Chapter 12
Using ICT in the Classroom for Acquiring Digital Competences: Three Case Studies From Croatian Primary Schools

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ABSTRACT

This research will explore the use of ICT tools in primary school and its impact on digital competences. What digital competencies can mean in this context and how they can be integrated into the primary school curriculum are some of the questions this chapter will explore. This chapter will present three case studies with three primary school teachers who participated with their students in CRISS project (CRISS is a project financed by the European Commission, through the Horizon2020 programme, ID:732489) during which all used CRISS platform and their experience with the process of students' digital competences evaluation, obstacles that they encountered during this process, and how the use of ICT tools can improve primary school students' digital competences. The advantages and disadvantages of this type of learning method will emerge and be discussed.

INTRODUCTION

In the digital era, the use of computers, tablets, laptops, smartphones, applications and software has become an integral part of every segment in life. Education is one of such segments where hardware and software are used to transform the educational system and modify the learning process. Use of information and communication technologies (ICT) and their tools in education, especially in primary and secondary education can motivate students to be more independent in their learning process, they can become researchers, e.g. take more active role in learning process (Suryani, 2010; Corr, 2006; Ghavifekr, Rosdy, 2015; Leko, 2019). In addition, ICT can "provide the tools for the creation, collection, storage

DOI: 10.4018/978-1-7998-4972-8.ch012

and use of knowledge as well for communication and collaboration" (Pérez-Escoda, Rodríguez-Conde, 2015, p. 355).

This research will give insight on how combination of different types of learning, i.e. collaborative learning (CL) and project-based learning (PBL) with use of teaching scenarios, ICT tools and digital technology contributed and form the process of acquiring digital competences for primary school students in three Croatian schools. This type of learning method was applied in 535 primary and secondary schools in 6 European countries as part of European Commission's Horizon2020 project CRISS. This research is focusing exclusively on primary school teachers and students which main aim is to determine whether the process of acquiring, evaluating and certifying digital competences is applicable to primary education level and under which terms. Used methodology in this research is semi-structured interviews conducted with teachers during the school year 2018/2019 and relies on teachers' personal attitudes, perceptions, views and experience with teaching and evaluating digital competences of primary schools students.

First learning model, PBL, De Graaf and Kolmos (2003) describes as "an educational approach whereby the problem is the starting- point of the learning process" (p. 658). They are pointing out that problem which is put in front of the students needs to be based on real-life situations "which have been selected and edited to meet educational objectives and criteria" (De Graaf, Kolmos, 2003, p. 658). This segment of PBL is important because its goal is "to engage students in real-world tasks" (Bell, 2010, p. 42). This type of learning method is "student-driven, teacher-facilitated approach to learning" (Bell, 2010, p. 39) where learning is "organized around project" (Thomas, 2000, p. 1).

Second learning model which is mentioned in this chapter is collaborative learning which is defined as "an educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product" (Laal, Laal, 2012, p. 491). Pluta, Richards and Mutnick (2013) are pointing that CL refers to "any learning activity that includes the coordinated engagement of two or more learners for the purpose of completing tasks (e.g., solving cases) that lead to desired learning outcomes (e.g., developing deep content knowledge)" (p. 9). Kreijns et.al. (2007) are referring to computer-supported collaborative learning (CSCL) and describing it as an environments that "can be characterized as functional environments because they focus on functional, task-specific support, often disregarding explicit support for the social (emotional) aspects of learning in groups" (p. 176).

Third factor, which is important for this study are teaching scenarios that students used during their PBL and CL educational approach. At Ryerson University teaching scenarios are defined as "a collection of tasks you may want to achieve in the classroom or while managing your course. Each teaching scenario is paired with a technology-based solution on how to achieve that task" (Ryerson University, 2020). In addition, Massey University defines this type of learning as scenario-based learning (SBL) where students "uses interactive scenarios to support active learning strategies such as problem-based or case-based learning" (Massey University, 2020). Mariappan (2004) is stating that SBL "is based on the understanding that in order for a learner to acquire and retain skills & knowledge, the learner must be placed in a scenario where his/her decisions affect, or alter subsequent events leading to new events, just like in real life" (p. 2). Combination of these learning approaches was supported and accompanied by use of various ICT tools and digital technologies, which enabled students to acquire their digital competences during school year 2018/2019.