GEOGRAPHY, LANDSCAPE AND PHOTOGEOGRAPHY: AN EXPERIENCE IN TEACHING DEAF STUDENTS

GEOGRAFIA, PAISAGEM E FOTOGEOGRAFIA: UMA EXPERIÊNCIA NO ENSINO DE ALUNOS SURDOS

GEOGRAFÍA, PAISAJE Y FOTOGEOGRAFÍA: UNA EXPERIENCIA EN LA ENSEÑANZA DE ESTUDIANTES SORDOS

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ABSTRACT

One of the great challenges for elementary school teachers involves the inclusion of students with disabilities, which makes the development of new teaching-learning procedures a constant in the school process. The aim of this research was to offer deaf students (enrolled from the 6th to the 9th grade of elementary school, in a public school in the Federal District of Brazil) a geoiconographic method of study, in order to find the relationships and possibilities of teaching-learning based on the three axes of landscape, photogeography, and transdisciplinarity, as instruments that enhance geographic thinking, particularly for deaf students. The methodological procedures involved qualitative research, semi-structured interviews, and field activities. The semi-structured interview made it possible to understand the relationship between deaf students belonging to Geography, the didactic resources used in Geography classes, the existing relationships between students' daily lives and Geography classes, and how imagery resources can be considered facilitators in learning for these students. Field activity made it possible for students to recognize the different landscapes existing in their city, in order to relate them to concepts and geographical phenomena. Photographic cameras were used to obtain images, distributed individually to students. From the images obtained and communicating through Libras (Brazilian Sign Language), a didactic intervention was carried out in which the students visualized the photos, constructing/reconstructing their concepts and geographical meanings. This construction process culminated in the elaboration and presentation of banners to the school community, using the photography obtained by the students.

Keywords: teaching, landscape, photogeography, transdisciplinarity, deaf education.

RESUMO

Um dos grandes desafios dos professores do ensino fundamental envolve a inclusão de alunos com deficiência, portanto, a busca pelo desenvolvimento de novos procedimentos de ensino-aprendizagem deve ser uma constante no processo escolar. Esta pesquisa teve como objetivo aplicar uma proposta geoiconográfica com alunos surdos matriculados do 6º ao 9º ano do ensino fundamental, em uma escola pública do Distrito Federal/Brasil. Objetivou-se encontrar as relações e possibilidades de ensino-aprendizagem baseada nos três eixos paisagem, fotogeografia e transdisciplinaridade, como instrumentos que potencializam o pensamento geográfico para alunos surdos. Os procedimentos metodológicos envolveram pesquisa qualitativa, por meio de entrevistas semiestruturadas e atividades de campo. A entrevista semiestruturada possibilitou compreender a relação entre o pertencimento do aluno surdo à Geografia, os recursos didáticos utilizados nas aulas de Geografia, as relações existentes entre o cotidiano dos alunos e as aulas de Geografia, e como os recursos imagéticos podem ser considerados facilitadores na aprendizagem desses alunos. A atividade de campo permitiu aos alunos reconhecer as diferentes paisagens existentes na sua cidade, de forma a relacioná-las com conceitos e fenómenos geográficos. Para a obtenção das imagens foram utilizadas câmeras fotográficas, distribuídas individualmente aos alunos. A partir das imagens obtidas, e utilizando Libras, foi realizada uma intervenção didática em que os alunos visualizaram as fotos, construindo/reconstruindo seus conceitos e significados geográficos. Esse processo de construção culminou na elaboração e apresentação de banners para a comunidade escolar, a partir das fotos obtidas pelos alunos.

Palavras-chave: ensino, paisagem, fotogeografia, educação transdisciplinar, surdos.

RESUMEN

Uno de los grandes desafíos para los docentes de primaria pasa por la inclusión de alumnos con alguna discapacidad, por lo que la búsqueda de desarrollar nuevos procedimientos de enseñanza-aprendizaje debe ser una constante en el proceso escolar. Esta investigación tuvo como objetivo aplicar una propuesta geoiconográfica con estudiantes sordos matriculados del 6 ° al 9 ° grado de la escuela primaria, en una escuela pública del Distrito Federal-Brasil, en esta perspectiva se vislumbró encontrar las relaciones y posibilidades de enseñanza-aprendizaje. basados en tres ejes, paisaje, fotogeografía y transdisciplinariedad, como instrumentos que potencian el pensamiento geográfico de los estudiantes sordos. Los procedimientos metodológicos involucraron investigación cualitativa, utilizando entrevistas semiestructuradas y actividades de campo. La entrevista semiestructurada permitió comprender la relación entre la pertenencia de los estudiantes sordos a la Geografía, los recursos didácticos utilizados en las clases de Geografía, las relaciones existentes entre la vida cotidiana de los estudiantes y las clases de Geografía, y cómo los recursos imaginarios pueden considerarse facilitadores en el aprendizaje. de este grupo de estudiantes. La actividad de campo permitió a los estudiantes reconocer los diferentes paisajes existentes en su ciudad, con

el fin de relacionarlos con conceptos y fenómenos geográficos. Se utilizaron cámaras fotográficas para la obtención de las imágenes, distribuidas individualmente a los estudiantes. A partir de las imágenes obtenidas, y utilizando Libras como lenguaje, se realizó una intervención didáctica en la que los alumnos visualizaron las fotos, construyendo/reconstruyendo sus conceptos y significados geográficos. Este proceso de construcción culminó con la elaboración y presentación de pancartas a partir de las fotos obtenidas por los estudiantes para la comunidad escolar.

Palabras-clave: docencia, paisaje, fotogeografía, educación transdisciplinar, sordos.

INTRODUCTION

Working in the education of students with disabilities, whether motor, cognitive, or sensory, requires, on the part of educators, a process of daily reinvention, as there are still countless social confrontations to be overcome, even though we are in the 21st century and despite all advances achieved and technologies developed.

In regard to the education of the deaf, Bybee's concern (1972) should be noted, which, in an important literature review, pointed to the demands necessary for the teaching of science to deaf students, highlighting that success would only be achieved if new methods and techniques were applied; in the same vein, other authors can be cited, Castro (1964), Furth (1966), Bybee (1972), and Wassell (1964).

For geographic studies, the Landscape is considered a category of analysis, of which one of the most classic definitions considers it as a portion of the territory seen by an observer from a certain point of view, which essentially favors its visible aspects. Lacoste (1977), Turri (2011), Ritter e Gage (1865), Haw e Oldfieldl (2007), Bertrand (2013) and Küster (2004) endorse the classic concept of landscape when stating that it "is a portion of the terrestrial space that can be seen at a certain point of observation".

The concept presented above guided this analysis, with regards to the study of landscape in Geography, using photogeography and transdisciplinarity as a significant and dialogical learning tool for deaf students; it was based on the communication through Libras (Brazilian Sign Language), with the presence of a Libras Interpreter-Translator (TILS), whose participation consisted in facilitating students' understanding and learning.

According to Quadros (2003), the educational interpreter is one who acts as a professional language interpreter in education, whose function is to mediate relations between teachers and students, as well as between hearing and deaf people. This process constituted a fundamental step in the elaboration of data and the foundation of our research, considering that the Libras Interpreter-Translator was, in a way, giving voice to deaf students when translating /interpreting their perceptions, feelings, doubts, and desires as they confronted visualized landscapes.

During the development of this stage, the students acted in an interdependent manner, composing the investigative scenario of this research through the expansion of their perceptions as they visualized the landscapes recorded by them, which resulted in a more significant understanding of the different levels of realities observed. In this sense, Arnt (2009, p.112) states that:

> "It is not simply a matter of composing, arranging, including wholeness, multidimensionalities, but also providing the student, at every moment, with the comfort of knowing where we are going, showing them that the trajectory is built together, but helping them to see such a trajectory. Since absolute certainty does not exist, absolute uncertainty paralyzes. Navigating between one and the other, making clear the results obtained, inviting this awareness of the paths taken can be indicative of new levels of consciousness that will awaken new levels of perception, showing us new levels of reality, incorporating a transdisciplinary view of the topics covered and experiences. This notion of planning in action is not restricted to the specific theme but is spread and transforms our way of seeing the environment, the context, the other and ourselves. But, when we become aware that it is in this whirlwind that our learning is reflected, we open our perception to new frontiers of meaning and transform moments of learning or discussion about something into moments of education since and for life."

In this context, Transdisciplinarity can be understood as a mechanism that uses all known disciplines, aiming to capture among them what is similar, focusing on its interdependence, convergence, and connection, in terms of information, laws, methods, and knowledge.

With regards to Photogeography, it should be considered directly related to the imagery aspects which are part of the teaching-learning processes. According to Fernandes (2005), we must start from the recognition that in our society visual communication is of great importance, especially for those who live in cities, who are, since childhood, bombarded with visual stimuli – television, internet, billboards, cinema, magazines. For Litz (2009), knowing how to interpret visual signs, with their specificities,

has become a necessity, as we live in an era of images that reach us in an increasingly faster, dynamic, and innovative way.

It can be considered, then, that the process of photographing is unique, but not its subsequent analyses, since each person, when looking at a photograph, can analyze it in a different way from the one thought by the photographer during his process of production. It follows that, although each photograph has "its origin from the desire of an individual who was motivated to freeze in image a given aspect of the real, in a certain place and time" (Kossoy, 1989, p.22), it can produce several interpretations of the same object/subject. Barbieri (2006) reiterates that photography contributes to the cultural formation of students, as well as to the construction of their worldview, society, and the environment in which they live.

Given this context, this research had as its central objective enabling deaf students to develop geographic reasoning, through photogeographic production, analysis, and interpretation, based on dialogical practices between teacher and student, with the intent of making the students the subjects of learning.

METHODOLOGICAL APPROACH

Methodological procedures deal with a set of activities that, with greater security and economy, allow a stipulated objective to be reached, tracing a path to be followed, detecting errors, and assisting in the researcher's decisions (Ludwig, 2014).

The research data here shown were gathered following a qualitative approach, which according to Chizzotti (2008, p.79), can be understood as

> "[an] approach [that] starts from the foundation that there is a dynamic relationship between the real world and the subject, a living interdependence between the subject and the object, an inseparable link between the objective world and the subjectivity of the subject".

Which allows the observer to participate actively and fully in the process of investigation, seeking to appreciate the different perspectives and points of view of the respondents.

Semi-structured research and fieldwork were used as data collection instruments, which sought to highlight the spatial practices of deaf students. This study

allowed us to carry out a didactic intervention, aligned with the use of imagery elements, through photogeography as assisted by the usage of Libras and transdisciplinarity, as instruments that enhance the geographic learning, serving, then, as the basis for our analysis and reflections.

As an initial data collection instrument, interviews were conducted, and a questionnaire was applied, in school, to the students participating in this research. We opted to elaborate this questionnaire in (written) Portuguese. During its application, and with the aim of respecting the primary language of the deaf students, its questions were interpreted in Libras with the assistance of a Libras Interpreter-Translator; throughout the survey, when students encountered a word in Portuguese they did not understand, or when they wanted to express something in Portuguese and could not find a word for it, they communicated in Libras, and the researcher, with the interpreter's aid, would transcribe the answer in Portuguese, without compromising their content.

The questionnaire addressed issues related to pedagogical practices and the teaching of Geography to deaf students, mainly students' perception of the teaching work, didactic resources and the teaching methodologies used in Geography classes.

We also carried out on-site observations as part of our fieldwork, both in the inclusive classroom and in the resource room, with the aim of verifying whether the procedures used by Geography teachers in the development of their classes would consider the use of imagery elements as facilitators of geographic learning for deaf students.

Guided by the notes of Kinder (2018), we can characterize fieldwork as a moment destined to search for information about the universe of deaf students, how their process of constructing geographical knowledge is structured through imagery elements, and how the proposed didactic intervention can facilitate a more meaningful knowledge for these students. Within this context and seeking to present elements that make fieldwork more reflective, Lacoste (2006, p.87) explains that

> "[f]ieldwork, in order not only to be an empiricism, must be linked to the theoretical formation that it is also indispensable. Knowing how to think about space is not just putting problems in the local framework; it is also to articulate them effectively to the phenomena that develop over much wider extensions".

Throughout our fieldwork, based on Fuller et. al. (2003) and with the aid of a Libras Interpreter-Translator, we made direct observations of the physical spaces and dynamics of the school, took photographic records and interviewed deaf students in order to get to know them and be better able to identify their perceptions and experiences regarding geographic learning, as focused on the use of imagery elements.

This research was carried out at an inclusive education school in the regional teaching area of Gama/DF, in 2019, when the school offered 28 classes, with a total of 859 students, distributed in 14 classes in the morning (448 students, in the 8th and 9th grades) and 14 classes in the afternoon (411 students, in the 6th and 7th years). This school offers assistance to students with disabilities through a resources room, with a primary focus on students with hearing impairments (AD), the Physically Disabled (DF) and the Intellectually Disabled (ID). The school also takes on students who have syndromes such as Attention-Deficit Hyperactivity Disorder (ADHD) and Cerebral Auditory Processing Disorder (DPAC). In 2019, the school had 22 deaf students enrolled, distributed according to Table 1:

Table 1 - Number of deaf students enrolled in 2019

6º year	7º year	8º year	9º year
05 (five)	09 (nine)	01 (one)	07 (seven)

Organization: Jean Volnei Fernandes (2020)

RESULTS AND DISCUSSION

The results of our research are presented in two stages: the first, indicating the locations selected for field activity as geographic elements that facilitate the teaching-learning process, and the second, the presentation of material produced by the students.

For this research, we selected the following Geography content considering certain imagery elements (in the analysis of landscapes) to be used according to the students' years. Table 2 shows such information:

Table 2 - Geography content selected to be worked with deaf students

6º year	7º year	8º year	9º year
■ The geographical space; ■ The landscape and its elements; ■ Transformed and preserved landscapes.	■ Human work; ■ Human action changes the environment; ■ The relationship between work and landscape.	■ Sustainable development; ■ Environmental problems in urban centers.	■ Production, consumption and environmental degradation; ■ Environmental problems in the contemporary world.

Organization: Jean Volnei Fernandes (2020)

Once the guidelines for this research were established, we selected activity locations that show landscape similarities inherent to the students' year's content, which, then, were used to reinterpret reality through imagery, photogeography and transdisciplinary elements. As for the didactic intervention, field trips were organized, wherein us, the researches, a Libras Interpreter-Translator, and the students (separate by their school year and group) were present; the professional interpreter of Libras helped the students in understanding the dynamic and objectives proposed. In order to collect material from this trip, cameras, previously acquired through the LAGIM-UnB (Laboratory of Geoiconography and Multimedia) were offered to each of the students.

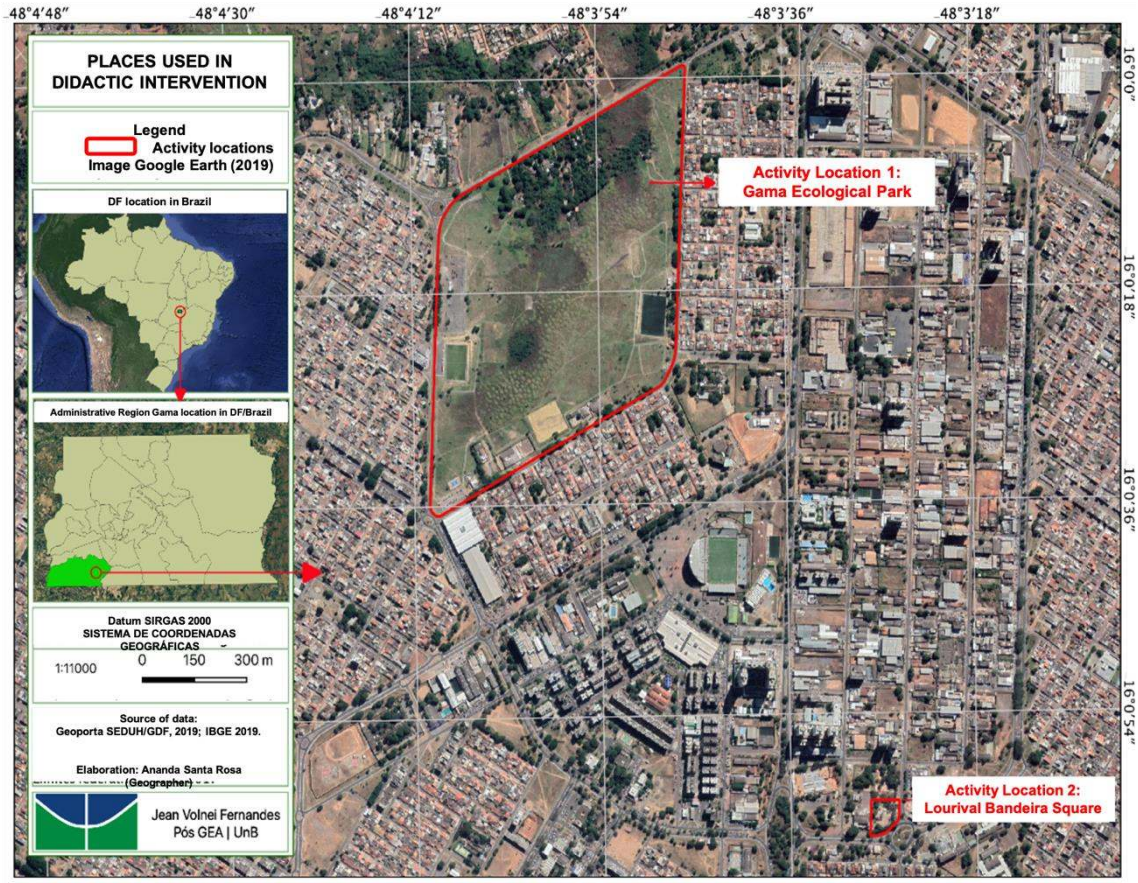
Afterwards, we held a mini photographic workshop, at which time the photography acquired through those cameras were delivered to the students. Each student received a camera labeled with their respective name, the purpose of which was to identify and organize the storage of the photos and their subsequent re-introduction. The photographic workshop's purpose was to train students in the handling of cameras and their functionalities (throughout which a Libras Interpreter-Translator was also present).

Our selection of places to visit were: Parque Ecológico do Gama/Gama Ecological Park (Activity Location 1), located in the north sector of the city, characterized as an APP (Área de Proteção Permanente/Permanent Protection Area), representative of the Phyto physiognomy murundum fields, according to the normative instruction of IBRAM nº 39 of 02/21/2014, and Praça Lourival Bandeira/Lourival Bandeira Square (Activity Location 2), known also as Praça do Cine Itapuã, located in the eastern sector of the city (inaugurated in October of 1997, in honor of the pioneer and repentant poet

born in the city of Gama). Figure 1 shows the locations explored for field activity (Field 1 and Field 2, respectively).

The selection of these two activity locations was based on the importance, recognition, and feeling of belonging for the population of the Administrative Region of Gama/DF. The geographical aspects are present in both spaces, from physical characteristics such as the presence of Cerrado, in the case of Parque Ecológico do Gama, to the transformation of the perceived geographical space in Praça Lourival Bandeira.

Figure 1 - Location map of the areas of field activity



Organization: Ananda Santa Rosa (2019)

During this field trip, the students obtained a total of 962 photos, which depicted a variety of subjects. This amount varied individually between 24 photos (the student with the lowest amount) up to 162 photos (the student with the highest amount).

Another significant aspect noticed during our fieldwork was the moment of social interaction between the students. They showed great satisfaction in being able to perceive and identify landscapes and their characteristics, performing a job that considered their specific features within the cultural, linguistic, and ideological aspects.

This stage in the research was characterized by the construction of a didactic intervention, in which we re-introduced the photos obtained by the students during the fieldwork. This process was characterized by the use of visual/motor communication, aided by the interpreter, who translated Libras into Portuguese and vice-versa, which allowed the students a greater interaction and approximation with the chosen geographical concepts.

When explaining the photos obtained, students were given the opportunity to construct and develop geographic reasoning, from a bias, encompassing Photogeography, Transdisciplinarity, Landscape and Communication in Libras, which are fundamental elements in the structuring of our research.

Photogeography allows for an analytical view of the photographer and the observer of an image, regarding the (environmental, social, economic, and historical) aspects that occur in the geographical space. This process of photogeographic analysis linked to the teaching-learning of Geography allows the observer to build narratives and concepts about the registered phenomena and landscapes. When photographing a landscape, the photographer can interfere with the captured image, highlighting one factor or ignoring another. Thus, the "image can be understood as a mediation between man and world, as the images present the world accessible and inaccessible through the translation of codes capable of deciphering events" (STEINKE, 2014).

Transdisciplinarity, in turn, arose from the reflections of Nicolescu (1999) when referring to it as the movement that occurs between disciplines and through them – and there is no discipline that is immune to that.

Lastly, the Landscape, which according to Santos (1998) can be defined as: "everything we see, what our vision achieves and is not only formed by volumes, but also by colors, movements, odors, sounds". An idea confirmed by Neves (2010, p. 56), who explains that "the study of the landscape takes us directly to the visible aspects of a geographic space, although it is not restricted to them, since it covers other elements, all

related to the way in which an individual perceives space through their senses." García de La Vega (2011, p.5) concludes that "the didactic application of the study of landscapes tries to discover and explain the interaction between man, medium, and the society from which it develops".

Other aspects must be taken into account in the study of landscapes, such as those presented by Taylor (2008) when referring to the way we interpret the environment, by Tilley (2004) when pointing out the importance of natural and cultural aspects in the study of landscapes, and by Tilley (2006) when studying the Landscape based on relationships established between lived experiences, places, feelings, and emotions.

That is to say, combining the study of landscapes, photogeography and transdisciplinarity with a communication in Libras allowed deaf students to develop their geographic reasoning, leading them to know, understand and interpret the various themes seen and photographed. On this matter, Oliveira (2009, p.357) establishes that a

> "geographic reasoning, a way of exercising spatial thinking, applies certain principles [...] to understand fundamental aspects of reality: the location and the distribution of facts and phenomena on the earth's surface, the territorial ordering, the existing connections between physical-natural components and anthropic actions".

Therefore, the idea of a new approach to teaching, applying photogeography as an instrument for geographic learning used by deaf students, arose from the conceptual reflections and aspirations presented by the Geography teachers in charge of this group of students, who offered initial considerations which served as the guiding axis for the development of this research. The main question unanimous among teachers was the need to verify aspects related to the learning process of deaf students, regarding the perception of knowledge and the development of geographical reasoning.

In this stage of our research, the photos obtained by the students during our fieldtrip were selected, with a view to presenting the students with images that were most related to the content studied in the classroom.

Due to the number of students participating in this research, and the greater demand for time to build narratives, we limited the selection to four photos per student, who, then, were given the opportunity to present and build their entire reasoning in Libras,

at which time they stood by the chalkboard, presented their points of view, interacted and explained to other students the reason behind their chosen images, and, even, elaborated illustrative drawings as to better explain the concepts developed by them.

During these explanations, all narratives elaborated and presented by the deaf students were transcribed into Portuguese by us, aided by an interpreter of Libras. This moment made it possible to enter the universe of deaf students, through their own culture and language, which later allowed them to present to the school community (teachers, students, coordinators and directorship) their impressions, opinions, and concepts regarding the use of photogeography as a possibility for geographic learning.

This stage characterizes the moment of association between practice and the structuring concepts of our research (Landscape, Photogeography, Transdisciplinarity, and Communication in Libras), allowing deaf students to develop their reasoning based on the use of these elements.

This process of collective construction of narratives, through the visualization of photos (again, mixing Landscape, Photogeography, Transdisciplinarity, and Communication in Libras) made it possible to develop and approach the revision of concepts and the learning of new themes in various areas of knowledge, which demonstrated, then, the student's capacity to elaborate, create and structure their thinking, as long as properly stimulated and understood.

In the process of constructing narratives and concepts, we consulted Azambuja (2012) and Uhlenwinkel (2013), who, in their works, indicated the use of terms such as location, space, and scale, among others, as keywords for the development of concepts. Another argument that must be highlighted is that of Dittrich (2017), who indicates that if a problem or question is given, concepts can help a student develop, understand, and find a structured solution.

Regarding the elaboration of concepts and new learning, we noticed the following themes as presented by students (Table 3):

Table 3 - Themes addressed during students' photos presentation.

Savannah/Vegetation Types	Waste/Recycling
Popular Culture	Urban Occupation
Urban Growth	Ecological Park
Electricity	Reforestation
School space	Relief
Sports and leisure	Services in the City
Fauna	Symbols of Brazil
Flora	Signaling
Cloud Formation	Image
Fungi	Solar Energy

Organization: Jean Volnei Fernandes (2020)

Each of these themes emerged from the visualization of images obtained in our fieldwork. Initially, when the fieldtrip was planned, it focused more on the identification and perception of the geographical aspects of teaching-learning, an idea which was promptly reviewed, following the construction of narratives by the students. These narratives presented went beyond the geographical field (Figure 2 and 3), crossing several areas of knowledge, as shown in the previous table, which confirms the potential of images when raising students' desires, aspirations, feelings, and perceptions regarding the world around them (Fögele, 2017).

Figure 2 - Visualization of the Ecological Park of Gama (Field 1)



Authorship: Valdir Steinke (2019)

Figure 3 - View of Praça Lourival Bandeira (Field 2)



Authorship: Valdir Steinke (2019)

After this collective moment of constructing knowledge, we registered the different narratives presented and a set of banners was elaborated. Each student worked individually on their banner and all were presented in an exhibition held at the school, as developed and planned by us, the researchers. Figure 4 shows an example of a student banner.

Figure 4 - Example of a banner created from photos obtained by students (the original banner is in portuguese)



Organization: Jean Volnei Fernandes (2020)

CONCLUSIONS

The process of transforming the results from fieldwork into a presentation made it possible for deaf students to present narratives developed by them to other students in school. We must also highlight the availability and interest of the hearing students in participating and developing teaching-learning activities in the classroom,

which allowed us to combine the use of landscape, photogeography and transdisciplinarity in those narrative constructions.

Another significant data point, observed throughout the exhibition, was the participation and correlation made by the geography teachers, who singled out the importance of imagery elements, guiding and enhancing the construction of new narratives by the students. These teachers also showed their interest in using these elements in their classes, since they noticed the involvement of both deaf and hearing students as they visualized, notice, and observed the images in different banners.

Throughout the exhibition, the hearing students issued opinions, identified places from which images were obtained, questioned the deaf students about those images, complemented the narratives presented, and formulated new narratives using their own perception.

Returning to school and presenting our results to the school community (teachers, students, coordinators, directorship, and family) represents the implementation and application of theories, readings, bibliographic research, questionnaires, and fieldwork; it's the resignification of the teaching-learning process of Geography for deaf students. This idea is ratified by Oliveira and Assis (2009, p.205), who pointed out that "the return to the classroom requires teachers and students to be able to reconstruct what they saw socially in learning and the geographic reading of the place studied." Likewise, according to Azambuja (2012, p.204)

> "the activity of returning to the classroom completes what in the field escaped, was implied or misunderstood. It goes beyond the moment of gathering interviews, photographs and narrating the best experiences. It does not end with the simple 'assessment', in which a group says it was great 'to see' reality".

The moment of presentation is characterized by the expansion and discussion of knowledge by the student. In this process, the teacher will act as a mediator and interlocutor of activities that lead students to the knowledge, understanding and interpretation of a geographical space, re-reading visited and viewed spaces. Uhlenwinkel (2013, p.193) explains this process as the

> "[m]oment of the elaboration of new school knowledge, of the exposition of the results through school works, such as: the narrative texts, essays, and reports; elaboration of videos, thematic maps and/or models; mural board with photos, drawings, and texts; news album, portfolios, and exhibition of materials".

In conclusion, aiming to promote activities which demonstrate the construction and appreciation of the teaching-learning processes in Geography by deaf students, based on imagery elements, landscapes, transdisciplinarity and communication in Libras, our exhibition was structured as the final product in which different themes, as perceived and viewed by the students participating in the research, were portrayed.

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