materials. Therefore, Assistive Technologies¹ (AT) and Information and Communication Technologies (ICTs) prove to be efficient pedagogical supports related to the use of visual resources, favoring pedagogical and linguistic exchanges. In this perspective, Miranda, Mourão and Gediél (2017) describe that the formulation of materials Didactics can support the promotion of inclusion by valuing the use of visual resources, when explored and accessed through ICTs.

The diagnosis of the need to develop technological-pedagogical tools at the HEI in question has been studied and developed in order to expand access to scientific knowledge in Libras (Lima; Gediél, 2015). Thus, the process of elaborating an online Libras/Portuguese Bilingual Dictionary begins, IES that represents this study, located in the interior of the state of Minas Gerais, Brazil. The Dictionary is the result of conceptions and research and traced through an institutional project popularly called Inovar +. This project consists of an interdisciplinary team, involving professors from the Departments of Literature, Social Sciences, and Biology in partnership with the IES Distance Education Center. The team involved in the creation and improvement of the software is made up of deaf people, TILSP, researchers from different areas, undergraduate and graduate students and technicians with training in Libras and IT. This tool is one of the AT that Inovar + has been producing, and one of its functions is to support the teaching and learning of Libras by/for the deaf and hearing people.

The discussion about the performance of professional Brazilian Sign Language Translators and Interpreters - Libras - Portuguese Language - Libras (TILSP) to collaborate with the inclusion of deaf people in ES presents challenges. This article aims to present the results of a survey, carried out at the mentioned HEI with the collaboration of TILSP, to understand the

¹ According to Its Brasil (2012), Assistive Technologies are tools that have the purpose of promoting greater autonomy, independence and quality of life for people with disabilities, in order to generate inclusion.

challenges and potential of using the Dictionary for translation and interpretation activities in ES, since one of the focuses of the tool's development is the construction of a sign of specific areas, which mainly contemplates the courses that offer disciplines for deaf students regularly enrolled in this institution.

The methodological route was based on ethnographic precepts, taking advantage of participant observation, field notes and field diary (Oliveira, 1996). Still, we took advantage of the Human-Computer Interaction (HCI), from the experimentation (test-phase) to analyze the potential of the tool (Rocha; Baranauskas, 2003). Thus, the research experience shared here has as its guiding theme the inclusion of the deaf in higher education, specifically thinking about the use of ICTs as a tool for including students both in the classroom and in other spaces on campus.

For the composition of this study, initially, we wove a brief discussion about ICTs and their importance in the scope of inclusion, in the sense of facilitating the educational mediation of deaf people, enjoying the visual, a modality that encompasses the linguistic perspective of Libras. Then, the development of the Dictionary and its different functions are presented. And, also, a brief theoretical argument that involves the role of the professional translator and interpreter in the educational context. Subsequently, we describe the context of the research, the data collection instruments, the profile of the research collaborators and the steps taken to collect and analyze the data. Finally, we will discuss the data and present the main results and final considerations in relation to the perspectives of the deaf participants in the research regarding the improvement of the tool.

Theoretical Framework: The Bilingual Online Dictionary Brazilian Sign Language/Portuguese

The Bilingual Online Dictionary Libras/Portuguese is a software developed by the Inovar + project, accessed through the link² corresponding to the address, and can be used through computers and smartphones. Access is still restricted to developer projects (Inovar + and Distance Education Center) until the tool is improved and possible rejections by users are mitigated.

What differentiates the Dictionary from the others found in the Portuguese/Librassão version: *i)* the phrases for the application of signs in Portuguese and in glosses,³ favoring the learning of signs within a context, in order to make vocabulary acquisition effective in the language; *ii)* the search for hand configurations, which facilitates the handling of the tool by deaf users and contributes to the learning of Libras linguistic parameters by listeners; *iii)* the sign of specific areas, which currently has basic concepts in the disciplines of Literature, Mathematics, Chemistry and Biology, in need of expansion; *iv)* initial presentation of the Dictionary in Libras.

This tool was designed to help in the communication process between deaf and hearing people, whether they are teachers, students, subject monitors or TILSP, which interact in the different teaching and learning environments at the HEI. Thus, the Dictionary directs itself to the actions foreseen in the laws of inclusion and accessibility of the deaf in education, paying attention to the creation of pedagogical didactic materials.

² <https://sistemas.cead.ufv.br/capes/dicionario/>.

³ The glosses were defined by Paiva, et al. (2016), as oral language words spelled with a capital letter representing an approximate meaning with signs of the visual-spatial language.

When accessing the site, on the home page in the center, we see a flagged video, with subtitles in Portuguese, in which the Dictionary is briefly presented. On the left side of the screen, there is a search bar, where the words in Portuguese for the searched signal are entered. And, below the search bar, you will find the themes available in the Dictionary, so it is not necessary to search only for the word in Portuguese, as it is possible to find the desired word from the theme in which it is grouped. All these functions are illustrated in the images that follow.



Figure 1: Bilingual Online Dictionary Brazilian Sign Language/Portuguese - home page top.

The Dictionary also has a search feature by hand configuration at the bottom of the screen, corresponding to one of the five phonological parameters of Libras. The search by handshape is one of the aspects that contribute to the bilingual characteristic of the software, since deaf people who still do not master the Portuguese language can use the resource to search for the desired words.

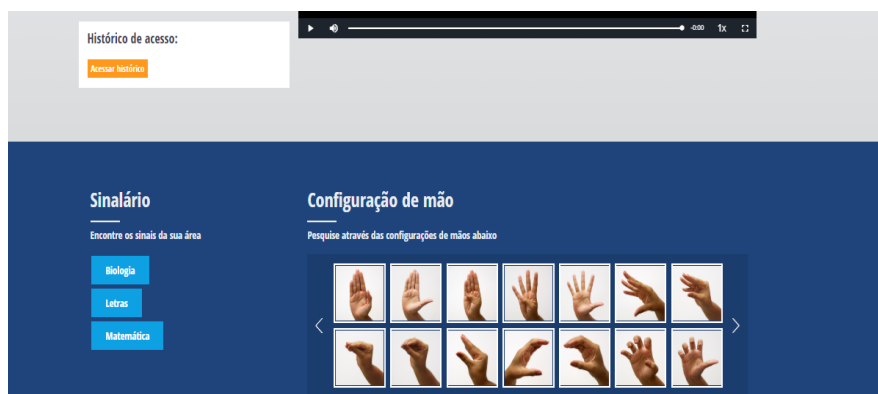


Figure 2: Bilingual Online Dictionary Brazilian Sign Language/Portuguese - home page bottom.

As it is a dictionary aimed mainly at the HE context, the resource searches by sign of specific areas of knowledge, currently containing three areas: Biology, Languages and Mathematics. In the future, research is sought, coming from different areas of knowledge, aiming at the development of the signal through the mapping and cataloging of scientific terms, supporting the process of permanence of deaf people.

The entry pages are like the picture below: on the upper left side the searched word stands out, and in the center of the page the execution of the corresponding sign video. Below, we identify the application of that word in a sentence in Portuguese and in glosses and hand configuration referring to the signal.



Figure 3: Bilingual Online Dictionary Brazilian Sign Language/Portuguese - signs page.

It is important to point out that the Dictionary is in the process of being developed, even with a small amount of signs added, due to the extensive process of cataloging, correcting, recording, reviewing and inserting the signs in the software. In addition, based on the tests, there are several indications of functions to be carried out in the coming years.

The Translator and Interpreter of Libras/Portuguese in the Educational Context

The inclusive educational model provides for the presence of a professional translator and interpreter of Brazilian Sign Language and Portuguese (TILSP) in the classroom, combined with methodological resources and teacher training (Brasil, 2002; Brasil, 2005). But even so, the methodological adaptations did not happen as necessary, and, for this reason, efforts remain active so that visual resources are explored, and, through the implementation of Assistive Technologies (AT) and ICTs, bilingual education is valued.

The presence of TILSP in classrooms and other educational environments was an important achievement that enabled communication between deaf people and listeners and promoted access to content in the first language of the deaf (Monteiro, 2006). The insertion of this in the classroom brought about a great transformation and, as already mentioned, made possible a gain in the education of the deaf. But together with this educational transformation and the entry of deaf subjects into regular schools, new challenges also emerged, as presented by Quadros (2004) in the document supporting the education of the deaf. The author points out the difficulty that teachers have in understanding that interpreters are not tutors of deaf students, they are not responsible for the student, nor are they responsible for promoting educational development in terms of acquiring specific knowledge. Therefore, the production of tools and the development of actions that seek to circumvent the difficulties of prior access to the interpretation content are increasingly necessary.

The role of TILSP is to develop actions in the field of interpretation in different contexts, mediating communication between deaf people and hearing people in educational, cultural, professional, religious, legal, political and personal areas (Monteiro, 2006). to the deaf Community through the performance of translation skills and linguistic competences,

translating in real time (simultaneous translation) or between short periods of time (consecutive interpretation) from an oral language to a signed language or vice versa (Quadros, 2004). The exercise of the functions of TILSP comes as one of the results of the movement for claiming rights by the deaf Community and researchers mobilized by the discussion in the area of education for the deaf, which seeks to prioritize Libras in communication and pedagogical processes through bilingual education (Quadros, 2005). Thus, this educational model encourages the acquisition of Libras as L1 (first language) and Portuguese as L2 (second language) for deaf students.

As a consequence of this change, the TILSP professional starts to work in different contexts and situations that demand different skills that enable a multipurpose performance, by meeting the demands of areas that do not dialogue with their basic training. For this reason, we believe that ICTs can be important allies to the translation and interpretation process, as they minimize problems such as access to content that is not part of the professional's communication repertoire. In this way, the usability test was an important process for the development of the tool, also for us to understand the demands presented by the TILSP, which is an important group of target users of the Dictionary.

Regarding the context of Higher Education (HE), Santos (2015) points out that the performance of TILSP requires greater flexibility to enable training in different skills that are demanded. With regard to the characteristics that the ES TILSP needs to gather in its profile, the author mentions the attitude of complying with the ethics of the profession, linguistic training that allows the identification of translation problems and the dexterity to overcome them, interpersonal skills, efficiency of interpretation in specific areas (Santos, 2015, p. 119). As highlighted by Santos (2015), the professional translator and interpreter is required to have a multipurpose performance, since the request that TILSP supports the most varied university contexts, in different areas of linguistic service, is factual. Therefore, the importance of continuing education activities so that professionals can meet the demands of Higher Education, such as the emerging use of technologies, practical activities for the application of knowledge that go beyond the classroom.

For this reason, this research was important for us to understand how these needs emerge in the performance of TILSP professionals in the context of the researched HEI, and what are the professionals' considerations regarding the tool. In this sense, the data presented below point out the main challenges and potential of implementing the Dictionary as a catalyst ICT in the translation and interpretation process.

Method

For the analysis of this interaction, we opted for a methodology based on ethnographic precepts, such as participant observation, field notes and field diary (Oliveira, 1996). Still, we take advantage of the HCI, from the experimentation (test phase) that analyzes the prototype (Rocher; Baranauskas, 2003). HCI is analyzed through computational tools such as image and voice recording applications¹¹, in combination with qualitative research (Rocha; Baranauskas, 2003). The objective of the analysis based on the observation of usability tests is to investigate and identify possible failures for improvement and adequacy to the reality of users. Users follow pre-prepared test scripts according to the research objectives, and are free to express opinions during the test.

The research took place from the observation of the use of the site by two TILSP professionals who work in the academic activities of students regularly enrolled in the IES, through the usability test and analysis of the Human Computer Interaction (HCI). This analysis is established from the exploration by the user of the functionalities that the product offers, to generate understanding in relation to the satisfaction, the demands and the interactions generated. Therefore, the ways in which users interacted and reacted to the commands offered showed what is necessary for adapting the tool to the specificities and demands, according to Pereira (2011).

In the application of the test with the TILSP, a script was created so that the dialogue between the participants corresponded to the research objectives, since the participants took the test simultaneously, demanding a different mediation, which would guarantee the participation of both. The team consisted of 1 (one) mediator and 1 (one) observer who interacted with the participants, exploring doubts and reactions that were not pre-established, but which were perceived throughout the test.

The test was carried out in a computer lab at the HEI, where all participants had the same conditions of use concomitantly. Both received a printed script with the necessary steps to test the tool, with each step performed there was space for reflection on the use of the tool, as shown in the next section.

Results and Analyses

The following analyzes refer to the speeches of the interlocutors in relation to the tool, participation that were crucial for the planning of the changes that are punctual to reach the objective proposed in the creation of the Dictionary. We followed the literal transcription of the speeches based on the theories of Conversation Analysis (CA) from the model presented by Garcez (2008), who works with the analysis of interaction contexts, in terms of taking turns in interaction.

The transcripts presented refer to the moments of the video in which considerations about the application of the Dictionary were initiated by the speaker, the literal transcription of the speeches was adopted. To separate the selected shifts for the analysis, different CM will be used that will make it possible to understand the beginning and end of each excerpt and preserve the identity of the collaborators, as established by Gediél (2010) in his studies on deafness. The statements quoted below were given in response to questions about the possibility of using the Dictionary in the translation and interpretation process in the context of ES and in other learning processes for the deaf in which TILSP professionals are involved. Thus, below are the fragments considered for our analysis.

There has to be something in the Dictionary more for the people here, because if you think about it in general, it doesn't include it because here it is one way, São Paulo is another, Rio de Janeiro is another in the Northeast, so it seems that you are in another place. But that's in Portuguese too (TILSP 01).

Because, well, there are some deaf people who didn't learn Portuguese, sometimes they are having their first contact with Libras now. I'm not talking about a deaf person who is in university, no, I'm talking about a layperson. I'm learning Libras over there or sometimes I'm learning Portuguese too, then I read pineapple and see the sign too. Did you understand? You

can see that all printed Libras dictionaries have the drawing there. They are very visual (TILSP 02).

As stated by Lacerda, et al. (2004), for learning a second language to be really effective, teaching should not be mechanized, it should make sense for those who learn it and learners should be immersed in places where they can use the language, making it necessary to experience in contextualized situations that have meaning for those who experience them.

Faced with the need and, at the same time, the challenges posed by users regarding the incorporation or disaggregation of signals that have a large regional variation, I present below discussions that make this situation clearer. From this, we understand that the access and quality of Libras teaching in ES is linked to the ability to meet the different needs of the public that composes it. Therefore, we verified and evaluated that the feasibility of implementing different signs referring to a single word is a positive point for the deaf, but for one of the collaborators TILSP it can be an impasse to inclusion. However, in order to promote a more effective inclusion, the considerations of deaf students and TILSP will be implemented jointly in the Dictionary, where the regional signs will be displayed in the foreground, and the other cataloged signs will receive numerical indication according to their order of appearance. However, the most used sign in the context of the HEI is the one that will be used in the application sentence that aims to exemplify a context in which the sign can be used.

In the following fragment we see another speech by one of the TILSP the dissonance of opinions as pointed out above, the first speech is by the TILSP and the next two are by two of the participating deaf students:

Just like that, I was looking at the question of the deaf, in this part of Biology, only part of the body and Biology is not that, it has to go much further. For a student who is studying Biology this is not Biology this is for a student who is starting to learn, who is enriching his vocabulary. We here at the university already have a good vocabulary, that's over here. (TILSP 02)

In order for the Dictionary to obtain permanent and official acceptance by users at the HEI through its use, it is necessary, according to the participating TILSP, that the dictionary has a larger framework because the institution can receive students from different areas of knowledge and thus learning would be possible. of specific terms. It was possible to perceive the emphasis in the speech of the participants referring to the regional variations and the signs of complex terms. As demonstrated, which makes us think of strategies to expand the system's content, taking into account that these aspects are also inherent in other languages. The realization of this note will enable its application as a didactic resource by future deaf students.

In the view of TILSP 02, the insertion of non-regional signs is productive, but it needs to be done with caution, since it needs to pay attention to the public that makes up the HEI, and beyond what is currently considered by them as the basic content of communication. The lack of knowledge of the TILSP that come from other regions regarding the signs used here makes the communicational learning process of the deaf student difficult, for this reason the Dictionary is a useful tool for the translation work from the moment that it offers the professional these signs that are used in the HEI region, and other signs that are used by deaf students from other regions who enter here.

A recurrent point was the request for specific signals so that the device could meet the difficulty that the deaf community at the HEI has been facing, these reports below give us directions for activities and new research that are being developed. Therefore, the Dictionary has as an innovation the incorporation of signs of a scientific nature, organized through a sign that initially covers some areas of knowledge and specific concepts, such as in the area of Literature, Biology and Mathematics. of paramount importance for the development of the tool. According to Perlin and Strobel (2006), it is necessary to understand the cultural difference between the deaf look and the listener look, and in terms of the production of didactic materials for teaching and learning Libras, the deaf are fundamental.

Conclusion

The research fulfilled the objective of building an accurate diagnosis on the use of the Dictionary from the interface tests with the deaf students of the HEI. Within the initial ambitions, based on the collaborative work between a technical team and a research team, it was possible to carry out the initial improvement of the Dictionary, which will facilitate the implementation of the tool in a pedagogical context at the HEI, where there is already the presence of students enrolled in different courses of graduation.

We consider that the software is accessible for the deaf, but that there is still a need to overlap Libras with Portuguese in the presentation of contents. The data support the assertion that the Dictionary is accessible and assimilable by the deaf and hearing people. That is, it was demonstrated that the Hand Configurations and the videos in Libras helped deaf people to understand by searching for certain words in Portuguese.

The observed results allowed the improvement of the Dictionary, the formulation of new interventions in the studied educational context, as well as contributing to the production of new knowledge. The improvement of the site demonstrates the need for improvements and the need for further research with the same, which is part of the next stages of development of the tool. We anticipate that the new interventions in the educational context studied will generate advances and meet the demands of the research participants. This is done by carrying out a work to encourage the use of technological tools in educational processes, believing that this process should encompass the various areas that make up the school curriculum (Carneiro; Passos, 2014, p. 103).

Due to the difficulty of finding bibliographies that present similar works on the development of ICTs for teaching and learning Libras, we realize the potential of this work and the development of new research that contribute to the good performance and implementation of the Online Dictionary of Libras/Portuguese Language. Another potential aspect of this study involving the tool is the possibility of maturation of the signal in specific areas through the contribution of the local deaf Community, and also from partnerships with other teaching and research institutions.

In the case of research with deaf individuals in which the researcher is a listener, as is the case of this research, it is noticeable the existence of the cultural difference that produces a delicate relationship of negotiation and adequacy to the reality of those who are the key pieces for the research and for the Dictionary development. That is why contact and participation in the deaf Community in the creation and evaluation of the tool is important so that it fulfills the objective of disseminating and teaching Libras, and so that there is no repetition of the historical framework of producing interventions “for” the deaf and not

“with” the deaf (Sasaki, 2007). Having the HEI's deaf Community participate is an act of recognition of the struggle for the right to speak and the leading role in decisions regarding their language.

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