INTRODUCTION

"*Find the right number*" is an educational and prosocial robotics game developed within the "Robotics versus Bullying" project, co-financed by the Erasmus + Program of the European Commission, Sub-program "Support for Policy Re-form", Action "Forward-looking cooperation projects "(612872-EPP-1-2019-1-IT-EPPKA3-PI-FORWARD). The partnership of the RoBy project is made up of 11 organizations from 9 European countries: public organizations, associations, research centers, universities, industries.
The Robotics versus Bullying (RoBy) Project promotes a holistic approach to learning through the use of robots, and peer cooperation as a tool to prevent bullying and promote social inclusion. This goal is achieved using robotics and digital tools. In addition, thanks to non-formal teaching and game-based activities, students aged 6 to 12 will improve their digital skills and modify their approaches to STEAM.

The educational robotics activities proposed by the RoBy project focus on the prevention of the bullying phenomenon. The robot is suggested as a tool to be used in groups, in order to improve social and communication skills in a creative, engaging, and non-judgmental environment. Working together, in a peer-collaboration, favors the development of a social environment in which bullying actions hardly find space, since the entire group of peers learn an attitude of care and protection towards all its members. The use of simple educational robots also proved useful in facilitating the inclusion of children with cognitive or behavioral difficulties and special educational needs in general.

For more information on the project and on the socio-psycho-pedagogical references on which RoBy's educational model is based, you can visit the website www.roboticsvsbullying.net

THE GAME - psycho-pedagogical references

Education is another sector where robots are proving to be of valuable assistance. Conventional classrooms can become stagnant, often to the detriment of students' learning experiences. That's why telepresence robots can offer promising solutions for educators globally to empower engaged learning experiences and catalyze effective learning techniques inside and outside the classroom. Bullying can be seen in many situations at school and in group contexts and it is often difficult for an educator to get the people involved to bring out their experiences, or to find a way to deal with the subject using a language appropriate to the age of their students. The RoBy project partners developed the bullying prevention game as a tool for teachers to use in the classroom in order to develop pupils' awareness of what bullying is and, experiencing its dynamics firsthand, engage the students in a series of behaviors as an antidote to these social dynamics.
Identify the main objectives of the game in terms of what the children can learn individually and in relationship with each other. What attitudes they can develop. Describe the role of the teacher, from a pedagogical point of view, during the game.
The main objectives of the game are students to repeat all knowledge about pairs of numbers whose total is 10 and their conection with adding operation.
They uses the + , – and = characters in mathematical statements that refer to adiing or substracting.
Use terms larger or smaller to compare two numbers up to 10.

During the game, all students are being observated and motivated by theteacher. If a student needs any help, the teacher encourages and helps him with the difficulty he faces during the game and solving the tasks.

GAME DESCRIPTION

Introduce the game with a general description: age of the players, general aim of the game, etc.)
Playing with numbers up to 10 with Roby
21 student, 6 year/old age
Recognizing numbers up to 10, adding and subtracting up to 10 and comparing numbers up to 10.
General aim of the game is students to repeat the gained knowledge about the numbers up to 10.

Description of the robot

Describe the robot that can be used for this game.

MIND Designer is an innovative intelligent robot that introduces students to simple coding and design. It guides students through the process of learning mathematics, arithmetic and geometry. MIND Designer robot is programmable with the arrows above its head in a simple and intuitive way.

Game content

List all the parts required for the game

2 Roby Mind robot,
2 Arithmetic chart (yellow)

Description of the board

Describe the game board and the different boxes.

Arithmetic chart (yellow),
Game board with numbers up to 10.

Description of a game session

PREPARATION

Describe how the class is prepared for the game. How to define the division into groups, tips to allow the game to run smoothly from the start. How to prepare the platform material.

Students are devided into 2 groups. The division into groups is made with odd and even numbers. Students who represent an even number are in the first group and students representing an odd number are in the second group. One student is game guide.
Two yellow boards are put on the floor. 2 Roby Mind robot are set on the START field on the board. Each group of students is in front of their yellow board. Every student of each group has one turn on setting Roby on the right number.

The arithmetic questions are grouped into three levels of increasing difficulty.
For the Easy level, students get to recognize numbers up to 10
For the Medium level, students get to add and subtract numbers up to 10.
For the Hard level, students get to compare numbers up to 10.

START

Describe how the game starts, what is distributed at the beginning of the game. How the exchange sequence takes place in cases where there is more than one player ...

Game guide of its choice tell:
- First round- Find the number 2,3,4,...
On the beginning every group is on their place. Game guide start the game with first round which is the Easy level. In the first round the game guide start with questions:
Find the number 2,3,4,..... Students are answering the tasks and taking Roby to the right number. Every player of the group must take turn and answer the question by taking Roby on the right number as soon as possible. Faster player of the turn gets 1 point.

The Core of the Game

Describe the process and objective of the game.
Define any challenges and/or advantages that can be received by playing the game.

When every player of the group make his own turn in the first round then the game guide start the second round and then with the third round which is end of the game.
In the second round the game guide start with questions:
How much is it 5+3, 2+6, 1+2, 6-4, 8-5... Students are answering the tasks and taking Roby to the right number. Every player of the group must take turn and answer the question by taking Roby on the right number as soon as possible. Faster player of the turn gets 1 point.

When every player of the group make his own turn in the second round then the game guide start the third round which is end of the game.
In the third round the game guide start with questions:
-Which number is bigger 4 or 5?

- Which number is smaller 6 or 8?

CONCLUSION

What happens at the end of the game session?
For example:
At the end of the game, the groups calculating the points, choosing the winner of the game and celebrating the victory. Then they tell each other the mistakes they made during the game and how they would solve the task.

Variants

Once the game has been described in detail, it is possible to offer variations on the main version or simplifications to make the game more accessible to younger children or those with difficulties.

Variations on the main version could be
For the Easy level, students get to recognize numbers up to 5
For the Medium level, students get to add and subtract numbers up to 5.
For the Hard level, students get to compare numbers up to 5.

Keywords of this didactic proposal:

For example: STORYTELLING, CREATIVE PROBLEM SOLVING, PROSOCIAL VALUES, BULLYING, RoBy
Creative problem solving, numbers up to 10, adding, substracting, comparing