

РАЗКАЗВАНЕТО КАТО ДИДАКТИЧЕСКИ ИНСТРУМЕНТ ЗА ИЗУЧАВАНЕ НА ЦЕННОСТИ ЧРЕЗ ИЗПОЛЗВАНЕ НА СОЦИАЛНА РОБОТИКА

STORYTELLING AS A DIDACTIC TOOL FOR LEARNING VALUES USING SOCIAL ROBOTICS

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Abstract

Learning is an activity and a skill that, in best cases, is retained during all the duration of one's life. However, when we refer to teaching it usually refers to the more traditional structure of lectures, which is not always suitable, particularly in the when learning values and other complex concepts. Fortunately, technology offers new opportunities and scenarios to play out in the classroom. This new aids, like social robots, give teachers the freedom to try new or previously not viable options like personalized storytelling which combines traditional narrative, technology and emotions. This form of teaching-learning process helps the students relate and can help them develop active listening, stimulate their creativity and encourage their motivation through the narration of the experiences of the protagonist of the story, as well as achieve a more relaxed and participatory atmosphere in the classroom while working on his linguistics and digital skills, developing his critical spirit, and learning to organize information.

Keywords: Didactic Tool, Storytelling, Social Robotic.

1. INTRODUCTION

Didactics is the art of teaching [2, 3]. It is a discipline of pedagogy registered in the educational sciences, which is responsible for the study and intervention in the teaching-learning process to optimize the methods, techniques, and tools involved in it. In this sense, didactics has two expressions: theoretical and practical [2, 3]. At a theoretical level, didactics studies, analyzes, describes and explains the teaching-learning process to generate knowledge about educational processes and postulate the set of rules and principles that constitute and guide the theory of teaching [2, 3]. On a practical level, on the other hand, didactics works as applied science since; on the one hand, it uses teaching theories. In contrast, on the other, it intervenes in the educational process by proposing models, methods and techniques that optimize the processes [2, 3]. The word didactic has its origin in the Greek term *diaktiqué*, associated with the art of teaching. In its Greek etymology, didactics has always been linked to very diverse meanings [2, 6, 9, 3]: Didactics as the act of teaching, the didactic as a qualified instructor to teach, manuals and teaching methods as teaching resources, schools as institutions specialized in teaching, and the learning process as a central activity of the learner and essential purpose of the didactic action. Didactics aims to study teaching practices [8, 6, 9, 10]. Didactics is the science of teaching where the various techniques can adapt to the needs of the students and the environment surrounding them, providing innovative strategies that facilitate the

learning process. Intended contribution in the work we discuss the didactic value of a previously presented proposal for an intervention focused on the retelling of the autobiographical memory to children with trauma in their story in order to improve resilience and avoid falling in previous victim/aggressor roles in future relations. Especially we focus on children with special educational needs or those with a special hesitation towards adult therapists or social workers. This paper is organized as follows: in Section 2 we present an introduction to the didactic sequence in the learning/teaching process, as well as a description of the three: 2.1, 2.2, and 2.3. Section 3 explains the nature of the didactic intervention. Section 4 the benet's of adding ICT to storytelling, explaining the rule of storytelling as a didactic tool in 4.1. Section 5 presents the reasons to use social robotics in this particular case, and finally Section 6 the proposed intervention is explained particularly the child-directed storytelling in 6 and the robot-directed storytelling in Section 6.

2. DIDACTIC SEQUENCE

The didactic sequence compounds a series of learning activities with an internal order among themselves [9, 11, 13]. This part of the teaching intention is to recover students' previous notions about a fact, linking it to problematic situations and contexts so that the information that the student will access in the development of the sequence is meaningful; that is, it makes sense and can open a learning process. The sequence demands the student do things, not routine exercises or monotonous, but actions that link their knowledge and previous experiences, with some question that comes from their real environment and with previous information and experiences, adding information about an object of knowledge [9, 11, 13]. It includes successive activities that aim to teach educational content. It has linearity characteristics, dividing the class's time into its three classic phases: Opening, development and closing [9, 11, 13]. Every beginning must try to link with previous knowledge, and every closing must, in addition, introduce the next beginning, achieving the chain of learning.

2.1. Opening

The opening or beginning refers to the learning start; it is a preparatory phase in which the objective is specified, and cognitive needs are detected.

The initial activities should be designed with a view to the objective: Investigating the students' previous experiences considering their training background Generating conceptual or empirical bases that give way to the deepening of content.

In this way, some examples are diagnostic activities, reflection questions to activate knowledge and presentation of problems requesting an initial approach or solution [9, 11, 13].

2.2. Developing

It corresponds to the moment in which knowledge is built; whether the content is related to prior knowledge, the most critical points of the content are identified, or other types of relationships are established to encourage the study of the topic in an objective way [9, 11, 13].

The activities in this phase should reflect the breadth and depth with which the contents will be covered, considering that their difficulty will gradually increase [9, 11, 13]. Some possibilities are comparative charts, essays, film reports, technical-analytical reports, debates, role-plays, surveys, mental maps, team products, projects.

2.3. Closing

When the process is concluded, the results are presented, and evaluations are carried out [9, 11, 13]. This phase is essential to consolidate learning, measure what has been achieved, reflect on what has been learned and integrate learning; therefore, the guiding questions will be: What did we learn? Where do we go next? Did we achieve the goal? And What needs to be modified? Some alternatives to close the learning cycle are: synthesis, the conclusion of projects, resolution of cases, and solution of the case raised at the beginning, final report, list of evidence of performance, mental maps, conceptual maps [9, 11, 13]. The didactic sequences refer to the specific order given to the components of a teaching-learning cycle in order to generate the most favorable cognitive processes to achieve the learning objectives or competencies [9, 11, 13]. For this reason, they are an essential aspect to consider in the specific planning of educational or training programs.

3. DIDACTIC INTERVENTION

In all didactic interventions, whether for a course, unit or topic, it is essential to define a didactic sequence since it constitutes the path to achieve the expected learning. The main components in the didactic intervention are the knowledge transfer activities because it is assumed that if the student follows the logical path proposed by the teachers, will understand and learn [9, 11, 13]. The didactic intervention aims to avoid constant improvisation and dispersion of the efforts of educational actors; For example, sometimes actions related to the theme are carried out but far from meeting the objectives, which implies deviation from the goal and the desired results [9, 11, 13]. As part of the teaching and learning process, it is crucial to question the most appropriate sequence to generate the pursued learning; there are no universal didactic sequences [9, 11, 13]. The validity of the sequences depends on the nature of the contents, the objectives set and the contexts where they will be implemented. Some of the aspects that can be considered are [9, 11, 13]: Going from simple to complex, starting from personal experience towards conceptualization, including conceptual reflection activities based on the student's previous experience to reach more abstract levels, proposing the solution of problems from the context of the student to transfer to situations in broader contexts, going from the particular to the general (or vice versa, if relevant), and setting the didactic sequences of a specific curricular space.

4. STORYTELLING

The arrival of ICTs in the classroom has introduced new practices such as Storytelling, which combines traditional narrative, technology and emotions to tell stories [12, 14, 15, 16]. The use of Storytelling in education influences the skills of students and teachers. Applying this technique in the classroom increases motivation creativity and trains students' social and digital skills [12, 14, 15, 16].

4.1. Storytelling as a didactic tool

Storytelling uses traditional narrative techniques to build stories that connect with students [12, 14, 15, 16]. The goal is to create stories that excite them, with which they can relate [12, 14, 15, 16]. This teaching-learning process has different applications in the classroom: explaining a story or content attractively can make the student develop active listening,

stimulate their creativity and encourage their motivation through the narration of the experiences of the protagonist of the story [12, 14, 15, 16]. In the educational field, Storytelling allows students to understand complex topics quickly [12, 14, 15, 16]. As a result, students internalize the problem, and empathy is fostered. This technique also works on collaborative learning, motivation and creativity [12, 14, 15, 16]. In this sense, students create their own stories combining narrative elements and multimedia images, voice, or music. Through Storytelling, a more relaxed and participatory atmosphere is also achieved in the classroom. Creating a story with which students connect encourages their motivation, promotes their curiosity and creates a closer bond with the teacher [12, 14, 15, 16, 17]. On the other hand, when the student participates in the elaboration of Storytelling, he works on his linguistic and digital skills, develops his critical spirit and learns to organize information [12, 14, 15, 16]. Likewise, these stories collaborate in developing social skills such as empathy or active listening [12, 14, 15, 16].

5. SOCIAL ROBOTICS AS A DIDACTIC CHANNEL

When we talk about technology within the classroom, or educational technology, we usually refer to devices such as tablets, computers, etc. This is what first comes to mind, since they are the technological tools that are mostly presented in the field of education and childhood [4].

The application of robotics in storytelling intervention offers a number of benefits i.e. the children do not perceive the robot as a figure of superiority, but as a peer, making it less scary, and more approachable [1]. Our target population being children in situation of vulnerability and/or who have been exposed to trauma, it is understandable that they find it difficult to open up to an adult even in a therapeutic environment. Nevertheless, scientific literature says that they will easily engage with a robot, in a shared playing environment, because they can relate to it [5].

Thus our reason to use robotics as a complement to storytelling: the robots allow us to make the whole process of storytelling interactive while using a nearly natural social interaction without adding stress to the situation by maintaining the conversation “between peers”. That is, a switch is made from a scenario where the teacher tells a story and the child listens to it, to another scenario where the child builds her/his own story, along with the robot [7]. Once the story is created, they listen to it together. The subject goes from a passive process to an interactive one, making the child the focal point of the socio-educational intervention [1].

6. PROPOSED INTERVENTION

The proposed intervention is composed by the four activities presented in a previous article. The idea behind this is to help the child transform from passive subject to fully interactive actor, turning the storytelling to a story debate.

In this article we will focus in the more didactic levels, as the first ones are proposed in order to build a familiarity and easyness in the child-robot interaction. Presenting first the robot and then the storytelling activity.

Child-directed storytelling

In this activity the storytelling starts becoming a two agents' effort. The robot will start a story but stop in “crossroads” so the child selects how the story continues.

In this interactions the retrieval of information is more important than the adequateness of the story itself as the robot builds a log of the stories told and the elections of the child for the

professional to review in order to get a peek view if the child's mind state in a very non-intrusive way. These observations would be helped by the robot's many sensors as well as its cameras and a non-intrusive passive observation from the professional.

The robot's role in the storytelling is quite passive in this level, and can be repeated for as long as it is considered necessary by the professional or tutors.

Robot-directed storytelling

This is the final activity to which the intervention heads. Consequentially it is the one with the most didactic charge. In it the child and the robot interact solely on a storytelling basis. The story is offered immediately and if the child accepts the robot starts the story. However, using the previous information about the child and the professional's recommendations the robot would select stories previously marked and direct the child's response to the most adequate trail in regarding the value that is intended for the child to learn, challenging the child's answers (i.e. "Oh, I don't think it happened that way...", "Are you sure? I think this is what happened..." etc.). After the full story is built the robot tells it in its full length for the child to hear and process the final result.

In this scenario the robot has a more proactive role on the storytelling interaction, and so, it can result on negative or distress in the child so the iteration must be closely monitored.

CONCLUSIONS

We are entering an era where the education is being opening to a more wide spectra. New generations are raising awareness about mental health, core values, and we, as education professionals, must join this movement. Our ultimate goal has always been and will be the well-being of our students, ensuring their emotional well-being and mental health, and convert the teaching-learning process the most profound and engaging possibly, making it effective and organic.

Telling stories has always been important to humans. Throughout history, different civilizations have had their versions of storytelling, be it oral or written. Telling stories is a very traditional way of transmitting complex information or core deep values.

As seen in this paper, storytelling can be a very useful didactic tool. This article presents the didactic importance of such a way of transmitting new information and how this has shaped our proposal. Social robotics is a growing area, offering promising results and an interesting teaching tool.

This proposal is in the initial phase, and our goal is to apply it in the future, evaluating it and making various improvements to create a program that helps our students.

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