

DIGITAL NARRATIONS AND COOPERATIVE LEARNING: A CASE STUDY

Elisabetta De Marco

University of Foggia

ERID LAB

elisabetta.demarco@libero.it

Abstract

This article lies within studies and researches carried out on a specific narration technique, the *digital storytelling* (DST) used in school contexts. Digital collaborative narrations as didactical instruments presuppose a narrative-recreational approach to learning. Digital storytelling promotes innovative learning forms obtained with new “media” technologies. Production of new knowledge takes place through the handling and “editing” of multimedia objects (sounds, images, videos) based on a digital sharing storyboard. Digital technologies affect creative processes such as knowledge setting up and production processes. Digital storytelling is a curriculum innovation that integrates technology with language arts and sciences and literacy skills. Digital storytelling allowed students to work as readers, writers, artists and digital moviemakers. This article reports a didactic experience carried out in two Italian schools located in the Apulia region, the case study is part of a larger project named “MediaEvo”, funded from Apulia Regional Authority, that aims to develop a multichannel platform for the edutainment in cultural Heritage. Students have been directly involved in the creation of digital narrations set in Middle Ages. This article shows the process that students used to create their medieval digital stories as well as provides a brief and rationale explanation for how using digital storytelling in classroom. According to a pedagogical perspective based on constructivist theoretical model, students have been involved in an active and participant didactic.

keywords – digital storytelling, media, storyboard, cooperative learning, game based e-learning

1. THE BEGINNING

The Laboratory of Educational Research & Interaction Design (ERID) was established at University of Foggia in 2006. The birth of the laboratory has allowed the creation of a collaborative learning environment for students, faculty, pre-service and in-service teachers and community partners in Foggia and in all Apulia region. ERID participants explore ways to combine best teaching practices with powerful instructional technology tools to create educational projects and resources. The range of professional expertise among the researchers goes from media literacy, media production and education to media art.

The research staff provide also pedagogical supervision in teacher training courses aimed at improving technology skills and incorporate innovative technology into classroom curricula. As the interest in the uses of digital storytelling in the classroom began growing in popularity, ERID team decided to organize one teaching experience based on digital storytelling technique. Digital storytelling used as multimedia tool for teaching and learning, has greatly increased. Many factors contribute to the effectiveness and popularity of digital storytelling. Before describing the teaching experience made in Apulia Region (Italy), I will make a brief overview of some recent and relevant case studies about digital storytelling.

2. DIGITAL STORYTELLING RESEARCH

Currently, mixes of research studies on the effectiveness of digital storytelling are underway in the most of important universities of all over the world. Experts are investigating the impact of Digital Storytelling on the instructional practice of teachers. A mixed-methods experimental research design is being implemented by ERID team on the construction of Digital Stories, in order to work on a curriculum innovation that integrates technology with communication, language arts and literacy skills.

According to the definition elaborated by the Digital Storytelling Centre in Berkeley California, digital storytelling is a technique of digital narration that integrates photographs, music films, voices and sounds in brief digital videos (2-5 minutes). In order to put together these elements of different nature, digital stories creators, that are students, commit themselves in that a sort of narrative bricolage that constructs theories by arranging and rearranging, by negotiating and renegotiating with a set of well-known materials [22]. The combination of photographs, images, drawings, videos and sounds made by digital storytellers overdraws the effect of every medium as forms of self expression or, if carried out in team, as forms of expression of the whole community. The blended form made digital narration a valid didactical instrument, putting together narration ability and technological potentialities. According to Mayer's [12] cognitive theory of multimedia learning, learners possess both visual and verbal information processing systems. Auditory and textual information are processed in verbal system, while images are processed in visual system. Delivering information through both representational systems reduces cognitive overload in working memory. Educators

and their students are attracted from multimedia teaching and learning methods of digital storytelling because it can address learning through both cognitive systems.

Multimedia resources used to compile digital stories are easily accessible and relatively inexpensive. Digital storytellers may use web-based sources for images and audio, or they may easily record their own original digital files using a digital camera and a microphone. For this purpose, Vygotsky [24] stressed the importance of an education built around shared experiences to create a common language. Multimedia experience of digital storytelling can be used to develop that common language. Through the use of this innovative technology, students and collaborators at ERID laboratory work within a unique, non-threatening setting to develop visual storytelling products.

Digital storytelling is an effective way for students to learn more about an history topic while increasing their skills with technology. In this experience students learn the features of an historical period or an element and object of medieval history to create a 2-3 minute digital story, using I-Movie HD for MAC. They learn to download pictures, create narration, and visually organize ideas in a technological medium.

3. MEDIAEVO MAC CLUB AND DIGITAL STORYTELLING

The MediaEvo Mac Club (MMC) represents partnership collaboration between Laboratory of Educational Research & Interaction Design (ERID) - University of Foggia and urban junior high schools of two Apulia cities: Lecce and Foggia. Students of those schools are involved in a digital storytelling experience with the assistance of more competent adults, experts and media specialists.

Mac Club name comes from MediaEvo project, funded from Apulia regional Authority, that aims to develop a multi-channel platform for the edutainment in the field of cultural heritage and also to project a digital game as an open learning environment. Development of studies and researches were carried out as part of the project in order to develop a research method, a protocol to co-project and co-build a digital game, an open learning environment with Apulian schools students.

Involving directly the possible “users” of the video game, that are the scholars of 6th grade allowed having some original and creative hypothesis for the project of a narrative plot. Students were directly involved in the creation of digital narrations set in Middle Ages. Digital narrators handled multimedia objects on the base of a sharing digital storyboard. Recent studies in digital storytelling area deepen the relationship between storyboard collaborative writing and subjects’ learning. Digital storytelling is a curriculum innovation that integrates technology with communication, language arts, and literacy skills. Storytelling can also personalize the curriculum. In this case study children create a story about the medieval period in Otranto based on what they know about this age.

The storyboard collaborative approach promoted the development of some abilities: ability in writing and in oral expression, technological abilities and art sensitivity. Handling some codes and expressive technique, combination of written words, sounds, images, and the final work of making digital stories by the use of simple transitions is a cue to reflect on the utilized communicative codes.

According to a pedagogical perspective based on constructivist model, students have been involved in an active and participant didactic. Involved students showed creativity both in the way in which they created the recreational story, in the use of different ways of narration (graphic elaborations, photographs, films, literary productions, etc.) and also in the use of digital instruments and new technologies. The perspective of a possible production of *student centred* digital storytelling in school context could be an innovation in teaching-learning processes.

4. A CASE STUDY: DIGITAL STORYTELLING IN HISTORICAL SCIENCE EDUCATION

Over three to four weeks, eight to 12 youth (aged 11-12) participate in the MediaEvo Mac Club and construct a short video documentary or “digital story” in which they explain their story about the medieval culture and life. Students will utilize existing video editing software available in 12 Macbook to produce their digital stories. To facilitate reproducibility of the project, I plan to use existing software available at any Macintosh Notebook, or freeware and shareware that is readily accessible.

Deciding the strategy in the use of digital technologies to promote creativity might be a difficult task; only from case studies or research activities we can investigate different methods in the use of digital technologies to promote imagination activities. This is why we have to insist in describing, explaining and analyzing our own experiences of creative practice with computers in order to contribute to the creation of theoretical references that can be transferable in different contexts.

The aim of this case study was to explore what happens when children have the intention of creating stories using the computer as a tool. This experience promotes the use of digital storytelling to motivate students to tell their stories through literacy, language arts, and technology.

5. LEARNING GOALS

MediaEvo school’s experience goals are as follows:

- to encourage the acquisition of specific knowledge (both technical knowledge, such as video editing and creative knowledge such as writing, storyboarding etc.);
- to teach techniques and strategies in order to facilitate creativity (brainstorming, creative writing, etc.)
- to provide access to literacy and technology
- to promote literacy learning with an approach technology-rich settings
- to reflect on practices and strategies of the team work collaborating on digital stories writing and sharing

The project promotes the integration of traditional methods of teaching middle ages history with the experimentation of innovative strategies supporting the didactic in common school activities. The final aim is to simplify middle ages history learning through strategies of didactic mediation. Through the narrative and recreational experience the student will acquire subjects' knowledge on:

- Middle Ages society structures: family, social and political institutions
- Middle Ages culture
- Southern Middle Ages history, especially of the town of Otranto as melting pot of many cultures and as trade area in which new identities came to light.

6. DEVELOPMENT STEPS

What are those storytelling/story making processes? The following process, based on the steps outlined by Ohler [14], melds information literacy with storytelling:

1. *Story planning.* Ideas, story storming, story map, peer pitching, scripting, writing story, storyboarding, telling, re-telling
2. *Pre-production.* Making media list, gathering raw media, editing raw media components and creating new ones
3. *Production.* Finishing, creating, editing media components (voice, music, video, scans, picks), assembling media into final product, formative review
4. *Post-production.* Mixing, adding, transitions, titles, adding credits and citations, final reviewing and editing, exporting final product into readable format
5. *Performance, distribution.* Showing in class, community, web posting, local TV, DVD.

Most of these steps do not require technology, but by adding that element the process becomes more multifaceted.

In the following sections, the making processes of these medieval and digital stories will be showed and commented on. To give the reader an insight how children act when they produce stories, the narratives are described in both text and picture form, although text and pictures printed on paper can never give a true illustration of the computer produced stories. It is impossible to depict in print the functions that make the difference between stories in the form of a book and stories on the screen of a computer [10].

6.1. Story planning

All the activities done during MediaEvo Mac Club experience fall within the first phase that Ohler [14] defines *story planning*, approaching to scripting activity (textual and graphical approach), story scripting and storyboard digitizing.

6.1.1. Approaching to scripting

"I think it's fair to say that while every digital story qualifies as a new media product, not every new media production is a digital story. The key determinant is *story* and what it means to you as a teacher and audience members." [14,p.16]. The story and all the processes leading to its construction are essential for the whole following work. Based on the steps outlined by Lambert [11] and also on the other strategies outlined by experts in literature for children, such as Rodari [18], the approaches to scripting can be chosen among many hypotheses. It is necessary to underline with Rodari's words [18,p. 6] that "here we are talking about some ways in which children stories could be invented and about some ways to help children to invent themselves stories: anyway who knows how many other ways could be found and described. It is only about the invention through words and it is suggested, without any deepening, that the techniques could be simply transferred into other languages". This is just what we tried to do.

In the schools of Lecce and Foggia we experienced two different strategies. In the school of Lecce we used a textual approach instead in Foggia we used a graphic one.

Textual approach

Scholars of the junior high school of Lecce, divided in 4 work groups, received 4 topics for the beginning of a story. The main characters of the stories submitted to the children attention are: a peasant, a blacksmith, a fisherman and a monk. Scholars had to go on with the story in a creative way, drawing on their knowledge of middle age history gained during the school year. Above there is an example of a story starting point to be continued:

The peasant, living in Otranto, wakes up with the toll of the village followed by the echo of other far bells. In his poor house the heat comes from the closeness of the bodies of his wife and of his five children, sleeping together in the same bed. He wakes up with great difficulty and starts an ordinary day. The peasant, such as the monk, arranges his day following the toll every three hours. The peasant wakes up very early and makes three times the sign of the cross in honour of trinity. He wears work clothes and then he wash the uncovered parts of his body: hands and face, always being in the only room that is also the bedroom for the whole family. His wife provides for the water supply and for the making of fire. The woman goes out very early to.... (Freely adapted from Frugoni, A. (2004). *Storia di un giorno in una città medievale*. Bari: Laterza, Bari, p. 5)

Graphic approach

Scholars of the junior high school of Foggia, divided in 3 work groups, listened to the reading of the 3 topics with which begin the story that have as main characters a glassworker, a midwife and a fisherman. Immediately after, with the help of some ERID graduate students, they started a research of images and news about middle ages history using search engine and websites to continue the story.

There appeared to be two different styles of storytelling:

1. *Photo-driven* - the student explains every photo in turn, the story prompted by the existing sequence of pictures. Narration often comprises a sequence of sentences of the form "This is the story of medieval fisherman"

2. *Story-driven* - the student has a particular story in mind (for example "The monk story"), then gathers the appropriate photos and recounts the story.

Students alternate between "photo-driven" and "story-driven" strategies when telling stories about their photos [1].

6.1.2. Script the story

Before starting the production of a digital story, it is necessary to plan and give a structure to narrative text. The phase of construction of the story goes not only through the real writing of the tale but also through the schematization of the story central events and the following layout of a list of elements that are necessary to create a digital story. Ohler proposes 3 instruments:

- *Story Core*: 3 elements make a story meaningful and involving: central problem, transformation of the main character and problems solving. Without this tension there is not any rhythm and involvement.
- *Story Map*: it is a "fleshed out version of a story core" [14,p.79], that is the only page that contains the plot and the tree key elements of the story. This second instrument is very important to graphically show many details of the same story in only one sheet.
- *Story board*: a well known instrument also used in cinematography. The storyboard as "a place to plan out a visual story in two dimensions". The first dimension is time: what happens first, next, and last. The second is interaction: how does audio information – the voice over narrative of your story and music - interacts with the images or video? In addition, a storyboard can be a notation of where and how visual effects- transitions, animations, compositional organization of the screen - will be used." [11,p.26]. Therefore the storyboard is the graphic display of all the scenes. For every scene to be shot, photographed or inserted, the author has to point out the corresponding part of the text, the effects and the transitions that he wants to insert, music or sounds. Having a well done storyboard means being already at a good point in DST formation.

In both schools, in order to simplify the understanding of the story writing we started the activities with the "ball of wool game". Children, put the chairs in circle, sit down and in turn give each other the ball of wool after introducing themselves. The game begins with the introducing of the tutor that, keeping the yarn in his hands throws the ball to a child. At the end of the game all children have in their hands an edge of the yarn and in the centre of the circle there is a weave of yarns. The tutor explains to children that they will have to write a story through the construction of a "plot". Every story/plot is made up by knots (events), interlacements (meetings), vectors (forces), people that keep the yarn (characters).

6.1.3. Digitizing the storyboard

Many approaches to the story writing implicate a storyboard layout. A storyboard, used commonly in movies and TV industry is a presentation of drawings or photos, each summarizing major story events. Looking over the picture should provide an overall sense of what will happen in the story [13, p.45]. Recent studies about digital storytelling deepen the relationship between the storyboard collaborative writing and subjects learning. During the didactic planning it has been privileged a collaborative approach to the storyboard creative writing that has implicated a work divided in groups. When the story plot was individualized, every group choose a person responsible for the coordination. During Mac Club planning, based on some traditional approaches to DST, we foresaw the storyboard "paper" layout. Anyway in both the experiences, in Lecce and in Foggia, we passed from the idea to make the children filling a paper storyboard elaborated from the combination of different models that can be found in the web, as the one represented in figure 1, to the realization of a digital storyboard (fig. 2).

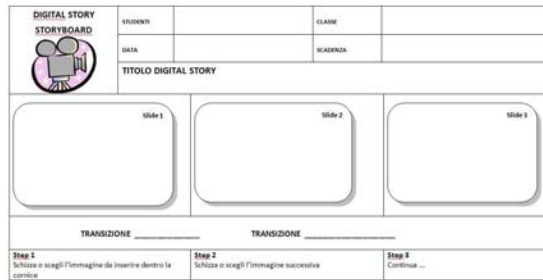


Fig. 1 Paper storyboard

The storyboard directly elaborated in a digital way, besides facilitate the visualization of information, graphic organization and the whole story vision, the discussion and the difference of opinions, the activation of problem solving strategies, the production of an action plan, allowed also to familiarize with Mac and its programmes.

Comic Life software, chosen for storyboard production, is a programme that comes with Mac laptop used during Mediaevo Mac Club. Every student learned to use the programme for storyboard organization using a laptop. During the first phase, children freely used Comic Life to invent fanciful stories. This promoted a progressive familiarization with the programme and the increasing of motivation useful for the next activity of “story building”. Comic Life gives the tools to edit photographs and turn them into a multi paneled comic strip or a single pane cartoon. This programme is so easy to use and can make much more than just comic strips. The templates include a variety of frames that can be also deleted or added. It is also possible to change the shape of frames and crop pictures within them, such as to drag and drop photos from the library into a particular frames. The programme allows through the “Capture” key to take pictures with Mac webcam and to put them easily in the frame. You can drag a rectangular caption box into work space and add text. Then drag a text balloon into your work area. You can add text and resize the balloon to fit. Drag the tail of the balloon exactly where you want. You can resize text, change the colour, and the font. Students, having at their disposal a very flexible instrument, carried out two activities in the same time: the activity of storyboard filling and that of the layout of a list of media. In traditional studies these two activities are sequentially, while the “medium” and the chosen instrument allowed intersecting and combining the two conducted activities. Children have not filled the storyboard yet but they could add in the same time the pictures they have taken, found in the web, or insert explanations of pictures to be taken in Otranto, as we can see in the figure 2

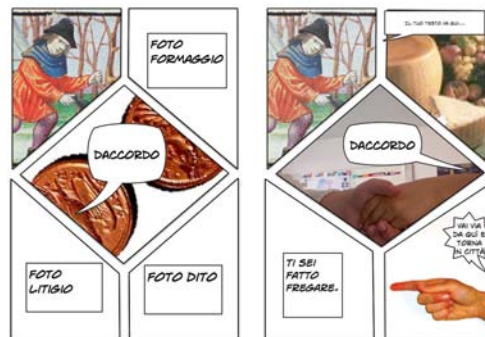


Fig. 2 Digital storyboard

Digital storyboard benefit developed with Comic Life is that the student carries out the process of meaning construction and the choices that it entails, clearly visible. As a result of it, they may enable students to conceptualize the process in much more powerful ways. In this respect, much of what used to be tackled in very abstract and laborious ways through analysis in the traditional storyboarding can now be approached in a much more direct and flexible way (not to mention pleasurable) through Comic Life. Editing and manipulating media images in this way, argues, somehow mimics the infinite flexibility of the process of mental image-making or “visual thinking” and, as the software develops, this process is likely to become increasingly intuitive [4,p.168]. “I have found that there is no single right way to map a story; each student may come up with his or her own way of graphically mapping the narrative for each storytelling project” [13,p.45].

6.2. Pre-production

In pre-production phase there are activities of developing a media list, searching, collecting and editing and finally producing media.

6.2.1. Developing a media list

Developing a media list is an important step of digital storytelling. Once digital story is planned, you need to develop a list of all of the media that it requires, including music, narration, sounds, video clips, pictures and other media. Typically students use their storyboard to create a list of images and other media they will need. In this step we found what Ohler defines with these words: "Don't be surprised when students don't want to spend a lot of time with this step. Often they're in a hurry to get on the computer and translate their ideas into media" [14,p.150]. Just to avoid that children motivation and curiosity fall down, it was decided to let them produce directly in the storyboard a list of media. This led to a combination of two different actions in the production of a paper storyboard. Using the Comic Life programme allowed the filling of blank, of test boxes showing the lacking "media" (fig 2).

6.2.2. Searching and collecting media

Students, after having found the story plot, deepen the relationship between story and characters, invented typical episodes of middle ages life, started to find "media" to enrich their own story. The search has been carried out with the most common search engine but also through sites of interest (medieval history sites), didactic files, International libraries and off-line devices (didactic CD-ROM). Students gather all of raw materials they have identified in their list or in their storyboard.

This usually means gathering materials that already exist in some form (music on CDs, photos, movie images in Internet). Students divided the web material in proper files. Managing all the files — text, images, sound, music, and final product — is an important and often overlooked management system needed to ensure that everything is where it needs to be for each student's product.

6.2.3. Editing media

With most of the media in the hands, students begin to edit what they have and create what they don't. The availability of audio-editing, image-editing, and video-editing tools is calling all of us to learn the craft of being digital storytellers; anyway it is not simple. Each media chosen decorates, illustrates, or illuminates the story. Encourage students to gather, create or edit images, sound, music, and other media with the deliberate intention to extend the understanding and increase the power of their story.

For example, children involved in MMC experience used Adobe Photo Shop software that allowed modifying images used in digital stories. Creating and editing images with software like Adobe Photoshop provides students with unlimited creative opportunities to extend their technical and communication skills. Making original images, composites, montages, special image effects can be an opportunity to "manipulate" with awareness and to use different media in a relevant and proper way.

In the below example (fig. 3) it is clear that a student let someone take a picture of him in a certain position (according to his idea of story) and then he choose the image of a middle age monk to "put" himself in the middle age time.



Fig. 3 Image editing

The image editing process is connected with the reorganization of the story that "takes place when there are strange combinations in the complex movements of images and in their capricious interferences" [18,p. 9]. The concept of "using words as toys" that Rodari put in evidence as central point in his many school experiences of stories creating with children, can be reported to the images.

The editing phase is strictly entwined with media production phase because students besides using the Mac webcam, could also use digital cameras, as depicted in the figure 4.



Fig. 4 Students collect digital photos.

According to my observations, students were highly motivated in digital storytelling process when we began to visit the streets near the school in Otranto and take digital photos and footage. When we came back to the classroom, we asked students to “re-writing” their stories with photos. What Rodari states about “word” is valid for images and also for every kind of media “A word put at random in mind, produces surface and depth waves, it provokes chain reactions, involving in its fall sounds and images, analogies and memories, meanings and dreams; in a movement that involves experience and memory, fantasy and unconscious, that is complicated by the fact that the same mind is not passive in the representation process, but takes always part in it, in order to control and reject, link and censure, build and destroy” [18,p.7].

6.2.4. Production media

The media production phase is the heart of the activities carried out in Apulia schools. In particular, students directly produced some media useful for their digital stories. The media production was carried out in different ways. First of all children worked in their classroom using Mac Club MediaEvo instruments (fig. 5)



Fig. 5 Production media

Later on, they worked outside and nearby the school with cameras (see above figure 4). Then we arranged a trip in Otranto to allow them to directly produce media in their story “setting”. Creating digital stories set in Otranto during the middle age meant “capturing” images and sounds on-site. In the experience of the school in Lecce, children took part to the “Middle Age days” in Otranto. During the performance arranged by Otranto Municipality children lived scenes of medieval life; they met characters of different social class: common people, monks, men of arms, nobles, and took part in medieval market where traders and craftsman sells the typical goods of that age; they tried archery and listened medieval music. Children with digital cameras “fixed” every single moment, detail, sound, character, as you can see in figure 6.



Fig. 6 Children to the “Middle Age days” in Otranto

Anyway, if some boy could not visit Otranto or if he did not find any inspiration in Otranto “medieval trip”, we put at his disposal some clothes in order to put him in medieval characters’ clothes (fig. 7).



Fig. 7 Disguise game

“Disguise game, besides for its symbolic importance, is always funny for the grotesque effects that it produces. It is theatre: it is like putting in other people’s clothes, playing a part, inventing a life, discovering new gestures” [18,p.23]. In this phase students begin creating new media components to be used in the story, pointing out the passage from pre-production to production.

6.3. Production

The activities of assembling media and editing digital story are part of the production phase.

6.3.1. Assembling media

These phases involve two major tasks: finishing off media components composing the story and assembling them into a rough draft using a media editor. A reflective digital storytelling uses a digital video editing program to tell a story with freeze frames, audio/music tracks and your narrating voice. In both schools it was used the I-Movie HD editing software video. Apple I-Movie HD is software that allowed creating digital stories from still images and video clips plus audio. I-Movie is easy to learn and use and it is also powerful enough to accommodate most classroom-based DST project. But I-Movie HD doesn’t make a digital story, before it is necessary to think and make a story.

6.3.2. Editing digital story

I-Movie allows the visualization of the story or the choice of different “media” in two ways: by images or by timeline. As for digital story production children alternatively used the two possible visualizations. In particular, they first preferred to use visualization by images and later, during the editing phase, they choose a timeline visualization that allowed them to synchronize their voice or sound with the images. The choice to alternate the two visualizations demonstrates the flexibility and the extreme ductility of programmes as I-Movie that allowed adapting oneself to digital stories building and creation processes. However, playing with computer, making mini-movie showing texts and photos taken from Internet, must not be considered a creative experience in itself. It is useful adopting a reference framework which may orient creativity towards useful, shared and recognizable goals.

Creative processes of imagination, creation and “enchantment” are made possible by an easy manipulation and by the possibility to keep track of the progress of the creative work, which makes possible going along the various stages and exploring different possibilities.

6.4. Post production

The activities of adding titles, transitions, effects and final review are part of the post-production phase.

6.4.1. Add titles, transitions, effects

Students add opening title information and other titles that appear during the story. I-Movie has titling capabilities. Students use titling to show a word on the screen during a story when a picture is not appropriate or available. It was an effective way to fill a blank screen, overfilling it or detracting it from the narrative. Adding music and audio effects allowed supporting the story in clear and compelling ways (lets think to the adding of rain noise). Transition provides ways to move from image to image, such as fading in and out, scrolling, and so on. Without transition the story displays one image, and then abruptly displays the next. I-Movie contains some effects. Students after having played with different programmes effects decided the ones that they wanted to put in their digital story.

6.4.2. Final review

Students make any final modifications to their stories. Afterwards the difference between save and export their own digital story was explained to students. Saved files can only be viewed using the piece that was

used to create them, instead the exported ones can be seen independently from the original software freely used, widely transportable files created by I-Movie on the Mac are usually QuickTime movie files-label media-viewing software. The students of both schools exported their digital story in this format.

6.5. Performance

The performance phase includes activities of showing in class and distributing to community.

6.5.1. Showing in class

In both schools a final meeting was planned in order to show the digital stories to the rest of the class. Having an in-class showing can be a good way for students to get input before their final mix and distribution. This occasion allowed children to understand the work done during MMC and to compare it with the stories of their classmates. The awareness of building processes that led to the story production and the comparison together with other ways of assembling and combining different media, allows students to explore not only their own creative abilities but also their classmates' ones.

6.5.2. Distributing to community

Once a story is exported, it can simply be stored as a file on the computer or other storage device (I-Pod), a CD or a DVD. During the final meeting for the stories' presentation foreseen in the last task, there will be the distribution of CD or DVD to students involved in the experience.

The digital narrations are stronger than other narration forms because the digital format makes knowledge immediately visible to the students and to a wide public. Knowing that there is a "public" that enjoys the stories makes the students motivated to create original stories. Interest and motivation give new learning opportunities and allow also the creation of local and national learning communities.

7. NARRATIVE AS A FORMA OF "KNOWING"

In order to present the most important features of the experience carried out in both junior high school (Lecce and Foggia) is functionally useful to summarize the steps of the creative process that allowed the creation of digital stories.

- *Imaginative activity*, that consists in the process of imagining, supposing and producing original ideas providing an alternative to what is foreseeable, conventional and customary in teaching-learning middle age stories;
- *Constructive process*, which consists in an active and conscious focus on attention and the competences necessary for realizing, giving shape and communicating an idea realized in small work groups;
- *Pursuing the objectives*, or else the use of imagination with the intent to produce tangible results in order to reach intentional objectives for which motivation, commitment and "problem solving" attitude are really important, That is the realization of a medieval story set in middle age;
- *Recognition of the value*, through which an activity of mutual evaluation and criticism producing further imaginative processes of both individual and collective reflection as for example the final meeting organized to show digital stories to the rest of school community.

By the end of the process, they each had mastered the full range of literacy, oratorical and technological skills and had developed a new appreciation for the learning process.

8. NEW TECHNOLOGY AS A LEARNING TOOL

The applications of creativity, made available through digital technologies, are manifold and varied; they range from idea generation tools (brainstorming, conceptual maps, story and screenplay facilitators) to tools for film shooting and editing and to the construction of three dimensional simulations.

Technology – everything from Microsoft Word to I-Movie – makes it easier to swap critique and revise the stories. Digital tools make it possible for authors to construct multi-dimensional stories that are conveyed through a combination of hyperlinked, multidimensional words, images, motions, and sounds. In short, technology can serve as a valuable learning tool. During the didactic experience carried out in Lecce and Foggia schools, as it was suggested by Farmer [6], we used technology in three different ways, not alternative but complementary.

8.1. Technology as storytelling tool

Technology enables students to incorporate text, sound, graphics, and movement in order to take advantage from different learning styles and to help students or learners being successful storytellers. Technology also facilitates communication: getting information from all around the world in various formats as well as sharing the final story with a global audience. In addition, technology has the ability to record and archive storytelling for future enjoyment and educational assessment. In short, technology can act as a valuable learning tool.

8.2. Technology as research tool

Children can also find picture that remind them a medieval story, it could be a setting, a character, an object or symbol. This task helps children to link a story told to them or read by them to a visual representation, and thus improves or reinforces reading comprehension. In addition, students can use those images as visual aids in telling a story themselves. An efficient way for students to locate online images is to use a search engine with an image option, such as Google or AltaVista. This searching process helps students to learn how they can identify and use key words based on the story. Finding images online can also result in a mishmash of styles, so librarians should point out the concept of style and encourage students to incorporate that visual literacy skill as they locate or create appropriate images.

8.3. Technology as Visual Aid

Children can use images they find to help themselves tell a story. On the other hand, children should be encouraged to create their own images using technology. They can also take photographs that reinforce the story. Besides using a digital camera or video camcorder, students can have film camera photos developed as digital images, and they can scan the images themselves. Images can be used “as they are” or can be edited to produce a consistent look or to add creative touches. Some low-tech photo editing software for Macs, for example Adobe Photoshop, that allowed to modify and import sequence, edit and enhance still and moving images, sounds, and text.

9. MEDIA LITERACY AND COOPERATIVE LEARNING

Creating digital stories is a perfect opportunity to engage students in media literacy, in learning about how media influence our perception of the world [8] [23]. The advantages of digital storytelling are many. The most important is that it allows learners to construct their own learning, thus engaging students in inquiry and active learning processes. It helps provide media literacy for students. We want students not only to learn *with* media, but also to learn and think critically *about* media. When students do the hard work of marrying story and technology to express themselves to others, they can see more clearly the persuasive nature of the electronic culture on which they live. The important question for educators to ask is, “What does digital storytelling offer to education?” The answer is “great deal”, if we do two things: focus on the story first and the digital medium later; and use digital storytelling to enhance students’ skills in critical thinking, expository, writing and media literacy [13,p.47]. The cooperation in small working groups between students of different classes allows students working together, producing ideas, pursuing goals and constantly assessing the different developments of the creative process. Students and teachers shared their writings one another in a “story circle,” where fellow participants provided commentary and constructive criticism. Then they all went back to the drawing board and reworked their stories, taking group’s suggestions into account. These stories got students to begin thinking critically about their decisions and the consequences of their actions. The cooperative learning process of debate, discussion and reflection that students engage in as they work together to storyboard, shoot and edit their digital stories, is critical to the learning process. It also allows students to contribute and create knowledge with multiple learning styles. Educators can relate digital storytelling to standard in science, arts, languages, and math [21]. Technology plays an important role in these creative activities, by giving students the opportunity to capture, adapt and transform digital material in order to create meaning. This is to say, they place media objects in the video editing environment, and this complex negotiation is a form of theory-building and meaning-making. Thus, it is always important to remember that digital technologies do not disseminate creativity; rather they give the opportunity to interact and actively participate with one’s imagination, being committed and original while producing as well as creating value. Reflection as a part of composition is not a new concept: the pedagogic theory fully supports having learners reflected on their work. This project prefers an approach to reflection that is constructionist in itself, asking learners to build stories about how and why they do what they do. During the realization of digital stories every student has not only to compare himself with technological instruments and new media but he has also to write a story, show it to his classmates, put together images, music and words with art and taste and finally edit it all. It is possible to find some competences involved in the digital stories building process that at the end of the same process are transformed by lived experiences. We refer to “the control of the whole languages that goes from textual/oral (storyboard layout, telling voice or dialogues) to the real middle age (filming techniques, images, etc.) and if we want to pay attention to all the phases of realization, we have to mention for example even the most critic phase of the video editing that allows putting together the different scenes in a creative way”. [15,p.75]. Ohler talks about “*DAOW of literacy*”, where *DAOW* is an acronym of *digital, art, oral and written*. According to the author, the competences involved in digital narrations building processes are the four that we have just mentioned. Starting from competences found by Ohler, expert in digital storytelling, and analyzing the competences acquired by involved students in the experience carried out in Foggia and in Lecce, we can state that the digital storytelling activity allows the acquisition of different competences:

- *Digital*: students, through DST building process, acquired control in using *effectively technology* (using technical instruments, suitable software and the Web as collaboration and information instrument). They

learnt to transfer learning from one sector to another: for example, they connected technological to disciplinary competences linked to the knowledge of medieval culture. They also used technology *creatively* (as amplifier of imagination) and *wisely* (with an awareness linked to effects and connections that technology can have on its own school community and on the world).

It is necessary to distinguish what we define *media literacy* and what we define *media fluency*. While the first is the ability in using media, the second is the ability to recognize, evaluate and apply media persuasion methods. Media literacy allows us reading media; media fluency allows us writing it.

- *Art*: The way, in which students choose images and films, the way in which they take pictures, the words that they want to put in evidence and the way in which they settle their stories, is without any doubt, a form of art.
- *Oral*: this is the method through which stories were handed down for centuries. In computer based DTS, the importance of oral competences is in telling aloud their own story to other participants or in recording stories to be linked to videos. Students, during the reading/recording of stories, listened to their own voices. Promoting a careful listening of their own voice, telling the story, allows the auto evaluation not only of their own way of express but also of the story structure and efficacy.
- *Writing*: "If it ain't on the page then it ain't on the stage". From the beginning of activities students knew that the first step for a well-done digital story was to write a good story. The secret stands in writing. Quoting a metaphor proposed by Ohler [14], the narrator is like a guitarist. If he is not able to play, even if he has a powerful audio amplifier, he will always play ordinary music. We have the same result when a narrator tells a bad story: it is amplified through the use of other media, like images, music and videos but it will always be an ugly story.

Petrucchio and De Rossi add some important details linked to media, emotion and communication. DST becomes a mean that must be put in relation with others, in order to show one's point of view, to influence the community opinion through the persuasion that media can practice. The competence is linked to "the interpretation and the use of digital media through a critic reading (typical of Media Education) open to participation and intentionality to act in the social (fundamental element of active citizens), and always filtered from reference to ethic" [15,p.75].

Anyway, the issue at stake is not anymore a skill, nor it is plain literacy, namely "basic skills in concert with critical knowledge required for communication within the wider culture" [19,p.151] but it is the birth of a new notion of literacy that seeks to engage the expression of creativity with the use of multimedia technologies, the so-called multimedia literacy: "the ability to work across text, image, sound and moving image with equal fluency, exploiting each dimension separately and making connections between these historically discrete domains" [19,p.2]. It is the transition from writing to visual, from text to image. Furthermore, Bolter and Grusin [2] discuss the process of re-mediation. Rather than new digital media replacing 'traditional' media, the authors suggest that what actually happens is a transfer of ways of creative expression from an older medium to a new one. We would certainly add that this is a dynamic process where expressive ways and values are not merely transferred but are being negotiated and re-shaped constantly.

10. CREATIVITY AND NEW TECHNOLOGY

Which role do digital technologies play in the creative process? Do they provide appropriate tools?

The world of digital technologies in fact offers new media and ways of participating to the creative activity by providing tools that may foster imagination and participation. Thanks to suitable computers and software people have the opportunity to learn and work creatively experiencing different processes within their creative activity. Digital technologies (computers, software, networks, the recording and presentation technologies and so on) allow accessing creative activities in such ways which otherwise would not be so immediate [20,p.1]. Creativity can be facilitated and extended by using computer technology when its multiple and diverse potentials are understood. The most important goals are understanding the concept of "creativity", which are the specific qualities of the digital technologies fostering a creative attitude; or else, which methods are used in creative activities and last but not least, which are the more suitable contexts allowing people to express their creative potential.

Many authors have been trying to define the term creativity and therefore it is very difficult to give it a meaning. The concept of creativity however changed over the past few years, as it currently includes aspects and approaches which were perceived as distant in the past, for example the relation between creativity and new technology. The studies of some researchers as for instance Gardner [7], analyze the different processes and levels of creativity, the characteristics of creative people and the role played by the context where creative activity takes place as well as the wider social context. The expression of creativity through the use of multimedia does not solely presuppose familiarity with the technological aspect of the multimedia technologies, but also the idea of a new concept of aesthetics [9,p.2]. New technologies carry new cultural forms and involve explorations of new ways of creativity. Medium thus becomes a carrier of signification. A creative writing project designed, experimented and developed specifically for and with the aid of multimedia technology is fundamentally different from a pencil-and-paper project. Each medium

operates in a different way and the agent expressing its creativity is bound by the limitations of the medium as well as benefits from the medium's capacity to realize creative projects.

11. CONCLUSION

Digital storytelling is a multifaceted tool and its different applications in teaching and learning are still to be fully discovered. Working with the community schools to help children tell stories using technology, can put in evidence the importance of storytelling, incorporate media literacy and critical thinking skills, and prepare students to be creative in a digital world.

REFERENCES

- [1] Balabanovic, M., Chu, L.L., & Wolff, G.J. (2000). *Storytelling with digital photographs*. In the Proceedings of Conference on Human Factors and Computing Systems. The Hague, The Netherlands. Available: <http://web.mit.edu/bentley/www/mobile/papers/storytelling.pdf>
- [2] Bolter, J. D., & Grusin, R. A. (2000). *Remediation: understanding new media*, Cambridge, MA: MIT Press.
- [3] Smith, B., Blankinship, E., Ashford, A., Baker, M., & Hirzel, T. (1999). *Inquiry with imagery: historical archive retrieval with digital cameras*, MULTIMEDIA '99: Proceedings of the seventh ACM international conference on Multimedia (Part 1), pp 405-408.
Available: http://www.media.mit.edu/explain/papers/mm99/acm_mm99.html
- [4] Buckingham, D. (2007). *Beyond Technology. Children's learning in the age of digital culture*. Cambridge: Polity Press.
- [5] Davis, A. (2004). Co-authoring identity: Digital storytelling in an urban middle school. *THEN: Technology, Humanities, Education e Narrative*, 1(1), 1. Available: <http://thenjournal.org/feature/61/>
- [6] Farmer, L. (2004). Using technology for storytelling: Tools for children. *New Review of Children's Literature and Librarianship*, 10:2, pp. 155-168.
- [7] Gardner, H. (1993). *Multiple Intelligences: The Theory in Practice*, New York: Basic Books.
- [8] Goodman S. (2003). *Teaching youth media: A critical guide to literacy, video production e social change*. New York: Teachers College Press.
- [9] Hadji, A., & Zampara, A. Reflections on creativity and multimedia. Available: <http://www.filografia.org/>
- [10] Klerfelt, A. (2004). Ban the computer, or make it a storytelling machine. bridging the gap between the children's media culture and pre-school, *Scandinavian Journal of Educational Research*, 48:1, pp.7-93
- [11] Lambert, J. (2004). Digital storytelling cookbook. Available: <http://www.storycenter.org/cookbook.html>
- [12] Mayer, R.E., & Moreno, R. (2002). A cognitive theory of multimedia learning: Implications for design principles. Retrieved April 5, 2005. Available: <http://www.unm.edu/~moreno/>
- [13] Ohler, J. (2006). The World of Digital Storytelling.
Available: <http://www.jasonohler.com/pdfs/digitalStorytellingArticle1-2006.pdf>
- [14] Ohler, J. (2008). *Digital storytelling in the classroom. New Media Pathways to Literacy, Learning, and Creativity*. Thousand Oaks, CA: Corwin Press
- [15] Petrucco, C., & De Rossi, M. (2009). *Narrare con il digital storytelling a scuola e nelle organizzazioni*. Roma: Carocci
- [16] Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9(5), 1-2
- [17] Rinaldi, C., & Gardner, H. (2001). *Making Learning Visible*. Cambridge, MA: Harvard University Press.
- [18] Rodari, G. (1973). *La grammatica della fantasia. Introduzione all'arte di inventare storie*. Torino: Einaudi.
- [19] Sefton-Green, J. (1999). "A framework for digital arts and the curriculum". In J. Sefton-Green (ed.), *Young people, creativity and new technologies : the challenge of digital arts*, Routledge: London and New York: pp. 146-154.
- [20] Solidoro, A. Ten questions and answers on multimedia and creativity, University of Milan Bicocca.
Available: <http://www.filografia.org/>
- [21] Standley, M. (2003). Digital Storytelling. Using new technology and the power of stories to help our students learn and teach. *Cable in the classroom*, June 2003.
Available: http://www.mstandley.com/digital_storytelling.pdf
- [22] Turkle, S., & Papert, S. (1990). "Epistemological pluralism: Styles and voices within the computer culture." *Signs* 16:1, Chicago Univ. Press.
- [23] Tyner, K. (1998). *Literacy in a digital world: Teaching and learning in the age of information*. Mahwah, NJ: Erlbaum
- [24] Vygotsky, L. (1978). *Mind and society: The development of higher mental processes*. Cambridge, Massachusetts: Harvard University Press.