



Inclusive Pedagogical Books: Strategies and Options to Build Accessible Resources

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Abstract

Education, in Portugal, suffered recent legal changes that increased inclusion principles for students with Special Needs. Those laws generate new opportunities and actions, involving new pedagogical resources that must be accessible to children with or without disabilities. There are still few of these adapted products to use in the education context, whereby a multidisciplinary team from the Polytechnic Institute of Leiria (composed of teachers, researchers and students) is developing the project Learning Products for ALL (ProLearn4ALL). This project intends to create ludic and pedagogical products that create awareness in children from Primary School toward inclusion and respect for people's diversity. From those new products, we emphasize books with a pedagogical inclusive mission in their subjects and also with strategies and accessibility options that allow them to be explored by ALL users, trying to reduce communication barriers. For such a result, we assumed Design for ALL basic principles, creating products that respect human diversity. To empower this work, Education, Arts and Social Sciences get together, validating productions in a sequence of critical reflection, dialog and continuous improvement. This process occurred in several stages, starting from the texts made by higher education students to focus on awareness of disability. Those initial texts resulted in simple but accessible prototypes to be developed by Arts and Design students, with augmented books with different communication possibilities, such as bigger font letters, Braille, audio text, symbols and haptic illustration. All these communication strategies and options served the purpose of making books for children that can be used at school, at home, or in any other significant learning context where children can use these books as ludic and pedagogical objects.

Keywords: *Inclusive Education, multi format books, accessible communication, ProLearn4ALL*

1. Introduction

Inclusion is a basic principle which should frame any sort of educational response, considering an approach based on the rights of every student, seeking to ensure that children and young people with specific needs are not excluded from regular education.

The main focus is on the quality of strategies and methodologies adopted in the education that is provided to all students, instead of it being placed on the type of institution that receives the children, aiming to consider the presence (access to education), participation (quality of the learning experience) and the success (processes and results of learning) of every student" [1, p. 12].

In Portugal, the recent legal changes in the scope of Inclusive Education come to reinforce these universal principles and values for an education adjusted to the characteristics of each student, underlain by the "investment on an inclusive school where each and every student, regardless of their social and personal situation, finds the answers which allow them to acquire a level of education and training that facilitates their whole social inclusion" – Decree-law no. 54/2018 [7, p. 2918]. This paradigm of inclusive character allows for the implementation of different support measures and appropriateness for the students who, according to their individual characteristics, may benefit from them. Thus, a prominent place is taken by the inclusive educational practices which implement support strategies based on principles of equity, social cohesion, conviviality and diversity.

As well as the methodology to be adopted by the teachers, the need to make available accessible resources is evident, which provide a real and effective response to all students, regardless of their characteristics and limitations.



2. Pedagogical resources accessible to different student profiles: children's books

Given that the school is an institution which receives all children, it is necessary to consider the way in which pedagogical resources are created and used there, in order to allow the access and benefit of students with different learning profiles. When creating resources, the recognition of difference and singularity, the inclusion of diverse perspectives and the input of who experiences the difference, the context for which it is being worked on and the possible resulting impact must be taken into account. Dimensions of a design process intended to be inclusive, and which stands for something that becomes functional to different individual characteristics, is something that becomes functional for all. Over the last few decades, the area of children's literature has produced proposals that seek to present alternatives to conventional books [9]. However, innovative resources directed towards every student, with or without a disability, are scarce, hence arising "(...) the need to structure and adapt attitudes, strategies and materials in the sense of minimizing the differences and giving children the possibility to increase their self-esteem, autonomy, and ease or eliminate their incapacity to communicate and socialize" [3, p.61].

For such, it is necessary to respond to the accessibility characteristics of different student profiles, according to their needs, difficulties or disability domains (visual, hearing, cognitive and motor), in the way that is structured the intervention line for the project introduced henceforth.

For blind students, the didactic resources must meet perceptive and communicative characteristics that underlie the creation of tactile images, haptic illustrations which allow "to explore multiple experiences of our body in contact with objects and the environment" [9, p.79].

In the case of deaf students, attending to the particularity of a community which affirms itself with a language of its own (Sign Language), the opportunities for inclusion come associated with the potential of a bilingual education, which translates into advantages for the deaf and for listeners, by powering the interaction among the students of both communities, enriching their personal, cultural and social relationships [6].

Students with a cognitive impairment can resort to the pictograph illustrations and systems which, besides being appealing complements that facilitate the exploration of resources, aid memorization of the contents explored in the books [3].

Students with a motor impairment can also benefit from these alternative or increased communication systems according to their motor and perceptive characteristics, being it still relevant the format embraced by the book itself, which includes such basic aspects as flicking through the pages.

For non-disabled students, it is also possible for these characteristics to improve the access to books by stimulating the different senses.

3. The Project ProLearn4ALL

ProLearn4ALL – Pedagogical kits for ALL is a Portuguese project developed by the Polytechnic Institute of Leiria (IPLeiria), in partnership with the Polytechnic Institute of Coimbra, the *Cooperativa de Ensino e Reabilitação de Crianças Inadaptada* (the CERCILEI) and the Municipal Hall of Leiria. It arises with the objective of creating ludic-pedagogical products for the awareness of diversity and the characteristics of disability, directing their action to an age group of high intervention and attitude formation potential (ages 6-10). "Developmental and social psychological research has shown that children begin to reveal biases that favour their social group and prejudiced attitudes around the age of 5 years" [8, p.88]. Thus, the intervention in the Primary School expects to empower citizens who are more knowledgeable of their peers' characteristics and difficulties, and, consequently, inclusion attitudes. Hence, in accordance with the pedagogical approach to the characteristics of the various domains of disability (visual, hearing, cognitive and motor), the project ProLearn4ALL intends to provide the principles and challenges of inclusion, with solid proposals for accessible and innovative didactic resources [5].

In accordance with these framing lines, the approach performed throughout the creation of the ludic-pedagogical resources is then described, particularly the accessible books, which was the aim of several options considered in virtue of the principles of diversity and inclusion.

3.1 Creation process of accessible books

The process of creating accessible books began with the gathering of existing resources, carried out by students of the course of School of Education and Social Sciences of IPLeiria. These students identified a shortage of inclusive and accessible or multi format books for different student profiles. In face of this reality, they created new proposals directed at the specific audience of the project and



forwarded them to students of the illustration course and Graphic Production of the School of Art and Design of IPLeiria, who worked on them and improved them.

The methodology used in this process was based upon problem solving, focusing the learning on finding solutions for a complex problem, which does not have only one correct answer. The learning of contents was carried out through experimentation, encouraging reflexion on what was learned and the efficacy of the approaches carried out. The starting point for the learning was, therefore, a question/problem and not a theory [4].

In order to optimise the creative process of the students involved in the creation of graphic material, specifically the creation of books which introduce characters associated with different types of disability, it was necessary and useful to have the students understand some aspects of different profiles of people. In the search for creative solutions, the aim was to recreate situations which put each student in the place of a person with a certain kind of characteristic, causing a reflection and production in which one relates to the other. For instance, one of the preparation activities consisted of proposing students to work blindfolded. In the first phase of the activity, each student tried to create recognizable silhouettes with clippings of materials with different tactile characteristics, and in the second phase each student was challenged to identify the clippings produced by their colleagues. This activity allowed them to reflect on the shapes they thought to be producing and the ones they did in fact produce, on specific characteristics of materials (colours, textures, thicknesses), on the recognition of shapes, expressiveness and possibilities in joining the shapes and materials in favour of a visual and tactile communication.

Taking into account that "Most tactile images are thought out by sighted people who try to put themselves in the place of someone who doesn't see, seeking to imagine how the blind can 'read' with their hands." [9, p.81], the amplitude and contribution of this activity comes framed as "a vague idea of experiencing the world by a blind person." (*ibidem*), as a way to lead students to question what to really build, so that a child with a visual disability may benefit from these books. We sought to encourage a research and production that led them to want to test their creations, putting themselves in the role of someone who is going to use the materials, so that this reflection could lead to criticism and new productions, a reflection in the doing. An activity proposed to another group of students, which also started from a set of constraints was the creation of visual and tactile illustrations from printing using techniques of serigraphy and engraving. Reflecting on the simple image communication, using only two colours and a embossing, they were asked to develop crossings of visual information and haptic information in a story, seeking the expressiveness and creation of points of interest. The group that developed this activity had the particularity of including a blind student as an active participant in the search for solutions. This activity allowed us to reflect on: the communication process through simplicity, the production of accessible images, the inclusion of Braille, the legibility of letters and typographic fonts, the production phases and the workshop processes for the production of multi format books. Placing students in the role of producers and performers has led to a gain of awareness and appreciation of the practical processes, leading them to perceive the continuum that goes from the conception of a graphic object of communication to the final printed object. Giving the students the role of producers and executers led to a gain of awareness and appreciation of the practical processes, allowing them to understand the continuum that goes from the conception of a graphic object of communication to the final printed object. In the final object, the validity of the productions was observed through tests on the images and embossing in the books.

As a way to raise awareness and produce, other activities were proposed to the students, such as the creation of products accessible to children with motor, hearing and intellectual disability. Concerning the first, the fact that one of the participating students had significant motor limitations was of great relevance.

The activities resulted in prototypes, which were analysed by the team of researchers, and used as intermediate results in the process of developing accessible books. While analysing all the work developed with the students, from the texts that served as a basis for the creation of characters and illustrations to the graphic prototypes, the researchers selected the options which they thought to be the best exploring and learning opportunities. Options were combined and directed to children with disability, their peers and the adults with whom they interact, so that the same product could be enjoyed by all children, avoiding that some would feel, due to their characteristics, excluded from the class.

In this sense, it was sought that books contained different formats and languages, namely: text in black, bold, text in Braille, pictograms, videos in Portuguese Sign Language, clear illustrations (with a reduced number of colours, lines and simple figure-background relationships), textures (rough, smooth, soft, hard, warm and cold) and three-dimensional solutions (such as the pop-up), assuming



that “children are more interested in the tactile exploration of multisensory figures and three-dimensional figures rather than figures glued onto the pages.” [2, p. 79].

Apart from the described elements, the characters in the books were created so that the ethnical diversity could also be represented.

4. Final reflections

The creation of accessible and inclusive pedagogical books depends largely on their mentors, in other words, aesthetic sensibility combined with idealization and creation options and strategies, receptive to the possibility for continuous improvement of the creation process of these resources. Those reflections, produced during and after several stages of exploration and production, allowed for a constant process of validation and exclusion of solutions.

Aware of the limitations of any pedagogical resource, in what concerns an effective usage by ALL users, it is recognized that it is possible to improve the product options according to the necessities of the different profiles, through various languages which complement each other creating one single message.

The reflection throughout the book production allowed the analysis of the choices and performed tests, the prototypes arising as a means to establish hypotheses that provided answers in the search for communication.

The books created in the project are understood as ludic objects which will optimise the processes of finding different types of information and the characteristics of disability and diversity, allowing the children to reflect on the fact that communicating will also have to do with knowing how to see the world through different perspectives.

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