



**SYSTEMATIC INTRODUCTION OF ROBOTICS EDUCATION IN EARLY CHILDHOOD EDUCATION**

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**ABSTRACT**

The new technologies in education is an avant-garde theme that is being approached from different perspectives. We have to focus our efforts in introduce the robotics science in education, in the earliest years as it will be pre-school education. These days we can see how studies and articles are limited, practically non-existent, for what we propose a sequence of activities, that detail how and when to introduce robotics in the classroom with different activities from motivation's activities to specific works with robotic devices, whose characteristics will be appropriate for students of those ages. With these didactics strategy we will cover and work different contents of the 2nd stage of pre-school curriculum in a motivating way to prove that through the proposed activities the students will assimilate and consolidate their own learning and knowledge of their educational level.

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**INTRODUCTION**

At present, we can make out like conventional educational practices by the teachers have evolved considerably with the appearance and the inclusion of information and communications technology (hereinafter ICT) in all educational settings.

Technological evolution that society is suffering in all areas, also comes to education and there are many developments occurring exponentially in applications, spaces for reflection and construction of knowledge produced (Galvis, 2007).

A tool that is currently collaborating unequivocally the teaching - learning at different educational levels being educational robotics, used to understand and improve reality for its active, participatory and cooperative nature (competencies automation and automatic process control) involving the students encouraging their cognitive development.

We research in the field of early childhood education, we conclude that this is a totally unknown world and just unexplored even knowing that the purpose of this tool is the same as in other educational stages, ie, projects, games or activities with different types of robots from which we can work solving problems and situations using these devices.

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While performing this work which aims is to deepen Robotics Education designed specifically to early childhood education by introducing devices and technological resources so we can use a motivating methodology and develop recreational and dynamic activities, basics of this educational stage.

**METHODOLOGY**

Focusing on the Robotics aimed at early childhood education is relevant shortages of specific studies on the subject in question. The few bibliographic sources found in different databases consulted, related to the topic, not delve into robotics aimed at early childhood education, on the other hand, virtually all sources, focus your gaze at higher levels of education, in some high-school graduation and Secondary Primary: Rodrigalvarez (2005), Barrera (2015).

By introducing a new tool in the classroom Early Childhood Education, should bear in mind some important aspects, starting from the moment that begins with students the introduction to the use of this new tool, until they use it independently and independence. In the case of robotics as a teaching tool, we start with a first evidence, children in a very high percentage have never had any contact or are familiar with these devices. We aim in this work, to produce a teaching sequence in which is visible a clear progression through different activities that arise gradually, approaching the students to the concepts to be finished using fluidly end thereof.

Bee-bot is a device intended for children between 3 and 7 years old. This robot has the option to be programmable via a

simple and striking design for children. The device performs 15cm movements very precisely so that the scenarios that we should have 15 square cm<sup>2</sup> for the device moves around the stage properly. Bee-bot is able to memorize 40 moves in either direction so that it will facilitate directional control work, directional language and of course introduce students to programming devices.

The sequence will consist of a brief description of all activities that have been done in a classroom of 5 years Early Childhood Education during the 2nd quarter of the year (2016-2017). In addition we will focus on one of these activities which will be discussed in detail all the objectives, content and competencies that will work through this activity.

Approach for pre- and / or motivational activities, we will use the time of the assembly to do (we) ask questions, share experiences, make presentations, explain simple concepts on the subject. In another point, we will also make students through plastic robots draw their own language and explain their functions, fostering the development of their creativity.

In the next block will be made development activities scheduled progressively. Initially activities in which students will be robotic devices so they will experience first and how the operation there of will arise. Psychomotor classroom will be our partner for this type of activity, and thus will work transversely concrete contents of psychomotor skills and robotics with our students.

The second part of this block to introduce Bee-Bot, our traveling companion in the classroom. To work with Bee-bot need a work setting that we create ourselves so that work specifically content that we have in our programming. These facilities to adapt the scenarios to our needs is a point in favor of robotics, because we can work any content in a fun and meaningful.

We propose activities in the classroom to work any content from all areas of Early Childhood Education: activities with mathematical logic board Bee-bot with goals such as identifying numbers or solving simple operations; in the area of the work languages Za, Ce, Ci, Zo, Zu and transversally phrases healthy habits syllables; in the area of knowledge and interaction with the environment we specify activities to work trips different explorers like Cristóbal Colón, Fernando de Magallanes and Vasco de Gama or creating a scenario to know the parts of an anthill and their activities ants its environment.

Thus we check the great possibilities presented to us in our classroom robotics, and that this is a very valuable tool in these educational levels and by motivating and attractive course for our students.

## **RESULTS**

To complete the project we will develop consistency then have analyzed the Decree 67/2007 by which establishes and orders the curriculum of the second cycle of Early Childhood Education in the Autonomous Region of Castilla la Mancha, so we have in mind the weight It is having ICT and Robotics in this stage of Education.

For example, a general purpose found within the Decree 67/2007, namely g) statement as follows:

"Started in managing logical-mathematical tools. Literacy and information and communications technology".

Seeing this objective and considering Educational Robotics as a tool related to information technology and communication we conclude that in general terms the use of robotics in Early Childhood Education is feasible and is framed and closely related to the Decree.

After a thorough analysis we draw a general conclusion, Decree new technologies are named, it is intended that students in these stages are initiated in the use and operation of different tools and even concretely Educational Robotics at this stage does not appear as so we can use it as a working tool fitted within technology, information and communication.

All relationships established during the analysis are organized by establishing clear relations between all descriptive elements, so that while we are facing a completely innovative educational tool will have a solid and coherent basis of work through which we develop all project and will facilitate the programming of activities and also very important, it will help us to demonstrate that we can work consistently and efficiently with this educational tool.

This section should regard him as one of the most important in our project because it is essential to demonstrate the complete work we do regarding Decree 67/2007 and have the comfort of being made effective learning in our students.

## **CONCLUSIONS**

With this work, and as a first step, because we continue to work in different centers at different educational levels of the second cycle of early childhood education, we want to make some contributions, which over the previous exhibition have been bringing, being our intention to continue to deepen.

It was very evident and facilitator for our work motivator and potential interest posed to the students the robots, which together with learning playful scenarios gave them work with high extrinsic and intrinsic motivation, facilitating autonomy and systematization of processes teaching - learning.

On the other hand, early childhood education students are able to use the proposed devices and use them in a standardized and routinely worked in the methodologies in the classroom, integrating perfectly. Finally, and failure to follow with greater depth and as first step, these devices (robots, stages,...) incorporated into the methodology incardinated and give perfect answer to many of the prescriptive elements to develop in steps between highlights: directionality, temporal and spatial orientation, concepts and content of various learning areas by proposing different scenarios, numbering, personal self respect or shifts.

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