THE PORTA MOBILE APPLICATION TO DEVELOP FUNCTIONAL AND SCIENTIFIC SCHOOL LITERACY WITH CRITERIA OF ACCESSIBILITY AND AFFECTIVITY

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Abstract

The application is based on a didactic package created to develop language skills, communication and scientific school thinking. The learning approach of this game is anthropological and socio-constructionist and is based on ethnographic studies developed with schoolchildren from northern Chile to collect their representations about biodiversity and the environment. The treatment of reading texts and images constitutes a contextualized selection in the “nortina” culture, functional to learn the environment and meaningful for schoolchildren between 5 and 10 years old. With this didactic material it is intended that students recognize and value the characteristics of biodiversity as an approach to the assessment of their identity and the characteristics of the fauna of their environment. The Porta ABC allows to learn and reinforce the graphemes (letters) and the phonemes (sounds) of the letters of the Spanish alphabet of Chile, in order to advance simultaneously in the learning of instrumental, functional, scientific and digital literacy, and to value natural environment and the biodiversity of “La Portada” Natural Monument of Antofagasta.

Keywords: Accessibility, learning, applications, emotions.

1 INTRODUCTION

The application is based on a didactic package created to develop language skills, communication and scientific school thinking [1]. The learning approach of this game is anthropological and socio-constructionist and is based on ethnographic studies developed with schoolchildren from northern Chile to collect their representations about biodiversity and the environment [2]. The treatment of reading texts and images constitutes a contextualized selection in the “nortina” culture, functional to learn the environment and meaningful for children between 5 and 10 years old [3]. With this didactic material it is intended that students recognize and value the characteristics of biodiversity as an approach to the assessment of their identity and the characteristics of the fauna of their environment.

2 METHODOLOGY

The anthropological theories of learning focus on the ethnographic study of the social representations of schoolchildren and teachers of an educational community to collect formal and informal knowledge, beliefs and opinions about the content that they wish to develop. This proposal is based on the social representations contained in the drawings of children about the coastal desert, collected during the development of two projects, the first, "Ethnographic study of intercultural education in northern Chile" (2010), in schools in the Arica and Parinacota regions, and Antofagasta. The second, "Cultural diversity and regional eco-development" (2011-2013), held in schools in the Antofagasta region to collect drawings of children on the “Portada de Antofagasta” natural monument [4], [5].

Can you learn communication skills and scientific thinking?

To answer this question, we must establish the concepts that frame this didactic proposal: the conception of communication learning and scientific thinking about the environment, the didactic references, the social representations of the environment and the description of the didactic materials proposed. These concepts are developed below.

The concept of learning as competence

This didactic proposal conceives the development of learning from the simplest level, that is, the skills or actions that any person can execute, an average level that corresponds to the abilities that show the mastery of the skills and, finally, the competences or capacities that unfold the domains of knowledge (understanding), know-how (procedures) and know-how-to be (attitudes).
The terms competences and skills are not used as synonyms. The skill is used to designate the ability to execute a complex cognitive and/or motor act easily, precision and adaptability to changing conditions, while competition designates a complex system of action that involves cognitive abilities, attitudes and other non-cognitive components.

The competences are developed throughout life, through action and interaction in formal and informal educational contexts.

In this approach to Progression students move from simpler competencies in the first years of their schooling, to more complex competencies, in their last years. The competences are not achieved in a school year, the learning that matters occurs in a cumulative way between levels of the system.

However, the Diversity criterion allows the teacher to understand that in the same course there are students with different levels of achievement. It is proposed that pre-established criteria exist so that the evaluation is not understood as a sum of isolated events. The evaluation in time must observe the key competences with stable criteria. These conceptions are the referents of the following learnings: Active learning, linked to the development of competences, understood as the ability to mobilize knowledge, skills and attitudes in specific contexts.

Learning as a continuous process, in which students are constantly receiving information, interpreting it, and based on this, reorganizing and revising their internal conceptions of the world. As this process evolves continuously, it is possible to observe its typical sequence and describe certain stages, which commonly involve all students in the development of learning, regardless of how fast or slow they advance in it.

Diverse learning: Theories of intelligence emphasize the existence of a variety of human talents and abilities. Moreover, there is a variety of ways and speeds in which people acquire knowledge, in the attention and memory capacity they can apply to this acquisition of knowledge and performance, and in the ways in which they can demonstrate the personal meaning they have created.

Progress in a given domain consists of the growth experienced in certain aspects or dimensions, which are the constituents of learning in that domain, and are crucial to observe. Learning is a continuum that can be described by distinguishing levels in order to observe it. Learning progresses in multiple ways, but it can be described in a typical sequence as skill becomes expertise and ultimately competence. In this way the improvement of student learning always requires a work of observation and analysis.

In this context “the learning of communication and scientific thought is conceived as the development of life skills and attitudes of a communicative and problematizing person of the reality that surrounds it”. To deploy this learning, the following skills and attitudes are proposed to progressively develop, at different levels of the school system in Chile: communication, creative thinking, observation and critical reading.

In order to systematize the didactic development of these skills, we consider it relevant to frame the activities in the classroom, in reference to the Schiefelbein criteria [6] presented below.

Considering the previous knowledge of the student. Taking into account that in the teaching / learning process never starts from scratch, since it is necessary to integrate the informal and formal knowledge of students, recognizing that knowledge is not the exclusive property of the school, and that it is very difficult to acquire new knowledge without relating it adequately with the one that they already have.

Proposing group work. Understanding that knowledge is a social fact; social facts are not casual “they result from various factors in the interaction with others, interaction that makes them understandable by combining their own vision with the vision of others.”

The family must participate in the process. To design learning activities, it is important to be clear about the situation of the person, of their family environment as a group to which they belong. In this way, the family can reinforce learning by participating actively when required as a source of information by the didactic proposal. In this way, the family, when considered, is validated as part of the process.

The teacher is a model to imitate, formative and summative evaluator. The didactic material must recognize the guiding role of the teacher, not only in the presentation of the subjects, but very particularly, as it validates (qualifies) the learning of his/her students, reviewing and correcting the activities that, as a task and / or exercise, the book proposes.

The learning situation includes experiences of values. Attitudinal objectives consolidate human formation with a deeply social sense that tries to reinforce an attitude of vital commitment with its environment.
Including options that allow the student to practice their freedom. The didactic material must offer alternatives to choose in order to accustom the students to the exercise of options according to their principles, values, interests and emotions, with the purpose of reinforcing the personal conviction and assuming in a civilized way the validity of other elections, recognizing the value of diversity in the personal and collective sphere, typical of a democratic spirit.

Relating knowledge to the context enhances interest. To encourage meaningful learning, it is essential that the textbook considers the context in which the learning situation develops, that is, the sociocultural environment of the student. As the students observe their own reality incorporated in the textbook, identity is enhanced and the quality of learning is improved, facilitating their commitment to the process. Finally, we postulate that the development of communication skills and scientific thinking about the environment as an attitude of life must be contextualized with the representations which the actors of the educational community already have about the environment; with the purpose of recognizing themselves in a meaningful and functional didactic proposal.

The social representations of the surroundings of the “Portada” natural monument are incorporated into the didactic proposal of the Porta through the themes, contents, cases, experiences, registers, photographs and activities developed by the students who participated in the project. This strategy aims to stimulate the development of scientific and communicative thinking skills on the environment through the elements contextualized by the actors themselves, which were incorporated into the design of the didactic materials described below.

3 RESULTS

3.1 Domino Game (First Basic) and mobile application

Cross-thematic axis: the observation of the environment through concrete images and the communication of the observed. Characterization of learning activities: with this didactic material the aim is for the students to play to read images, to communicate the observed and then to associate the initial sounds of the words with the letters of the Spanish alphabet from Chile.

3.1.1 The observation of classroom practices

The Porta games were applied, in two moments of the first semester of 2017, at the beginning of the semester - with pilot groups of three schools: municipal, private-subsidized and private in the commune of Antofagasta. In each basic level the interaction of the students with the games was observed and was recorded in groups of 5 members maximum and of 4 as a minimum for 45 minutes and, later, group conversations were held about the didactic experience to make improvements in the games. In the second half of the semester, after two months, the modifications proposed by the students were presented and the observation and recording of the interaction with the game were repeated in groups of 5 members - for 45 minutes - and then group conversations about the learning experience were developed and recorded.

A copy of each game was used in groups of 5 students. These stages were recommended by researchers of the Acacia project.

3.2 Description of the alphabet Porta (cards)

Students learn to associate the letters and sounds of Chilean Spanish through the images of the anthropological environment.

Example: the word “Cover/Facade” (Portada) means natural monument with the shape of an arch that arose on the coasts of Antofagasta, in the north of Chile, from a submarine volcanic formation.
During the year 2018, in the context of the research program Poorly Developed Areas (AEDs from the Spanish acronym), Porta mobile application was developed to complement the development of instrumental and functional literacy in the first years of school.

Example: With the application installed, the student chooses a letter, in this case the letter "P".

### 3.3 Projections

The alphabet Porta is part of a didactic package generated to initiate reading and writing in school, it includes two hypertext reading games to develop non-linear thinking and contribute to the modeling of communication skills and scientific thinking. We hope to continue the development of mobile applications with the whole didactic package and to continue the ethnographic observation in the classrooms.

If the student clicks on the image, he / she will hear the word "Portada", and they will hear the sound of the surroundings of the “Portada” monument such as the sea and the seagulls. If the student clicks on the letter "P", the application will reproduce the writing of the letter in print or handwritten, lower case or uppercase.

Each letter will have an animation that simulates how the freehand letter is written.
4 CONCLUSIONS

The quality of instrumental literacy, that is, the first time that the code of a language is learned, influences other processes such as functional literacy that develops the competencies to "correctly use the information that is read and written to function in the everyday life and achieve social goals."

The pedagogical potential is that this material is holistically literate with what will enhance the quality of learning throughout a person’s life because it didactically stimulates psycho and sociolinguistic processes involved in the development of reading and writing as integrated processes. In addition, the digital application Porta allows you to work collaboratively or autonomously, exercising the recognition, pronunciation and writing of the letters of the alphabet, as many times as you wish and / or as the student requires it while learning to read and write.

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REFERENCES


