DIGITAL LEARNING SPACES IN PRIMARY SCHOOLS: CHALLENGES AND PRACTICES

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Resumen

El discurso sobre la integración de las TIC en la educación puede resultar engañoso, cuando nos lleva a considerar las prácticas docentes en una dicotomía, con TIC o sin TIC, como si fuera posible, en medio de una sociedad digital, diseñar una educación infantil. en este paradigma. En esta comunicación intentaremos reflexionar sobre las prácticas de aprendizaje en las escuelas primarias, enfocadas al desarrollo de los conocimientos y habilidades de los niños en un enfoque holístico y transdisciplinario, en el que, inevitablemente, se trabaja y se aprende con la tecnología. Se explorarán algunos proyectos que se desarrollaron en un enfoque de aprendizaje basado en proyectos, movilizando un conjunto diverso de tecnologías y escenarios de aprendizaje. En un enfoque de metaanálisis, se convocan varias dimensiones para analizar el desarrollo de estos proyectos y su impacto en el aprendizaje de los niños.

Palabras clave: TIC, Educación primaria, Pensamiento computacional, Aprendizaje Basado en Proyectos

Abstract

The discourse on the integration of ICT in education can be ambiguous, when it leads us to consider teaching practices in a dichotomy way, with ICT or without ICT, as if it were possible, in a digital society, to design a child's education in this paradigm. In this paper we will try to reflect on learning practices in primary schools, focused on the development of children's knowledge and skills in a holistic and transdisciplinary approach, in which, inevitably, one works and learns with technology. Some projects that were developed in a Project Based Learned approach will be explored, mobilizing a diverse set of technologies and learning scenarios. In a meta-analysis approach, several dimensions are convened to analyse the development of these projects and their impact on children's learning.

Keywords: ICT, Primary Education, Computational Thinking, Project Based Learning

1. INTRODUCTION

Integrating ICT into teacher/learning activities should be framed by theory and methodological approaches to ensure significant gains in education. This idea overlaps a simplistic approach of working ICT for ICT and tools for tools, valuing the development of digital skills in an integrated way and taking advantage of the vast opportunities that ICT offers to design richer and more

meaningful learning scenarios. The constructivist and constructionist theories of learning, as defined by Papert (1993) and Resnick (2017), seem to tackle better education challenges. Children feel more involved and motivated when they learn by doing or when they develop significant products for themselves and their community. Taking on learners as active constructors of their own knowledge it is crucial that they are engaged in making their own meaningful constructions, palying with "objects-to-think-with" (Kafai, 2012)

Project-based learning (PBL) is a model that organizes learning around projects and is consistent with constructionism principles. PBL works with complex tasks, based on challenging questions or problems that involve students in design, problem-solving, decision making, or investigative activities. PBL deals with significant and authentic ill-structured issues and is often multidisciplinary (Bell, 2010).

2. METHOD/DESCRIPTION OF THE EXPERIENCE

In this paper we present a meta-analysis of three projects developed with primary school children according to guiding criteria that aims to integrate a constructionist perspective, in which children are challenged to produce content and their own products. The transdisciplinary dimension and the mobilization of a diversity of technologies are valued, as well as the complicity between digital and tangible media.

The projects were developed in different contexts, one in formal contexts and two in the context of formal education in a classroom environment. In order to systematize the analysis of the development of these three projects, the following dimensions were considered: Methodological approach followed; themes and contents covered; technologies and resources used; products developed; impact on children learning.

3. RESULTS

The linen academy is a project developed in non-formal setting focused on the study of the linen cycle and followed the same approach of the project "Dão Petiz" (Gomes, 2016), about the vineyard cycle. It involved 26 children aged between 6 and 12 years. The children were challenged to study the flax cycle, visiting the cultivated fields over the course of a year. In each of the visits, the children assumed three roles: farmers, experiencing the practices of cultivation and transformation of flax; researchers, using sensors to monitor environmental data and its

influence on earth cycles; reporters, making short reports using video cameras and audio recorders to produce short reports in the field.

The Smart City Kids Lab is a project that took place in a formal context (Gomes, 2019a) in several primary schools, and involved the participation of 13 schools, 23 classes, 28 teachers and 346 students. Having as one of the objectives to work on Computational Thinking and programming and robotics, children were challenge to present ideas, using scratch and robots, to promote their city as a smart city.

The Ecosensors4Health – case study Viseu was part of a larger research project (Gomes, 2019b) that aims to promote environmental health, emphasizing the role of Information and Communication Technologies to develop environmental literacy in children. It involved 59 students of tree primary school classes. They used physical sensors to explore environmental problems in their schools and ICT tools to work and represent this data and also to present recommendations to solve these problems.

4. DISCUSSION AND CONCLUSIONS

All projects were developed around concrete and challenging problems, assembling several contents and competences work in primary education curriculum. On the other hand, they all enabled students to develop tangible products with meaning for them and their community. We The highlighted the way in which the technologies were used. Due to the diversity of ICT used, the complicity in the use of digital and tangible media and the diversity of exploration contexts, with practices inside and outside the classroom. Technology has never worked as the focus, instead, it worked as a multiple support for children's more meaningful learning.

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