Interaction between students with and without deafness: Best practices

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Abstract
Students with deafness belong to a bilingual community that defines their cultural and linguistic identity and has influence on their understanding about the world. Brazilian studies (Bisol et al., 2010; Cruz & Dias, 2009; Manente et al., 2007; Massini & Bazon, 2005) have shown that social interaction with peers at school is indeed at utmost challenge to the deaf students. So, one challenge at inclusive settings consists in planning and using strategies to overcome these obstacles at school. Teachers need to use more evidence-based practices with these students to increase social skills, such as (Lacerda, 2006): a) establishing a culture of collaboration between deaf students and typically developing peers; b) adequate role of sign language interpreter in class and other school contexts, whose actions have a direct impact on the understanding and interpretation of written and spoken language; c) adopt collaborative tools such as forum and wiki in virtual learning environments. These are some examples that can be applied and can help overcoming the challenge of sociability of deaf students in school. A relationship between peers in school enables diversity experiences and respect for others as participant citizens in a networked society. This paper will present a Literature Systematic Mapping in practice considering inclusive education for deaf students in Brazil supported on educational uses of technology.

Keywords: deafness, technologies, virtual learning environment

Introduction
The convergence of knowledge is an important factor in the learning process at school and when it comes to school inclusion is essential for practices seeking to improve teaching, learning and interaction in school. Educational technologies can contribute effectively in the process of developing inclusive school practices for people with special educational needs, in a society that is more and more digital. Un education technology approach involves the analysis of the interactions of the constituent elements of facilitating learning through technological resources (AECT, 1975).
The challenges presented to those people with special educational needs many times involves communication problems which impact in their school life, and are an important factor that influence the success of these students in the school environment.
Blanco, Silva and Oliveira (1999) emphasize the importance of the dynamics of individual and social aspirations of the actors in the educational action. Moreover, participation of new actors such as sign language interpreters, as well as understanding and interpretation of written language has a direct influence on the process of teaching and learning and school life. In Brazil, about 9.7 million people report having hearing impairment (5.1% of the population), of these, approximately 344,000 are deaf. These are important numbers that asks for all the educational approaches we can think about, and educational technologies can be an important part of the strategies or helping schools and education in general for being more inclusive.

Deaf people are taken as a bilingual community, since they are using the language of signs recognized in many countries as its official language. This linguistic differentiation defined as people who communicate and interact with visual effectiveness, and cultural and linguistic identity is reflected in a different way of understanding the world around them. In schools, this nuanced understanding is shown in questions submitted to the teacher, tendencies to study with groups of classmates also deaf, and some difficulties to interact with normal hearing colleagues and teachers.

We have to improve these social relationships in school life, as these have a strong influence on the reduction of barriers to coexistence between deaf and hearing people, allowing an experience in diversity and to respect others as participant citizens in a networked society.

Studies in Brazil shows that school life is the greatest challenge of the deaf people, some of them say that it is the transition between the world of the people with and without deafness (Bisol, Valentini, Simioni & Zanchin, 2010; Cruz & Dias, 2009; Manente, Rodrigues & Palamin, 2007; Massini & Bazon, 2005). So, one challenge at inclusive educational settings consists in planning and using strategies to overcome these obstacles at school and help to promote not only school content learning but also promotion the relationships between deaf and normal hearing students.

In order to promote the educational uses of technology, particularly information and communication technologies it is important to develop studies about how the use technology to promote teaching and learning practices in inclusive schools and classes. It is also very important to disseminate these studies and practices to teachers and educators in general.

Method
To achieve knowledge about the inclusive education practices for students with deafness, a Literature Systematic Mapping (LSM) was carried out, in order to get an overview of an investigation area to determine the evidence of research on a specific topic.

The research question of "LSM", usually applied to observe the methods used in the studies and the evidence from studies in the sub-themes. The result of the "LSM" helps to identify works for future Systematic Literature Review (SLR), or areas where there is a shortage of primary studies (EBSE, 2007; Kitchenham, 2010).

The mapping process identifies the amount and type of research and results available within it, in order to organize them in sufficient detail to answer the questions of the broader exploratory research. These categories are generally based on the information such as author names, publication type and date of publication and work methods used to carry out the research, obtained in literature selected on the basis of several criteria defined by the researcher (EBSE, 2007; Budgen, Burn, Brereton, Kitchenham & Pretorius, 2010).

Our initial question was, "What research has been carried out between 2009 and 2013 on the subject of the use of educational technologies to improve learning for deaf students and their interaction with students without deafness?"

Through this initial question the association of keywords used for searching was Deafness + Interaction + "Educational Technology" with a view to a comprehensive coverage of data collection.
The search focused on the period between 2009 and 2013, and focus on scientific papers and research thesis supported on studies carried out in Brazil. The mechanism for searching chosen was the Google Scholar.

Results
The search process on Google Scholar retrieved 332 scientific documents to analyze. Although selected by the online search engine, some work was excluded after reading and analyzing summaries that did not directly address to the research question. Furthermore, papers that reported to other disabilities, or hearing and deaf problems that report to elderly or clinical practices were considered out of the scope of the LSM.

This selection process results in 8 articles published in conferences papers, seminars and scientific publications, including 5 thesis. The figure 1 shows the distribution by years and highlights the number of papers published in 2012.

![Figure 1 – Number of scientific studies between 2009 and 2013.](image)

In table I are listed all the documents that we considered relevant to our study. After the LSM (literature systematic mapping), the next phase of our work will be the SRL (systematic review of literature) in order to identify and report the content of these studies, in order to contribute to disseminate the identified studies and evidence the need of educational technology studies aiming to promote inclusion of deaf people.

Table 1 – Studies that focus on the use of educational technologies by deaf people in Brazil.

<table>
<thead>
<tr>
<th>Authors</th>
<th>Original Title</th>
<th>Translated Title</th>
<th>Type</th>
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<tr>
<td>Boscarioli, C.</td>
<td>Avaliação e design de interação de jogos voltados ao aprendizado de crianças surdas.</td>
<td>Evaluation and design of interaction games for deaf children's learning.</td>
<td>Paper</td>
<td>State University of Oeste Paraná</td>
<td>2012</td>
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<td>Salles, C.G.</td>
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Conclusion

In general, the selected papers report studies that use technology to improve the learning process of deaf students, included in high school classes. Techniques and technologies used include the use or design of educational software for deaf people; adaptations of virtual learning environments for incorporating sign language, using web 2.0 services as blogs and social networks, which is used to enhance the communicability of people with hearing impairment, and usability analysis of technology resources.

Also noteworthy is the large number of master’s thesis on the subject, most of them reporting discussions that demonstrate concern for the future of inclusive school and the search for solutions that reduce attitudinal barriers still existing. All this emphasize the concerns of the academic community with the subject and the process of inclusive education in schools.

Acknowledgment

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References


online para os usuários surdos: Um estudo de caso do Orkut In 10th Brazilian Symposyum on Human Factors in Computer Systems & 5th Latin American Conference on Human-Computer Interaction. Porto de Galinhas, PE. Abstract retrieved from: http://dl.acm.org/citation.cfm?id=2254436.2254478
EBSE Technical Report, UK


