Chapter 15
21st Century Skills and Digital Storytelling in the Classroom

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ABSTRACT

PoliCultura is an initiative of collaborative digital storytelling in formal educational contexts run by HOC-LAB, a laboratory at Politecnico di Milano (Italy), one of the largest technical universities in Europe. Launched in 2006, PoliCultura is open to schools of all kinds and levels, in Italy and abroad (international since school year 2013-14). Within PoliCultura, groups of students/classes, supervised by a teacher, create a multimedia interactive story using an online authoring tool by HOC-LAB. So far, more than 1,200 stories have been created by students aged between 4 and 18, from 9 countries.

By presenting in detail the initiative and the evaluation data, this chapter makes a case for collaborative digital storytelling as a way to foster the acquisition of 21st century skills: creativity, collaboration, media literacy, life and career skills.

INTRODUCTION

This chapter wants to make a case for collaborative digital storytelling as a good strategy to support the acquisition of some of the 21st century skills so much advocated by school systems around the world. It is based on a large-scale case-study: "PoliCultura", an initiative started in 2006 that has involved so far more than 24,000 students, from 9 countries, producing more than 1,200 digital stories. The students are aged between 4 (pre-school) and 18 (high-school). Data, gathered through various methods, show that students do develop some of the 21st century skills like creativity, collaboration, media literacy, life and career skills. The program can be implemented within the frame of formal education without major disruptions and by teachers who are not particularly tech-savvy.

The chapter is organized as follows: first of all, a background section presents the state of the art on computer-supported collaboration and digital storytelling in education, as well as the P21 framework developed by the Partnership for 21st century skills, to which reference will be made in subsequent sections. Then, the PoliCultura

initiative is introduced in detail, as well as the evaluation data. Finally, the last section highlights conclusions and future work.

BACKGROUND

Collaboration and Digital Storytelling

The use of technologies in education has brought about significant changes into the traditional teaching/learning strategies. One of the most prominent is the emphasis on collaboration.

The focus on how computers can support remote and in-presence collaboration began in the late 80s, leading to the birth of a specific pedagogical approach called "Computer-Supported Collaborative Learning" (CSCL), to which a series of conferences were devoted starting in 1995. CSCL sees the construction of knowledge as the result of computer-supported interaction among learners, either synchronously or asynchronously (Stahl, 2006). Koschmann (1996) identifies three major theories at the basis of CSCL:

1. Constructivism and the social construction of knowledge
2. The Soviet sociocultural theories that put an emphasis on the role of a tutor, following the Vygotsky (1978) trajectory
3. Situated cognition theories, placing an accent on participation and communities of practice (Wenger, 1996) as key ingredients for learning

CSCL has given vent to a thriving community of researchers investigating the unique affordances provided by technology to collaborative construction of knowledge. Technology is seen as a new medium (or, better, as a new array of different media) to foster collaborative knowing, comparison between different findings, negotiation of meaning. Furthermore, technology is seen as a way to change the teacher's role from "channel"

through which knowledge flows to facilitator of interactions from which learners develop new understanding (Stahl, 2002).

In parallel to the theoretical insights on how collaboration, technology and education interact, the fields of Human-Computer Interaction, (e.g. Czerwinski et al., 2008; Olsen et al., 2009) and Interaction Design for Children (e.g. Antle et al., 2014; Gottel, 2011 for a comprehensive review) have witnessed a growing interest in the development of educational technologies supporting interaction and collaboration, both in presence and remotely. However, the application of new cooperative technologies is usually limited to short spans of time, oftentimes in experimental settings prone to provide an unreliable account of how learning occurs in daily classroom activities (Light and Littleton, 1999). When it comes to large-scale application in formal learning settings, contextual constraints make the adoption of cooperative technologies an aim difficult to reach.

Attention to the affordances of collaboration in education is rising in the field of Educational Technology too, but with a focus mainly on either higher education (Abrahamson, 1998; McDrury and Alterio, 2003) or teachers' development: lower levels of education, where evidently the implementation of collaborative strategies is more challenging, receive less attention (for a comprehensive state of the art see Cook et alii, 2014).

The combination of collaborative technologies and storytelling is seen as a promising approach to foster substantial benefits, both in formal and informal education: first and foremost, benefits related to communication (Cassell and Ryokai, 2001; Decortis and Rizzo, 2002) and social interaction skills (Di Blas et al., 2009). Still, technologies for supporting collaborative storytelling are hardly making their way into the classroom. Most tools and environments that support collaboration in story creation are applied in experimental or informal learning settings (e.g. Alborzi et al., 2000; Antle, 2003; Cassell and Ryokai, 2001). There are only a few initiatives that have been purposefully

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