Supporting Cooperative Storytelling among Children: Experiences from Projects in Lugano and Jerusalem

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ABSTRACT
In the paper, we consider forms of cooperation, social facilitation, and group dynamics emerging among children engaged with digital storytelling tools and activities in distinct pedagogical settings. We examine the role of the physical environment, social context, personal engagement and collaboration to support creative development of digital media narratives among children. We present observations from workshops conducted with groups of children in Lugano and Jerusalem. These experiences provide critical insights into a framework of key elements that may inform the development of suitable technologies and methods to support individual and collective narrative expression in both formal and informal educational settings.

Categories and Subject Descriptors
K.3 Computer Uses in Education, K.4 Computers and Society, K.4.2 Social Issues

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Design, Human Factors

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INTRODUCTION
Digital storytelling can be a powerful mode of creative engagement with children and adolescents in many different educational settings (both formal and informal). Prior research has examined the role of cooperative inquiry and participatory storytelling among children [1] as well as comparative case studies to develop conceptual frameworks for social and community participation [2]. We believe it is helpful to examine digital storytelling approaches used among groups of children in different social and pedagogical contexts to draw out crucial design elements for cooperative storytelling tools and methods. In this paper, we first examine a classroom-based program conducted in an elementary school in Lugano (CH) using a custom-designed online multimedia authoring tool and a structured workflow methodology. We then examine a different after-school program conducted with community centers in the Old City and Shu'fat refugee camp of Jerusalem, using a range of team-based story-writing and storyboarding methods, neighborhood mapping, on-location filming and off-the-shelf digital video editing tools. The co-authors report on their individual experiences in the different environments where they have been conducting these programs. Both programs have similar pedagogical goals for media literacy and collaborative production of creative content, with some notable differences in the structure and complexity of tools/methods and the learning environment. The nature of the tools, formal/informal environment, and pedagogical methods used provide different kinds of learning opportunities, a range of expressive outcomes, and forms of social engagement. By examining these distinct case studies we don’t seek direct comparisons to measure key indicators and differences, but rather to better understand how the very distinct cultural and socio-economic contexts and environments of such digital storytelling initiatives, require suitably adapted tools, methods, and strategies for successful outcomes that support cooperative storytelling.

Digital Storytelling with Elementary Schools in Lugano
The first case study involves a program running in an Italian-language elementary school in Lugano, Switzerland. The school is a private institute that is mainly attended by students from middle class families in the area. Based on ethnographic observations, the study was oriented towards understanding the impact of storytelling technologies in assisting teachers with achieving expected learning objectives and in particular in fostering socio-cognitive development of children in school. In this study, two classes were involved: primary three (20 children, 8-9 years old) and primary four (19 children, 10-11 years old). Storytelling activities are a part of the school’s educational curriculum; children would spend up to four hours per week working on narrative exercises focused on aspects like structure, characters, topic, genre, etc. At the beginning of the study we observed how this activity was conducted in class without the use of any technological tools. Later, we introduced in this formal educational setting a storytelling software platform and observed the impact of this tool and related methodology on children’s learning
and engagement. The technology, 1001stories [3], includes three main elements: a design format, a workflow, and a web-based authoring tool. Using this storytelling platform the children in classes were asked to create unique and consistent narratives composed of a set of sub-topics, each addressing a specific aspect of their primary narrative. The output of the process is a multimedia narrative application that can be delivered as a website, CD-ROM or Podcast.

**Methodology**

The study was based on ethnographic observations by one of the co-authors in classes examining the behavioral patterns of software usage, coupled with interviews among teachers eliciting the expected educational benefits.

The overall study lasted 10 weeks and observed several key dimensions: Task - the assignment given by the teacher that the pupils have to accomplish during the lesson, Grouping strategy - indicating which approach the teacher uses to group teams of children, Group dynamics - the roles of individuals as well as the workflows and the interactions of pupils within the group, Teacher's role - the function of the teacher in class during the lesson, Mode of expression - how the narrative is conveyed by the children such as text, drawings, live performance, and Tools - the instruments used by the pupils to accomplish the task such as paper, pen, pencil. During the interviews we defined the main objectives that teachers may seek to accomplish through narrative activities in class: to help children in developing social skills, to enhance their attitude towards and skills in collaborative work, and to enhance their creative narrative development capacities, as ways of improving their socio-cognitive development. The objectives concerning the enhancement of literacy skills focused on learning how to write stories in Italian, to understand the components of a story, and to write according to different narratives genres.

The study aimed at understanding how technology-based activities could support both individual diversity and group work in designing inclusive and rewarding educational experiences. Pupils prepared ideas about the main topic of the story at home using books and online resources, while in class they wrote stories, selected or created images, conducted audio recordings, and uploaded narratives using the web-based storytelling platform. In the primary three class, the subject of the story selected was The fern's life and history: the purpose was to allow pupils to understand the possible connections among the disciplines. For the other class the title of the narrative was Investigative Agency LdV: pupils took inspiration from the territory of Ticino which they visited during school trips or from their daily lives, and had to create mystery stories. The topics aimed at stimulating children creatively and to reinforce their connections with the region where they lived.

**Key Outcomes and Lessons Learned**

Anecdotal evidence from our preliminary observations in these classroom settings reveals the following:

1. **Enhancement of different capabilities**: Teachers noted that the creation of storytelling using multimodal help children who had difficulty in expressing themselves in traditional school activities (e.g. reading books and writing essays); the children were highly motivated and engaged in these storytelling activities. In a few cases pupils demonstrated creative skills in developing original narrative texts and in selecting suitable images (visual literacy) related to their stories. These outcomes may not have easily emerged in some traditional school activities, or were not noticed in everyday interactions.

2. **Socialization and attitude changes**: Pupils increased their degree of participation in class activities and showed greater interest in the work of their classmates. The increase in attention could be attributed to an enhancement of social facilitation i.e. children that worked along common learning goals began to pay more attention to the work of others and collaborate for improvement.

3. **Team collaboration strategies**: From our observations, story authoring using the tool appeared to enhance collaboration among pupils. As children worked in small groups, their abilities for negotiating and collaborating with others began to improve. Even children with strong leadership temperaments gradually became more accommodating, understood the value of contributions from others, and started to work proficiently in their team. Children often recognized the limits of others in the group and tried to fill these gaps by balancing the distribution of tasks within the group objectives.

4. **Distribution of work and peer learning**: The specialization of new skills emerged strongly using the tools; pupils learned to play different roles in the group according to their abilities. For instance, children that knew how to use a computer were quite confident in managing the process of media creation (text writing, audio recording, digitalization of images, etc.) and in uploading data on the web. The distribution of roles in the group doesn’t appear to inhibit peer learning and physical constraints can become an opportunity for learning. We noticed that pupils not directly involved in interactions with the computer, while observing the more skilled children and by imitating them, succeeded in accomplishing many of the stated tasks. This was enabled by the relatively simple software UI and the pupils desire to be part of the entire narrative activity.

These initial findings highlight a few interesting aspects of collaborative story authoring that may enhance interpersonal and social capabilities among children. Using tools for digital media storytelling did not visibly disturb the normal curricula activities, while this practice in class fostered improved articulation of creative narratives, respectful socialization, and team-based participation.

**Case Study: Digital Storytelling in Jerusalem**

The second case study focuses on digital storytelling and media production workshops conducted with children and adolescents (aged 10-16) in the city of Jerusalem. The city of Jerusalem is not only a mosaic of multiple historical identities but also changing territorial divisions fragmenting
and isolating its Palestinian residents in the Old City and East Jerusalem from its outlying neighborhoods like Shu‘fat refugee camp. According to the *Palestinian Human Rights Monitor*, the conditions for access to education and the arts in predominantly Palestinian schools in East Jerusalem are quite dismal. A recent report published in 2009 by the Israeli organization *Ir Amim* and the *Association for Civil Rights in Israel* describes a shortage of over 1,350 classrooms in East Jerusalem; the report goes on to say that many of the existing classrooms were "small, crowded, unventilated and lacking support classes or playgrounds." The situation is even worse in the Shu‘fat refugee camp with high levels of unemployment, overcrowding, poverty and violence. These ever-increasing gaps in educational infrastructure and cultural support for Palestinians in East Jerusalem are being addressed to a limited extent by civil society institutions through private schooling, summer and after-school programs. Under these conditions, one of the co-authors conducted digital storytelling workshops [4] as part of a program called *Youth Visions of Jerusalem* in July 2009. It was done in partnership with *Voices Beyond Walls*, the *Al-Ma‘mal Foundation for Contemporary Art* and the *African Community Youth Center* in the Old City, as well as the Woman and Child Centers in Shu‘fat refugee camp.

**Methodology**

In each two-week workshop a team of trainers worked closely with 15-20 children (aged 10-16) in small groups to produce digital media shorts. Weaving together original stories, drama, poetry, photography, music, and digital video children learned to express their own perspectives on Palestinian history, culture and everyday life in the refugee camps, as well as their dreams and aspirations.

The workshops in Jerusalem began with an exercise of *neighborhood mapping*, whereby groups of children and facilitators from both centers visited each other’s neighborhoods and worked closely to develop new spatial media narratives. They had been previously trained to use digital cameras and learned visual aesthetics in the workshop. As each team of 3-5 children paired together from the Old City and Shu‘fat walked around their neighborhoods, they spoke to local residents, photographed everyday scenes, and wrote down key moments they experienced. They subsequently drew visual maps of their routes, incorporating many of the photos they had taken earlier. They also edited their digital photos into a video montage with a spoken narrative, both real and imagined. They presented and discussed these visual maps and digital narratives with each other in group settings, surprising many of the adult trainers and staff from the youth centers with their insights about the city. The children in their individual workshops went on to develop more sophisticated narratives about their city as scripts and storyboards, some with fictional themes while other seeking to document cultural traditions or experiences from elders in the city. The children worked in small teams with their facilitators to act out their narratives, shoot video or conduct interviews in the city, often engaging other residents (young and old) to participate in the making of their films. For brief moments throughout the span of two weeks, the children would take over a street or neighborhood block capturing their creative visions in the backdrop of a bustling city. The short films were edited with the help of program facilitators in each center, with recorded voices, music and subtitles added by the children to finalize their films for presentation. The children and trainers used standardized PC-based video editing software called *VideoStudio* to edit their digital media work, which provided an intuitive user interface with a timeline and storyboarding modes of visual representation. With the lack of resources and facilities available, the children borrowed equipment like laptops, PCs, digital and video cameras, while moving from place to place using computer labs or theater spaces available for limited periods each day, to complete their projects under tight time constraints.

Despite the odds, the children in these workshops completed six short films on Jerusalem in the span of just two weeks, and subsequently screened them at local community centers in the Old City and Shu‘fat refugee camp and in selected film festivals and universities abroad.

**Key Outcomes and Lessons Learned**

1. Like the Lugano program, the children in the Jerusalem workshops benefited greatly from cross-modal engagement with both digital media and neighborhood activities. Clearly these workshops extended the activities outside the confines of the classroom, motivating participants to develop more original narratives. However, improved tools and methods would better support the most challenging story development phase of the workshops.

2. The workshops improved group dynamics and increased a healthy collaborative attitude among participants, particularly to respect each other views and learn to undertake distinct roles in the production process.

3. The complexity of producing video shorts with on-location filming, acting, sound recording and video editing required reliance on different skills among group members, enforcing a collaborative attitude for narrative development and completion of projects. However, the nature of digital video editing software did not necessarily support group collaboration, often having facilitators work closely with 1-2 members of the group actively engaged in the editing process while others often remain passive observers.

4. The completion of video shorts by youth provides an immense sense of shared satisfaction, identity, and confidence, as well as recognition among their peers, family and community. This is especially true among the younger participants, disaffected or delinquent youth, and girls expressing their voice within a conservative society.

**Discussion**

In the Lugano case study the data gathering and story authoring took place in classroom or home settings (using predefined topics and web-based tools), while the Jerusalem workshop participants collected information on
topics of their choosing and created stories outside the classroom in a real-life context. The physical environment and personal experiences clearly shaped the engagement of children and richness of narratives emerging. The children of elementary four in Lugano that created narratives based on their personal experiences were more engaged than the others in elementary three that worked on a pre-defined topic; this is even more evident among children in Jerusalem whose stories were more personal and intense. Examining the nature of technology used is also helpful. In the first case, the storytelling activity was primarily computer-based and the learning curve for understanding the user interface as well as complexity of tasks was low: the training lasted 30 minutes. In the second case, children were trained over a few days to use PC-based video editing software and photo/video cameras in order to develop compelling digital video shorts. The teacher’s involvement in supporting children was substantially different in both cases: in the first case teachers were facilitators that supervised the pupils work and had little influence on the narrative outcomes, while in the second case children required far more supervision from the trainers and often narrative concepts were jointly developed or influenced.

An interesting common aspect is the involvement of the family in story construction. In the first case, parents were involved in assisting their children in finding useful information in books and online resources, while in the second case families interviewed in the neighborhood were often the focus of the children’s films, increasing the sense of shared engagement among the community.

The two case studies also demonstrate a clear distribution of work in the groups based on the children’s self-organization and social facilitation. Pupils often decided what roles to undertake considering the diverse abilities of groups’ members. Consequently, a collaborative attitude in completing the project was reinforced. In both cases, teachers and trainers agreed that children demonstrated increased collaborative attitudes and creative engagement towards narrative development through a shared purpose.

**Conclusions**

While we shared some observational evidence from two case studies in somewhat distinct educational settings, they allow us to infer important insights into the development of suitable technologies and methods adapted to these environments. Some key design and pedagogical elements for consideration in digital storytelling are as follows:

1. **Suitable physical environments and mobile tools** to engage children in storytelling activities is a crucial. While a classroom setting provides focus, expanding the learning environment to playful settings and urban neighborhoods along with supportive mobile digital media technologies to capture and spatially represent narrative experiences, provides a greater scope for creative engagement among children. Integrating these experiences and media into storytelling platforms in a seamless manner is important.

2. **Supporting personal narratives and imagination** requires engaging children in experiences drawn from their own families and neighborhoods as well as characters, stories and topics of their choosing. Hence, formalized story-writing tools and methods with pre-defined topics or story structures may inhibit a wider range of creative expression, while cross-modal tools that draw on personal imagination and story/media examples are more instructive.

3. **Social context and cooperative facilitation** supported by active participation of teachers, peers and family are crucial elements for narrative development among children. Children encouraged to narrate and develop story ideas in such social settings can have a far more positive influence and motivation. Hence, tools and pedagogical methods must take into account such extended social resources.

4. **Collaboration and group dynamics** must be carefully considered in design of storytelling tools and approaches to allow children to seek individual roles in the story creation and media production process, while leveraging the group’s skills and resources in a constructive manner. While most storytelling platforms support individual narratives, one must consider novel designs for collaborative tools that allow groups to create and manage shared narratives, digital media resources, and multiple story outcomes.

We believe such comparative case studies allow us to examine learning outcomes, creative processes, and group dynamics to devise suitable frameworks that are helpful to better develop, conduct and assess the effectiveness of tools and programs that support storytelling among children.

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**REFERENCES**


