

Visual Strategies: Learning Objects to Teach Written Text Cohesion to the Deaf Using Sign Language as Scaffold

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Abstract

Language is a special activity, and it's through/via/with language that we develop intelligence, knowledge, and culture. Language is what makes us human beings. Language and its meanings allow for interactions among members of the society to partake in the same culture. People are more than legal citizens: the sense of belonging creates identity, in a process mediated by language. Deaf people have little to no access to the oral language; thus, they have difficulties to share in the national literature, media, popular culture, traditions, myths, folklore, among others. In order to build this identity, the Deaf¹ need to learn the written modality of the Oral language from the culture in which they are immersed. Unfortunately, very few research and resources are dedicated to such task. This research proposes a Learning Object that uses Sign Language (the natural language of the Deaf) to teach text cohesion.

Keywords: Deaf Education; Learning Object; Deaf Education;

1. Introduction

Language is vital to the human brain, and it is paramount to the process that allows human beings to develop intelligence, create knowledge, make sense of their environment. Language is used to generalize concepts, express ideas, thoughts and feelings. From birth, the human baby is immersed in an environment that provides the necessary conditions for cultural development, and language is part of such endeavor as it incorporates social and cultural functions, mediated by language (Vygotsky, 1974; Bakhtin, 1988).

Such is not the case for the Deaf children born to non-Deaf parents. In order for the same process to occur, the parents must use Sing Language, the natural language of the Deaf. This is not a simple process: first

¹ This research uses the convention from Deaf Studies, and use the word Deaf (capital D) to refer to members of the Deaf community.

and foremost, there must be an acceptance and understanding that being Deaf is just a different way of experiencing human life. Usually, when a Deaf child is born to non-Deaf parents, she is subjected to medical opinions that try to treat deafness as a disease to be removed. This creates a delay in exposure to Sign Language, and the Deaf child is isolated: she has no linguistic model from which to learn, no other Deaf children with which to comprehend the world and to create meaning (Fernandes, 2012; Skliar, 1999; Sánchez, 1991).

Being isolated from a natural linguistic environment that would be conducive of intellectual development via social practices mediated by language is only the first barrier the Deaf faces. It is not enough to conquer this first hurdle, given that the Deaf find themselves in another peculiar situation in which they are not completely isolated, but might as well be because the consequences are as dire: the Deaf are then immersed in a context in which the oral language is the language of choice to create and disseminate knowledge and information. This presents a challenge for the Deaf – they have no access to the oral language, and thus have difficulties to learn a language from the hegemonic society. They can speak, but learning to do so is an imposition, a new form of prejudice, colonialism and exclusion. The alternative is to learn the written modality of the oral language – but that only recently came to be accepted and used (Hoffmeister, 1999; Johnson, Liddel & Eting, 1989; Lodi, 2012; Fernandes, 1999).

According to Hall (2000), modern society is going through structural changes, where social relations are extracted from interactions and their restructuring in time and space and differences. As such, the identity of the Deaf will always be a socio-historical construct (i.e. a phenomenon intrinsically determined by the nature of the social relations that are established between the Deaf and the non-Deaf) according to Najarian, (2008).

The Deaf movement has a long history of fights and struggles to have access to and to have the right to use their natural language and culture. And this research aligns with the Bilingual Literacy educational approach for the Deaf (Kyle, 2005): the Deaf has the right to use Sign Language to access social and cultural knowledge (Nover, 1998). The Deaf have the right to learn content in a language over which they can have fluency, with utmost respect to social, cultural, educational, pedagogical aspects of the Deaf condition. But it is also of great importance that the OL should be taught to the Deaf, via adequate methods (i.e. the written modality of the oral language, using Sign Language to scaffold such learning) (Hoffmeister, 1999; Johnson, Liddel & Eting, 1989; Lodi, 2012; Fernandes, 1999).

Scaffolding refers to a variety of instructional techniques used to move students progressively toward stronger understanding and, ultimately, greater independence in the learning process (Alber, 2011). Bilingual Literacy occurs when social practices of the use of both languages (the Sign Language, and the written modality of the oral language) make appropriation more effective, pleasurable, and accessible, for communication and information purposes, in a way to allow the full exercise of citizenship in different cultures (Vygotsky, 1974; Bakhtin, 1988).

The Deaf are willing and engaged in a process to learn the written language as a second language. But only recently, and scarcely, such concern has entered the academic and research agenda (Johnson, Liddel & Eting, 1989). Mostly, the approaches used to try to teach the Deaf to read and to write are based solely on the oral language, with weak results that are few and far between. Additionally, the Deaf suffer prejudices in school, where they are judged as less capable than their non-Deaf peers. There isn't a political agenda, nor there are pedagogical materials to support such efforts by the Deaf to learn. Most studies claim to teach the oral language as a meaning of communication, but language goes beyond mere communication, as they serve other important functions into other realms such as literacy, interactions, identity and citizenship (Gnerre, 1984; Rojo, 2006; Ewoldt, 1985).

This research presents a framework with which to inform the design of Learning Objects to teach written

text cohesion to the Deaf: the explanation of the subject is in Sign Language, thus providing the Deaf with a tool that can be used to further learning, granting some extra support and independence. Given that culturally, deafness is not viewed as the absence of hearing but the presence of vision, the proposed learning object relies on the visual aspects of the text and the accompanying illustration to teach the Deaf in a manner that is more natural to the nature of their language. The main goal is to create visual environments where the text is explained in Sign Language (Koch, 2013); then it is presented with illustration; then an animation shows the learner the referent and the references within the text that are used to create the cohesion. Learning Objects can be defined as a “web-based interactive chunks of e-learning designed to explain a stand alone learning objective” (Churchill, 2007). This research chooses to use text cohesion as a theme, of popular folklore legends, because the cohesion structures in both languages vary differently, thus making it a difficult subject for the Deaf to learn.

The remainder of this article briefly discuss the need for bilingualism when it comes to the education of the Deaf; then it presents some (un)related approaches. The framework is described and its initial validation presented. Results show that the use of the Learning Object increased the understanding of written text.

2. Hegemonic Narrative About the Deaf

A master narrative of audio-deficiency has long and historically represented the Deaf people. This hegemonic discourse relegates them to a mandatory consensus of the clinical-pathological approach, in which deafness is to be removed, and deaf are considered not capable to live what is considered a normal life. This perverse narrative dictates that the only form accepted for the Deaf is to learn the oral language (which is almost impossible, due to their undeniable condition). Those who do not master the oral language are thus excluded (Fernandes, 2012).

Fernandes (1999) says that Deaf students are relegated to an educational situation that puts them in extreme disadvantage. This disadvantage materializes in the power and knowledge relations that are instituted within the classrooms, given that the Deaf always occupy, in such linguistic practices, the role of the error, the inefficiency, the ever present lack of knowledge. The Deaf are actively pursuing the learning of reading and writing the oral language, but they are marginalized by arbitrary evaluation methods suitable for the hearing for example, and inaccessible to the Deaf.

Such atrocious pathological view and imposition of the oral language have brought about communication approaches that create confrontations between the Sign Language and the oral language, whereas there should be none if both were to be equally respected. Instead, the oppressive methods do not provide for learning of knowledge, for example. The limitations imposed on the Deaf preclude them to create a sense of self, mainly because the family and the school limit their opportunities for social interactions because of the communication focus of language. That is, the oral methods want the Deaf to learn the oral language, neglecting the learning of Sign Language, and the learning of content in Sign Language (such as math, biology or any other subject).

But language is more than communication: it is interaction, it fosters power, creates meanings, it incorporates ideological and socio-political opportunities for cultural processes.

Language acquisition happens naturally, when the conditions are right: take the non-Deaf children, for

example. When she is surrounded by social and rich linguistic environment, they will acquire the oral language and will begin her journey into intellectual development and learning (Fairclough, 1989; Wills, 1981; Motschnig-Pitrik & Standl, 2013). She will be able to create superior mental functions. Vygotsky (1974) says that the main trajectory of the child psychological development is that of progressive individualization (i.e. a process that originates in the social relations, mediated by language).

Such is not the case for the Deaf: Sign Language is not commonly used. Most hearing parents do not learn of it until the Deaf child is in her early teens. And only then they allow her to associate with other Deaf and learn Sign Language – but, by then the damage is already done. The lack of Sign Language acquisition prevents the Deaf access to human knowledge and full exercise of citizenship: according to MacNamara (1982) language is basilar for power relations, and is the greatest barrier that blocks access to power.

The Especial Education Programs talk about inclusion, but Kleiman (1995) states that this term has invaded our discourse, without the proper understanding of what kind of inclusion we are talking about, and how it should be achieved, and by which means. Additionally, continues the author, there is a need to acknowledge the real conditions in which the Deaf are oppressed, lest we are under penalty of transforming the school into another place of exclusion: how to conciliate such disparate objectives (i.e. to impart the same knowledge) in a class environment with different needs of different pedagogical methods? It has become apparent that a school for the Deaf, with Bilingual Literacy is the policy of choice, because it deals with more than a new praxis, but entirely new pedagogical approaches (Skliar, 1999).

For example, differently than mere alphabetization (a process that requires access to the sound and its association to the written symbols – which is highly dependent on the oral language, and thus inaccessible to the Deaf), Bilingual Literacy is the method of choice (Cagliari, 2012). The Deaf can acquire the written language without the emphasis on the relation sound-letter (Skliar, 1999). The Deaf can acquire the written form of the oral language by the use of adequate methodologies that take into account the visual aspects of the Deaf culture, and strategies in Sign Language.

As it turns out, adding to the already strenuous task of having to learn another language, the oral language, the Deaf is faced with an arduous process, which requires formal and systematic pedagogical and educational policies (i.e. instructions on grammar, lexical knowledge etc.). But even though the written form is somewhat related to the oral language, they do present some specificities that allow both systems to be autonomous, and thus accessible to those who do not have audio capacities. This allows the Deaf to become non-alphabetized reader (i.e. they can dominate the written form of the oral language without having to know the sounds). In order for that to happen, visual strategies should be provided in the Learning Object for the Deaf.

A new approach is in order; otherwise we are left with traditional strategies that limit the Deaf to formal, inadequate processes of robotic/repetitive/mechanical instructional methods that are removed from the informational dimension (Fairclough, 1989; Wills, 1981; Motschnig-Pitrik & Standl, 2013).

2.1 Current State of Affairs

Guimarães et al. (2013) conducted a field survey with 260 educators in the public system of the state of Paraná, Brazil. The findings were very contradictory: the majority reported both that they do not have proficiency in SL, but that they adopted the BL. This is an example of the master narrative of the Especial Education Program policy in the country. Such programs say that all students with different deficiencies should be put together in the same classroom. What this program failed to provide was the necessary means for this to happen. This way, most part of the Deaf in Brazil are in classes where the oral language is mandatory, and where from the Deaf it is expected that she acts as a non-Deaf, and never learn to read and write due to educational practices that do not contemplate their real needs and abilities. The sad part of this equation is that the Deaf do not share the same socio-ideological horizon with the non-Deaf due to their different educational experiences. That which is said in class is hard to be understood by the Deaf (Bellugi et. al, 1984; Volterra & Erting, 1984).

Guimarães et al. (2015) found that the narrative of the educators was that of the “hearing” Deaf: “The Deaf who has speaking conditions should work on it because they are going to live with hearing people and their alphabetization will be easier”. Others were adamant about the Deaf’s ability to learn: “We can affirm that the Deaf student will never achieve interpretation and production of writing in an integral manner”.

Furth (1981) used Piaget (for whom the intelligence is based on motor and sensorial aspects, not linguistics) with little advancement in the learning process. Ferreiro e Teberosky (1988) based their methodology on the oral language, and the results reported showed that the children were able to learn how to “draw” words, the same results found by Gesueli (1988) and Cruz (1992). The lack of proper preparation and the total absence of adequate Learning Objects to aid the educators in their task has produced a discourse of pseudo bilingualism in which the Sign Language is subordinate to the oral language of the majority. Botelho (2002) also talks about the problems of a reading material where the written text is translated to Sign Language, which affects negatively the interpretation by the Deaf, by reducing the lexical, syntactic and semantic complexities of the languages involved. Several authors (Hoffmeister, 1999; Johnson, Liddel & Eting, 1989; Lodi, 2012; Fernandes, 1999) say that the learning of the written system of the Sign Language, such as SignWriting (Sutton, 2006), which is based on a system of pictogram representation with visual spatial signs, also help the Deaf to learn.

But Hall (2000) called for a ideological model, which implies the need to revise questions that are pertinent to the teaching and learning of reading and writing from its foundation, in a radical transformation of access to the written language, pedagogical organization and educational conditions. The proposed framework addresses this issue by providing examples of how a Learning Object should be created and made available to educators, as complementary material to teach text cohesion, less we are left with the Deaf not having access to the learning process.

3. Reading Text Using Sign Language

It is important to point out here that the internalization process of language demands mental operations in a semiotic process. Meanings should provide a material excitement (be it sound, visual, tactile etc.) to be perceived, mediated by the social group and signified by the reader (Vygotsky, 1974). And this semiosis

should not be limited to a reduced view of human capabilities as triggered only by the oral language. Semiose is the semiotic process by which one derives meanings.

A text is a linguistic unit of meanings that result in the interaction between the writer and the reader. It may have a variety of sizes and conformations. It may be as long as one word or go up to thousands of words, and may bring pointers to its beginning and end. These pointers, usually, serve the purpose of providing text cohesion. Although it is composed by words, phrases, periods, paragraphs or even bigger unities, the text is not defined by the sum of its parts. If the text lacks cohesion, for example, it may be ambiguous and hard to interpret.

Lets exemplify text: a poem, a journal, a book, a label, a comic book, a bus stop sign all may contain some written form of the OL, together with other visual, pictorial information that are part of the code in which the message was transmitted, and the code in which the message should be interpreted.

The text comes in several genres such as a scientific article, a book chapter, a newspaper clip, a charge, a graph, a dictionary entry, a bus stop sign, a label of a product, short stories, novels. So a text has an author, a reader, a goal, a subject, a material support, a manner in which it is written (i.e. its genre – such as short stories, fairy tales, poetry etc.). It is a complex semiotic sign, may expand on a theme, it may be an specific way to communicate, it is a process that mobilize cognitive operations, it is a place of interaction between social actors and of meaning construction (Cummings, 1979).

Text comes from the Latin word TEXTUM, that means intertwined clothe. The meaning of the text will be determined by the interaction between author-text-reader. Cohesion keeps the text together. Cohesion means union, relation. In linguistics, it indicates the relation between words, expressions and phrases. They are the correct grammatical connections between elements of the text. It creates the bonds that link the various segments of the text: a text is cohesive when its parts are linked. A referential cohesion avoids repetitions of words in a text (by substitution – using a pronoun, an adverb etc.). Lexical cohesion uses synonyms, for example. You can achieve cohesion by ellipse and conjunction also.

This research used folklore stories from the Brazilian culture to inform the design of learning object that uses visual strategies to teach text cohesion to the Deaf. Brazil has a vast folklore, such as popular parties like the Carnival, religious stories, ghost stories, games, jokes, and dialects – they form a rich popular culture that represents the social identity and it is part of the country. Brazilian legends are vastly influenced by the miscegenation of races from African and Indian origin, thus making this genre a good option to use. Legend in this context is a fantasy narrative that may combine historical facts with imaginary ones.

This research designed three Learning Objects based on Brazilian Folklore legends. We are going to illustrate with the story of “Saci”. Saci is a being of the forest. He smokes a pipe, and has only one leg. He is mostly harmless, and enjoys playing pranks (e.g. hide objects, scare the cows). He moves around in a twister, and can be captured with a sieve. Figure 1 shows a still of the illustration in video that tells about the legend:



Figure 1 – Reference to the main character on the text. The system dynamically highlights the text, and points to the character to which the text refers.

Note on Figure 1 one that the referent is in green, and there is an arrow pointing towards the main character. At this point, the student is only familiarizing with the learning object. The learning object presents a video that first narrates the story of the legend, in Sign Language, so that the reader can have a general understanding of the text, its genre, etc. The reader can come back to this video any time she wants, for further understanding and clarification of any possible doubts. This visual strategy is used throughout the learning object, and has the goal of making the reader more familiar with the text.

3.1 Cohesion in Sign Language and Oral Language

The choice of cohesion for the learning object is because it varies vastly: Sign Languages have other ways to narrate: it can use the space, where the character is placed, and it remains there, in a space-token, that is referenced by pointing, turning the body, gazing. The narrator can also create a classifier, that would then represent the character throughout the narrative. Additionally, in what provides for a very rich narrative, the narrator can incorporate the voice of the character in a process denominated subrogation (for example, the left side can be the Wolf, and the right side can be the little red hooded girl – and the narrator would turn body position, gaze, hand, posture, gestures to incorporate each character).

4. Framework to Teach Text Cohesion

The proposed framework provides guidance to inform the design of learning object to teach text cohesion to the Deaf. It uses Sign Language in video, and animated illustration to scaffold the content of the text, the context, and the linguistic subject of cohesion. A lot of planning should go into choosing the subject, the theme, the genre of the text, and even, when deemed necessary, the text should be adapted, and presented with a glossary of meanings of words. In the oral language, there are several ways in which cohesion can be achieved (Halliday & Hasan, 1976).

The framework comprises the visualization of the text, the explanation of the context, the teaching of the subject, the clarification of meaning of some unusual words, and the actual reading. This cycle should be repeated until the text is fully understood. The benefit of a digital learning object is that it gives the

student independence to perform such tasks at her own convenience. Figure 2 shows the proposed framework.

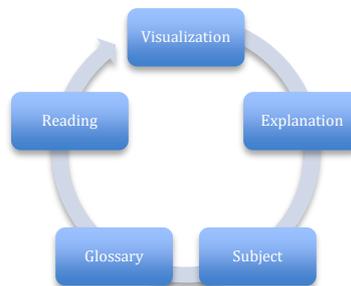


Figure 2 – Framework to inform the design of Learning Objects to teach text cohesion to the Deaf.

In a similar manner in which the non-Deaf learns to read and writing by the use of the oral language, the Deaf will require a systematic and intense interference, mediated by the Sign Language, in order to learn this new symbolic representation that will allow her to establish new meaning relations within her social circle. Next we explain some of the activities that take place in each phase of the learning object. It is important to mark a historical point here, to insist on the written form of the oral language, which is essentially visual and for which there is no sensorial impediment for the perception and cognitive process by the Deaf.

4.1 Visualization of the Text

Sign Languages have a different structure than the oral language (Bolgueroni & Viotti, 2013) and it should be used to bring meaning to the written words. The Deaf should read the text several times. First, Sign Language should be used to help the Deaf to visualize the text. A video in Sign Language should tell, in a general manner, the overall meaning of the text, the general story being told, the theme of the text, its author, its origin, its genre (i.e. the learning object should provide clues, in Sign Language video, that would allow the user to become familiarized with the text before the actual reading. This process is similar to the pedagogical strategies of teaching non-Deaf to read). This video is the first interaction with the learning object, and the Deaf may play it as many times as necessary.

In this manner, Sign Language is used as a language of instruction, teaching and culture. Sign Language is used as a tool to provide additional motivating to the reader; to attract the learner to the context and content of the text. It will help the Deaf to internalize symbolic knowledge, necessary to appropriate writing acquisition, of visual, graphical nature, learned in the SL interactional practices, without the limitation of the oral language. Figure 3 shows a still of the Sign Language illustration and animation showing the “Saci”:



Figure 3 – References within the text: both the reference and the referent are highlighted.

For example, if the text is a legend, of Indian origin (as is our example), it should be explained to the Deaf that the Indians were the original inhabitants of Brazil; that they have a very rich history; that their folklore helps them keep traditions, tell about their heroes.

4.2 Explanation of the Text

Sign Languages have a different structure than the oral language. Most narratives in Sign Language are visual, usually recorded in video. Therefore, an explanation of the structure of the text is in order. This process is akin to the one used to read and teach non-Deaf children: the reader shows images, details, answer questions among other activities that will help the child to understand better the text. Those strategies are not so directly and easily accessible via the oral language for the Deaf: they should be done in Sign Language in video.

This practice (i.e. of explaining the text to the Deaf) allows for the Deaf to participate in the narrative, and to create an environment surrounding the text that is familiar to her and that makes sense to her. This atmosphere will entice the reader to the content of the text in a manner that is different from the pure and simple text (i.e. the text will begin to come to live). The use of Sign Language here should not be considered as a translation of the text, where each word is equated to a sign. Sign Language should allow the student to be able to explore the text, to try to recognize words they know, to try to make sense of new words, and to explore all sorts of information that is present.

4.3 Teaching Text Cohesion

After this first overall introduction to the content of the text, then Sign Language should also be used to explain the subject matter of the learning object. The concept of cohesion should be explained and compared to how the equivalent effect is achieved when the narrative is in Sign Language. For example, the video in Sign Language should show the sentence, its referent and its reference, in a visual manner: “Joanna changed majors. She now studies Computer Science. Her parents approve of the decision. The girl is happier now”. Figure 4 shows a graph of the references used in the text:

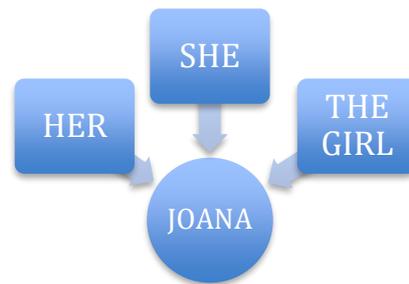


Figure 4 – Words for text cohesion. It can be a pronoun etc.

Instead of repeating the word Joanna every time, the text substitutes it for “she”, “her” and “the girl”. Note that in the written form of the language, those words may assume different grammar denominations. But they all make references to the same Joana. In Sign Language, as explained before, Joana could be placed on the space where the signing is happening (space token) and any reference to her would be by pointing, or gazing. Additionally, a classifier could be created to represent Joana (a sign, for example), and this classifier would be used to represent her. Additionally, the narrator could incorporate the character Joana (subrogate space) to narrate the story. The learning objects also teach about anaphora and cataphora. Figure 5 shows the Saci moving around in his twister, with such examples:



Figure 5 – Examples of different cohesion elements. It can be a direct or indirect object.

In linguistics, anaphora is when the reference returns back to the referent. And cataphora is the use of an expression or word that co-refers with a later, more specific, expression in the discourse.

Some times, the cohesion is lexical (i.e. it uses a pronoun for example), and sometimes the reference in the oral language can be entire sentences. This also should be shown and explained to the reader.

It is important for the student to understand how these mechanisms occur, mainly because they differ from the strategies from Sign Language (i.e. in Sign Language the narrator may use the space token, where she puts the character there and points to that region in space when she wants to make a reference

to it; or she can incorporate the character – subrogate space – and then she will narrate the text using the voice of the character). Figure 6 shows a still of the learning object with such references:

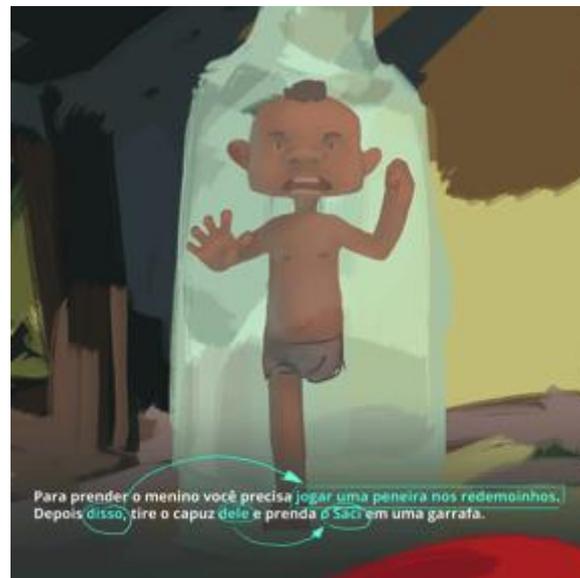


Figure 6 – this print screen shows entire sentences as references.

The narrative runs along, and can have more text. Figure 7 shows both anaphora and cataphora, and different lexical grammar elements (e.g. pronoun, direct object):

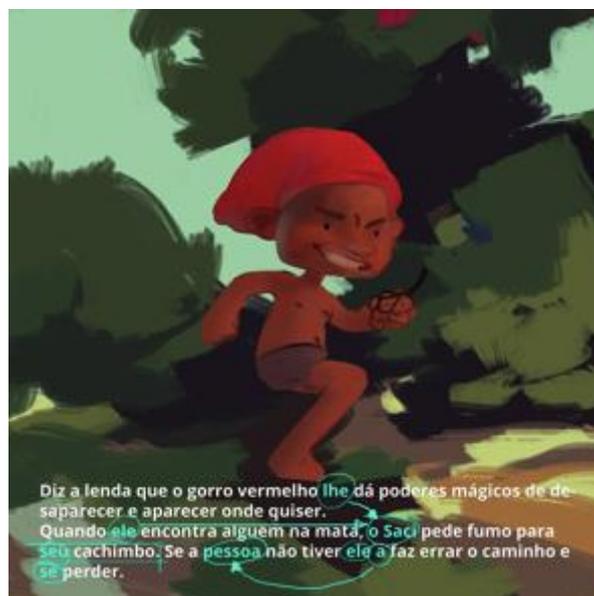


Figure 7 – More complex examples.

4.4 Glossary

Most of the learning process, the meaning of words and expressions may now be recognizable. Linguistic elements may become more accessible (such as narrative style, description, characters, actions, dialogs). Marks for the beginning of the text, as well as punctuation marks to show end of a unit may be observed. Reading is no longer a guessing game of fragments with no meaning. But still there may be some lexical

element that is not known. Vocabulary is very important to the reader. It is fundamental that a glossary be presented, in Sign Language, translating and explaining certain words. Some times these words may require more than a translation, because their use in the text may be unusual, or a metaphor, for example. Educators should pay attention to elements that serve as aid and to those elements that may prove to be barriers.

Figure 6 shows a still of the glossary video in Sign Language showing the sign for “SIEVE”:



Figure 8 – Sign Language for Sieve.

In the Saci folklore, the sieve is used to capture the Saci, whereas, it is used for several other things: to separate grains or a certain size, or to separate gold from pebbles in a river, for example. These various uses of the word could be shown here; but it must be clear which meaning of the word is used in the text. It is time now to let the student engage in the reading of the text. An exercise paper should accompany this reading where the student should make notes about the cohesion elements she may have found, and compare her results with those presented by the learning object.

4.5 Reading

By now, the learner has a general understanding of the text. She has seen the genre and structure of the text. The concept of cohesion has been explained. The possible words that will be used to reference a referent have been presented. The glossary has been translated and explained. The reader can now go to next phase of the learning object: reading. In this phase, the learning object will present the illustrated animation with the text, and visual strategies, such as colors and arrows will point the referents and references that make the text cohesive.

The learning object then goes on to show all the text references. Given that the learning object is available to the student, she can play it several times until she understands the concept, and is able to make sense of the text. This will give her independence and additional material to study.

5. Use of the Framework

A good reader may become a good writer: both processes are intertwined. Deaf students should be encouraged to practice reading and understanding the text. Educators should create opportunities for both activities, in different genres, different texts and contexts. Students should be able to compare different versions of the same story (to see different narrative voices, styles, vocabulary). The use of a text that

could bring a practical result, such as a cake recipe the students could bake, or an e-mail to a family member they should write.

Educators have used this methodology in paper for three semesters. The explanation in Sign Language was done in class, and the student would only have the text to read at home. This practice was considered adequate for teaching the basics of text cohesion. But the Deaf had a lot of difficulties understanding the real meaning of the concept and had problems identifying the referents and references within the text.

The framework informed the design of three learning objects (i.e. three different stories, of the same genre). This extra material gave the Deaf independence to study the material at home, at her own pace. The learning object is a sequenced video, which allows the student to pause, return, replay, move forward at will. The recommended order is to see the Sign Language video presenting the text; then the explanation of the text; the teaching of the subject. The student can see the glossary, and then read the text looking for the elements of cohesion. The learning object will point them to the student, just as the teacher would tell non-Deaf people which elements are being used.

This extra practice greatly improved their understanding of the subject and their grades on exercises where they were asked to point the referent and references from the text.

In the studies performed to validate the framework and the learning, with followed Dolz & Schneuwly (2004): the framework was validated by a multi/interdisciplinary group of educators, Deaf teachers, psychologist to guarantee that the approach was consistent with the point of view of effective interlocation with literature in the area, thus fulfilling the criteria of social relevance an innovative learning object.

Additionally, the research surveyed three educators and 10 students to validate the learning object qualitatively, who found that the learning object allowed for an efficient pedagogical practice, that it was valid to the extent that it presented the students with cultural and social texts, with concrete use of Sign language as language of instruction.

Ten Deaf students used the system for two weeks at home. They considered the learning object to be easy to use, and that it provided them with support material to really understand the text. Just like any pedagogical tool or methodology, this framework requires further, extensive research: with different students, contexts, genres, subjects (i.e. a related topic such as coherence, for example).

6. Considerations

The historical and political view of deafness has dictated a medical-pathological approach that regards deafness as a deficiency to be removed. This oppressive system has resulted in a series of wrong pedagogical practices that are not conducive to learning. The Deaf have difficulties to acquire their natural language, the Sign Language, and the written modality of the oral language. The predominance of the oral language in lieu of the Sign Language has prevented the intellectual development of the Deaf, by the lack of language acquisition – thus deprived, the Deaf have little chance to develop superior mental cognitive functions.

Reading and writing require a systematic approach, especially when teaching specific subjects within such activities, such as recognizing and using elements that give cohesion to the text.

The proposed framework follows pedagogical steps that take into consideration the abilities of the Deaf to use visual resources: the illustration and animation play an important part of the learning object, because they are rich, colorful non-verbal tools to allow visual contextualization; and they can be used by

the learner without the need of a teacher, thus increasing their independence and their control of their own learning.

Preliminary results indicate great potential for the framework, and further studies are ongoing.

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Research question

Results

Demonstrate the innovation