Kids Create Multimedia Stories at School
An “Authentic” Educational Value?

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ABSTRACT
In this paper we investigate the potential of digital storytelling in the context of formal education (i.e. as classroom activity) for fostering a number of benefits going beyond the acquaintance with technology and computer mediated communication. Our discussion is based on a four-year experience with digital storytelling in Italian classes of all school grades (including pre-school), involving thousands of students, and on the data coming from surveys as well as direct interviews to almost 100 teachers.

Categories and Subject Descriptors
K.3.1 [Computers and Education]: Computer Uses in Education - Collaborative learning

General Terms
Human Factors

Keywords
Children, Digital Storytelling, Educational applications, eLearning, computer supported collaborative learning

INTRODUCTION
When talking about kids and digital storytelling, there are four possible interpretations, according to a matrix where the values respectively are: readers vs. authors and individual vs. part of a group.

In this paper, we explore one of these combinations: kids as authors and as part of a group. We are talking about a very special group: a class. Being in the context of formal education, the questions we will be dealing with are focused on educational benefits: do kids really achieve benefits through this kind of activity? What kind of benefits? Do these benefits belong to the mainstream of the school system’s mission or are they some sort of “side-effect” (maybe perceived as not particularly relevant)? In the light of our large scale experience with thousands of pupils in Italy doing storytelling activities using our tools, we advocate that educational benefits (both mainstream and, so to speak, peripheral) are obtained. We will discuss what types of benefits are generated, why, and under which conditions in the rest of the paper, borrowing from the first results of an ongoing user-study (in the frame of the national Italian project Learning4All) involving more than one hundred Italian teachers who have taken part in our programs. Our perception is that the activity is like a pebble thrown in a pond, generating direct and “peripheral” (but not less relevant), benefits: a more inclusive education, enhancement of group work, and opening of the school towards families and the community at large.

THE EXPERIMENTAL CONTEXT: POLICULTURA
PoliCultura (described also elsewhere at the conference [2]), is an initiative by Politecnico of Milan, started in year 2006. It requires students (of all school grades, including pre-school) to create a multimedia “narrative” using a tool developed by our lab and offered online as a free web service (requiring no software installation). At first, PoliCultura’s aim was to foster, through the digital storytelling activity, students’ acquaintance with information and communication technologies. Then, as we shall extensively discuss below, we discovered that it would trigger also profound and “authentic” benefits [5] far beyond pure technological skills. The core idea of PoliCultura is quite simple: participants classes are called to develop a “narrative” using the online tool (“1001stories”) provided by Politecnico di Milano. Teachers register online, get access to the tool and to a few pages of guidelines. The tool allows to build a 2-levels narrative: the first level typically consists of 4-8 “topics”; each topic goes with a variable set of subtopics (4 to 8).

Figura 1 An example of narrative (web version).
Figure 2. The structure of the multimedia narratives. The number of topics and sub-topics is up to the authors (usually ranging between 4 and 8 for each category).

Topics and subtopics are composed by a slideshow of pictures, an audio (1 minute long on average) and the audio’s transcript. Usually teachers organize a global discussion about the structure of the narrative. Once the main topics are settled, the kids divide into small groups of 3-4 and start creating the content. Each group is given a topic plus the subtopics’ set (we call this a chapter). Kids both gather and create content by combing the net in search of resources and images, scanning their own drawings, writing the scripts, recording the audios (several times!), saving them as MP3 files, etc. The teacher’s role vary according to the kids’ age: for very young kids (less than 8 years old), she manages the activity; for older kids, she gives them freedom, often delegating all the technological activities to them. In all cases, they act as supervisors of the production and of the final product's quality. At any time, during the creation process, authors can preview and play the final result. When authoring is completed, the generation engine delivers the narrative as a web-site, an off-line version (CD-roms can be burnt for the families) and also podcast. All the narratives are displayed on our website (www.policultura.it), but schools are free to install them on their server if they wish.

Teachers can submit the narratives to a competition that we have been organizing since 2006. Roughly 75% of the participating classes actually complete the narrative and submit it: underestimation of the effort needed is the main cause for dropping out. We are aware that the competition can be “dangerous”, since teachers may be tempted to “step in” personally in the work, in order to deliver a well polished work (and win). Still, we also acknowledge the role of the competition in motivating classes to finish the work on time and do a good job. In addition, families like the visibility that the competition provides.

MAIN EDUCATIONAL BENEFITS

Every year, online surveys and interviews (both aimed at teachers) are used in order to detect educational benefits provided by engaging pupils in digital storytelling. Here are the main findings (more can be found in [3]).

First of all, teachers report an improved knowledge of the subject at stake as prominent benefit. The most various subjects are dealt with in the narratives, from curricular (e.g. life of the ancient Romans, figure 2) to extra-curricular ones (e.g. a school outing or a social activity, figure 3).

Whatever the subject, students get deep into it improving their understanding. Numerous studies have shown that the learning outcomes achieved by students constructing external representations of their knowledge are stronger, retained longer, and transferred to other relevant contexts [6, 7]. This is also supported by several Constructivist theories, such as Constructionism [9], Collaborative Learning [11], Situated Cognition [1] and Authentic Learning [5].

Other important benefits concern the development of skills of various kinds. Obviously, ICT related skills are there: students handle technological activities like scanning drawings and printed materials, taking, editing and saving digital pictures, digital audio-recording etc. As regards media literacy, there is an apparent contradiction between the objective quality of the results and the teachers’ reports. Students do learn how to effectively communicate using new technologies (they do good “web writing”, they select the proper images etc.) but teachers fail to fully acknowledge this (both in the surveys and the interviews). Our understanding is that teachers do not fully realize what’s going on and somehow fail to acknowledge what is not in the typical curriculum agenda. Other important educational benefits concern social-organizational aspects, like group work, which is considered the most relevant benefit by the vast majority of teachers. It involves two aspects: working in a small group (2-4 members) and collaborating among groups. Teachers are enthusiast about group-work. Apparently the collective (not individual) nature of the storytelling we are asking for and the strong motivation are at the heart of this [2]. Another socially relevant benefit concerns inclusion. Different factors (e.g. variety of tasks to be accomplished, variety of talents required, work in small groups, team-work, ..) contribute to an important benefit: the vast majority of teachers report the fact that kids with specific problems, or under-performing, or not well integrated in the class, actually, get
involved, want to participate and get their share of work done. Eventually, an important but also controversial group of benefits concern psychological aspects. Some education researchers are against the idea of considering them educational benefits, since they are not directly related to learning. Other researchers, however, outline how they can be “facilitators” for learning. These two benefits are engagement and motivation. The almost totality of teachers find that building multimedia stories strongly engage kids (who often complain when they have to interrupt the activity for doing something else). Engagement is a very important facilitator for all the kids, and for those with special or diverse needs especially. Motivation is not the same as engagement. Motivation means that, since a multimedia story must be created, kids want to understand the subject, wants to acquire skills, want to work in their group, etc. Motivation is the main driving force for all the benefits listed above.

QUALITATIVE EVIDENCES

Through the interviews and the focus groups we have collected a large corpus of quotes and anecdotes. We report here some examples.

Group work. PoliCultura is not, as a tool, meant for collaborative use. Still, when introduced in the classroom, it does foster collaborative storytelling [Di Blas 2010] and therefore strengthens the bonds among the students, who need to cooperate to reach a common end: preparing a good narrative and hopefully winning the competition. A teacher reports: “my students are reaching the awareness that group work means coordinating, listening to each other, dividing tasks etc.”. Students report: “The entire activity was almost entirely managed by us students: we split into groups, collected relevant information and then worked on it. Although the groups were 6, all collaborated with each other all the time”.

Improved relationships within the class. Since the activity is unusual, it reconfigures the relationships inside the class as some students’ abilities surface as relevant. Moreover, the common goal of winning the competition not only unites the students as a group but also with the teacher. A teacher reports: “PoliCultura has been an occasion to know my students better, especially some kids who proved invaluable in this work, whereas in regular school activity they do not usually stand out”.

Inclusion. The general excitement produced by PoliCultura urges all the students to take part, even students with disabilities or diverse needs. A teacher reports: “In my class there is a dyslexic kid. He tried to record his part some 15, even 20 times and he did not want to give up. The whole class stood around him cheering and in the end, he made it”.

Families’ participation. Again thanks to the high level of involvement, students tend to report on what they are doing at home. In one case, the students of a primary school who had done a narrative about the local archeological museum, after the work was finished brought their parents to visit the museum, acting as “guides”. Most of the families had never visited the museum before [4].

Community-at-large involvement. Sometimes, involvement crosses the boundaries of school’s walls to reach the community at large. For example, a beautiful narrative produced by a pre-school class was presented in the local theater to the school’s principal, the town’s major and all the people who wished to attend.

Increased motivation towards school’s activities. Eventually, teachers make use of the enthusiasm generated by the “authentic task” [5] of making the narrative to foster further benefits. For example, a teacher reports: “The students in my school (an Economics–Technical Institute) seem uninterested in learning the techniques of writing, and disaffected about culture in general. The teachers’ job gets harder, as we struggle to find strategies for motivating students to express their thoughts in correct forms. The opportunity offered by PoliCultura, that made available to schools such a friendly product of advanced technology to communicate culture, was well accepted: all students in the class could collaborate to create the interactive narrative. Educational results have been excellent, because writing – together with other forms of expression – has become a useful tool, which students use now with increased confidence.”

CONCLUSIONS

Although it is clear that multimedia storytelling in a formal learning environment seems to provide an array of educational benefits, and not just “fun” (as some detractors claim), there are still a number of not well understood issues. We highlight here two of them:

- The role of the teachers: at school, activities are organized and managed by teachers. Teachers who are interested in using technology in their teaching activities, needs to be aware about the complex relationship, interaction, affordances between Technology, Pedagogy (the process and practice or methods of teaching and learning), and Content (the actual subject matter that is to be learned and taught): the TPCK model, where K stands for Knowledge [8]. This awareness should be translated in training initiatives meant to reduce the classical gaps between content and learning, pedagogy and teaching, and pedagogy and technology.

- The role of technology: our evidences seem to partially contradict the TPCK model. Most of our teachers are not in command of the technological tool before they start the project and some of them, especially those of grown up pupils, remain blissfully unaware of it even after the work is done. Are they “bad teachers”? We think not, because they can master perfectly the pedagogical side of the activity.

As future work, we mean to further dig into these issues (role of teachers – role of technology), improving the way we gather participants’ feedback, in order to
understand how digital storytelling (and technology-based educational activities in general) can foster rewarding educational experiences.

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