
Joint Efforts for Innovation:
Working Together to Improve Foreign Language Teaching in the 21st Century
TAKSIM
Dolors Masats, Maria Mont
& Nathaly González-Acevedo (Editors)

A book for the curious and passionate 21st century language teachers and teacher trainers.

Tired of reading about the wonders of technology enhanced project-based learning but not knowing where to seek inspiration to start to adopt this teaching approach? A team of in-service teachers, teacher trainers, pre-service teachers and researchers have worked together to present a simple, engaging and practical book to offer fellow education professionals stimulating ideas for their teaching practice.

Joint efforts for innovation: Working together to improve foreign language teaching in the 21st century offers:

- Inspiring classroom projects and innovative teaching experiences.
- A compilation of digital tools and resources for the foreign language classroom.
- Pioneering proposals to open up the classroom doors.
- Problem-solving and inquiry-based tasks that promote team work.
- Honest reflections from practitioners on their classroom practices.

This book includes

- accessible examples of teacher-led classroom research small-scale studies.
- calls for teachers to do research in their classrooms.
- personal accounts on the importance of school internships for pre-service teachers.

This book is an invitation for practicing teachers and teacher trainers to be creative and to develop learning skills, literacy skills and life skills.

Are you ready to become an innovative 21st century educator?

JOINT EFFORTS FOR INNOVATION: WORKING TOGETHER TO IMPROVE FOREIGN LANGUAGE TEACHING IN THE 21ST CENTURY

Dolors Masats, Maria Mont & Nathaly Gonzalez-Acevedo (Editors)

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Coding toys while learning English: Programming with very young learners

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Introduction

We live in a highly technology-mediated society; most of us need technology during our daily lives. Technology has changed the way we access and manage money, the way we communicate and access communication and clearly the way we access and enjoy entertainment. In response to the demands of modern society, education is putting a great emphasis in including technology in its curriculum. The use of technology is being promoted by policy makers and administrations to reduce the technology gap and ensure that the younger generations are prepared to succeed in our connected society. However the value of computers and technologies today does not reside in the technical use of gadgets, apps or software. The focus of education has expanded to the area of creating and co-creating resources supported by technology. Teaching children to code and programme digital devices is a must as in a not-so-far future, the mastery of these skills will be a requirement for most professions.

Coding has been an area of expansion for tech industries that create toys or gadgets for didactic or personal use. There is a great offer of gadgets designed to teach pre-coding and coding skills even to the young ones. Most of the gadgets designed for a didactic purpose are based on the use of mathematical concepts and skills and promote not only coding skills but many of the so-called 21st century skills (World Economic Forum, 2015), such as problem-solving, decision-making, critical-thinking and spatial awareness. In language learning contexts, and especially in foreign language classrooms, the use of digital tools has been regarded as a unique opportunity to promote meaningful learning, because the use of technology enhances students' motivation and connects learning with their interests. "Learning through active engagement is essential because it enables students to develop a conceptual understanding of the material being learnt" (Faisal, Kapila & Iskander, 2012:2). Designers, teachers, parents and even children have found ways to include the teaching and learning of language skills through technology. In this chapter we want to present examples of real classroom experiences in which a group of kindergarteners have also developed mathematical knowledge and coding and problem-solving skills while playing with Bee-bots and learning English.

Let's get started with some inspiring ideas

Bee-bots are easy-to-operate floor robots in the shape of a bee. Despite the fact of being quite simple (they can remember a sequence of up to 40 commands and can move forward, backwards, left or right), they are a great start for coding language and developing computational thinking. Using Bee-bots in the classroom offer teachers the opportunity to integrate the contents of the English and ICT syllabi, while empowering students to master 21st century skills and become more autonomous and responsible of their own learning.

There is no minimum age requirement to use Bee-bots, since students just need to press 5 buttons in the shape of arrows in order to direct a robot and make it move. The teaching proposals we want to present here were carried out during the English lessons in the pre-primary levels (3, 4 and 5-year-old pupils) of a state school in Catalonia. They range from tasks which require less language and less complex cognitive demands to more challenging tasks. For each of them, we present the learning goals, detail the resources needed to implement it and provide a brief description of the lesson. They have all been designed with the objective of helping young learners of English to develop digital competences and learning to learn skills. The tasks require learners to understand and apply instructions to learn how to sequence movement.

Naming

Learning goal: To become familiar with new vocabulary

Resources needed: Bee-bots, vocabulary flashcards and a transparent plastic mat with a grid (low-cost version: teachers can draw and produce their own vocabulary flashcards and create their own mat in the format of a big poster, as in figure 1).

Lesson Description: This is one of the simplest task for learners to practice new words in English and to become familiar with the commands Bee-bot can execute.

Teachers say out loud one word and students take turns to press the control buttons and help the Bee-Bot reach the correct flashcard displayed on the mat. When students are familiar with the task, they can even choose the vocabulary they want to practice, self-regulate the process of turn taking, and assess the performance of their peers.

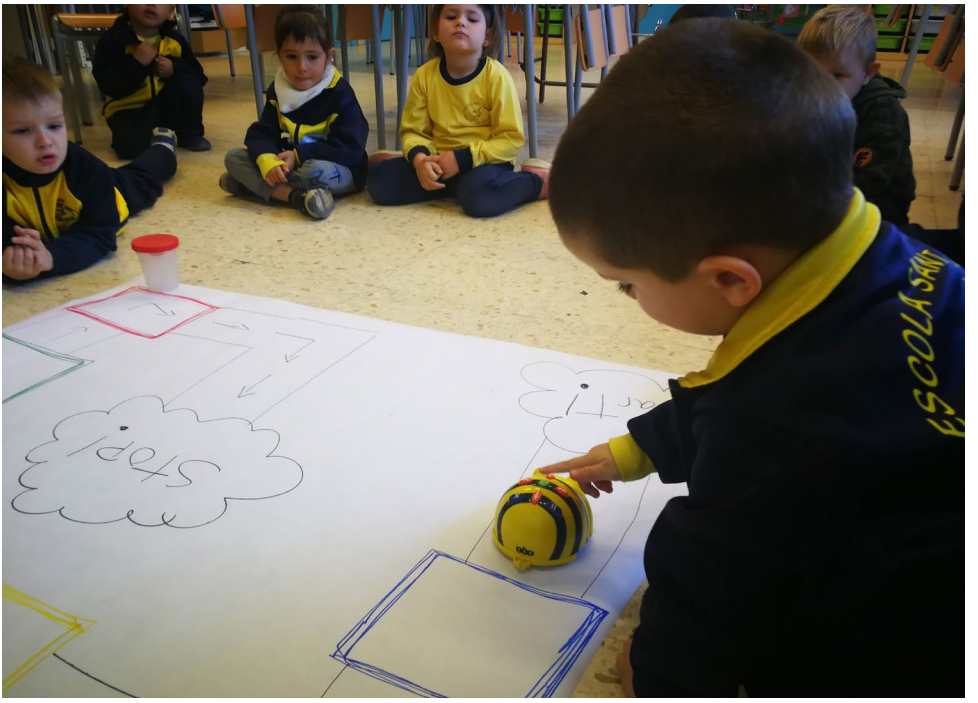

Figure 1. Children pressing the control buttons of a Bee-bot on a mat made by a teacher

Following the steps of a recipe

Learning goal: to understand a recipe and be able to prepare it to have a quick snack at the end of the lesson.

Resources needed: Bee-bots, a mat, a set of flashcards illustrating cooking actions and different ingredients. Optional: real food and cooking tools.

Lesson Description: The teacher dictates operations and students must resolve them mentally, say the resulting number out loud in English and then lead the Bee-bot to the cards containing the numerical representation of the operation and the result.

Alternatively, students can challenge one another by taking turns to dictate and solve other mathematical operations.

Mental arithmetic in English

Learning goal: To improve knowledge of number names in English and to understand the operations of addition and subtraction.

Resources needed: Bee-bots, the mathematical symbols of addition and

subtraction and some numbers (according to the level those numbers will be up to or over ten).

Figure 2. Children doing mental arithmetic with their Bee-bots

Lesson Description: The teacher presents a recipe using a video. After each step, the video is paused and students need to lead the Bee-bot to the flashcard that best summarizes the corresponding cooking actions and the food and tools required.

If there is time, after the warm-up task with the Bee-bot and the video, students can follow the instructions again to prepare the recipe. A healthy fruit salad or a fruit brochette are just examples of recipes that can easily be prepared in class.

Retelling a short story, a song or a traditional tale

Learning goal: To order a series of events in a story game-based context.

Resources needed: Bee-bots and flashcards to tell a story children know well.

Lesson Description: This activity must be done with stories students are familiar with and can easily sequence pictures that illustrate it. Children must lead the Bee-bot from one picture to another to reconstruct the story. Alternatively, children can use the Bee-bots while following a story the teacher tells them from the very first time.

If the flashcards depict the characters in the story or objects present in it, students can use their Bee-bots to make connections between characters or between a character and an object. Similarly, if the flashcards illustrate different possible endings, students can use the Bee-bots to construct an alternative end.

Starting to spell

Learning goal: To learn the letters of the alphabet, to recognise sounds in the foreign language and to start writing words.

Resources needed: Bee-bots, a Bee-bot mat (or a self-made poster) and some letters of the alphabet.

Lesson Description: The Bee-bot is surrounded by the letters of the alphabet. Students need to guide it from letter to letter to spell the words that the teacher has drawn or written on the whiteboard. With older students, this last step can be skipped, and the teacher says the word out loud and gives children no language support to spell it.

Optional: the students who are not controlling the Bee-bot can write the words on a piece of paper, so they are all focused on the task.

Solving problem-based situations

Learning goal: To develop students' problem-solving skills in a game-based context.

Resources needed: A Bee-bot, a mat and a set of images or flashcards related to the problem students need to solve.

Lesson Description: The teacher comes to class with a real or fictional problem students need to solve. For example, the teacher has a mat with different places in town and she tells students that their Bee-bot is very hungry. She asks them to think where the robot needs to go. In this case, they need to programme it to go to a supermarket or a restaurant. In another situation, if the robot were sick, they would need to take it to the hospital or to a chemist's. This is a more demanding task because students must have developed cognitive skills to solve the challenge set by the task. It is advisable to carry out this type of task with students aged 5-6 and older.

Decoding a secret message

Learning goal: To practice spelling and vocabulary recognition

Resources needed: Bee-bots, mats as in the Battleship game, alphabet letters or flashcard representing letters and a worksheet with a secret message/word on it with some blanks on which students can write down their findings.

Lesson Description: The teacher provides all students with a worksheet in which they find a secret message or, for a shorter version of the same task, just a secret word. Students must take the Bee-bot to the square that coincides with

the information in the worksheet. For instance, the worksheet may contain an instruction such as *"take the Bee-bot to A-7"*. Students need to lead the Bee-bot to this square, where they will find a letter (in the case of the shorter version) or a word or image (in the case of the longer version). Once they complete all the instructions, they will be able to decode the secret message and write the solution on the worksheet provided.

Creating and Sequencing their own stories and situations

Learning goal: To create a short story or a situation in small groups.

Resources needed: A Bee-bot, a mat, pieces of paper, pencils and colours.

Lesson Description: This time students are the main protagonists of the task. In small groups they imagine a short situation or story. Then they draw the main characters and events in their story on blank pieces of paper.

Once they have finished preparing their materials, they pair up with another group. The two groups take turns to tell their stories. When students in one group tell their story, the members of the other group lead the Bee-bot from one scene/character to the next.

Figure 3. Two students posing with a Bee-bot and their English mascot, Sparky. They are so proud of their invented stories!

Concluding remarks

The use of technology in foreign language classrooms offers teachers many possibilities to reduce the technology gap. Using Bee-bots or coding-based gadgets to learn a foreign language at an early age is relevant, motivating and "a modern form of interdisciplinary education of children" (Smyrnova-Trybulska et al., 2016:197). Using technology, however, is not always easy, often because of budget constraints. In part, technology is being introduced in schools at a slow pace because teachers feel uncomfortable to spend money on apps, software or gadgets they have not had the opportunity to try first and explore the possibilities they offer. Technology devices, as with any other learning tool, must be adapted to the context and the reality of each school. We encourage teachers to join associations or to create spaces in which they can use all sorts of technological

devices and receive support on how to use them. Teachers need to experiment and manipulate technological tools and resources before including them in their teaching practices.

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