Stories, Drawings and Digital Storytelling: a Voice for Children with Special Education Needs

Luca Botturi  
seed  
via al Chiosso 8, zona Resega  
6952 Canobbio - Switzerland  
luca.botturi@seedlearn.org

Chiara Bramani  
seed  
via al Chiosso 8, zona Resega  
6952 Canobbio - Switzerland  
chiara.bramani@seedlearn.org

Sara Corbino  
seed  
via al Chiosso 8, zona Resega  
6952 Canobbio - Switzerland  
sara.corbino@seedlearn.org

ABSTRACT
Children with disabilities often experience difficulties in communication with adults and peers, both as language difficulties and as inability to focus on one’s feelings and thoughts, and consequently to express them properly. Removing such barriers is one of the main goals of special education, and a key step towards integration. This paper presents a project where stories, drawings and digital media were brought together to make a difference for children in special education, and for their teachers.

Keywords  
Storytelling, digital media, special education, organizational change.

BACKGROUND
Children with disabilities of any kind, physical or psychological, often experience difficulties in communication both with adults and peers. Difficulties can take the form of language issues, inability to effectively control non-verbal communication, or even hurdles in focusing on one’s feelings and thoughts, and therefore to express them properly to others. The impact on affective development can generate anger and frustration, and finally hinder learning and development, generating a negative looping effect [4]. Identifying and removing such barriers is therefore one of the main goals of special education throughout all grades, and a key step towards the effective integration of children with special needs [13].

This paper is a case report, presenting a project where storytelling, drawing and digital media were brought together to make a difference in the communicative development of children in special education programs. The project features high interdisciplinarity, integrating writing skills, figurative arts, and technologies, and involved stakeholders at multiple levels, namely school managers, teachers, families and, of course, children.

DIGITAL STORYTELLING AND COMMUNICATION
The project ran from fall 2008 to spring 2009 and involved 10 special education teachers and about 40 children with special needs between 5 and 16. The project was developed in collaboration between seed, a Lugano-based non-profit company with expertise in educational technology, and the Istituto Sant’Angelo di Loverciano, a special education institution. It was funded by a local private foundation.

Project idea
The basic idea behind the project is that communication starts from the desire of expressing experience, that is, to share with others the personal encounter with reality. In its basic form, sharing experiences takes the form of stories, as their narrative structure corresponds to our perception of our own life, as it flows in everyday life [12]. For this same reason, stories are indeed are a basic form of teaching [7]; moreover, stories are easy to understand [2] [8] and generate high level of engagement [1] [3] [14] [15] [16]. Entertainment professionals know this, and actually shape many products as stories, starting from the mainstream movie industry [12].

But the magic of stories has two sides: one for hearers, and one for storytellers. Stories are not only an effective way to understand content, but also a powerful way of expressing oneself. Learning to tell stories is an opportunity to enhance personal communication competencies.

In particular, expression through stories is important for the development of imagination. Much more than the ability to entertain fancy thoughts, imagination is the core ability to imagine reality, to virtually try out actions, and to generate visions to guide experience. Imagination is therefore necessary for thinking about the future and for imagining new possibilities, even for daring to think “out of the box”. It is also at the basis of ethical thinking – indeed, it is paramount for all high-level thinking [5][6][10][9][11].

Mastering storytelling means two different sets of skills [12]: (a) understanding narrative structures, and (b) being able to give them a shape, verbally or visually and with the aid of different media.

The pilot project presented in this paper had the ambitious goal of exploiting digital media for enabling children with special needs to become storytellers, and through that unleash their communicative power and achieve new relationships with peers and adults.
The role of technologies
The main goal of the project was the valorization of the expressive potential of each participant, the enhancement of their relational skills and the reinforcement of self-confidence. Instrumental to this was the enhancement of computer, team-working and project-working skills. Digital technologies left the floor to communication, and acquired the important role of catalyst and enabler of complex learning, in a playful and highly social environment.

Consequently, the focus of this project was not on digital technologies, but technologies served as instruments with a double purpose: (a) motivating children, who are attracted by them; and (b) expanding children’s expressive palette. An important tenet was the decision to use only open source technologies designed for standard education – so not programs for children with special needs. This was done in order to favor integration and to provide opportunities for the development of real-world professional skills. After an extensive review of available applications, the project used the following free/open software tools, installed on Windows machines:

1. Audacity, an open source audio editing tool;
2. ArtWeaver, a free image editing tool;
3. Windows Moviemaker, a native but free Windows application for basic video editing.

Project design
Project activities were designed along three main topic areas:

1. Storytelling (creative writing);
2. Hand drawing (illustration);
3. Digital media, i.e., using the three applications mentioned above, in particular digitizing voice (the story), music, and drawings, in order to generate short movies.

The key approach of the project was teacher training: at the organizational level, the project aimed to generating new knowledge and practices within the school, and not only to conduct a nice but not sustainable experience.

The project was developed in 4 phases: (a) a 28-hour teacher training program (b) a first classroom work based on telling stories (c) an activity of collaborative storytelling, (d) a continuous evaluation effort that followed all project phases.

Teacher training (phase a)
During the first phase teachers and educators were trained on basic skills in storytelling, drawing and ICT, and were helped to develop a self-reflective attitude about the value of such skills for their daily teaching practice.

Basically, teachers were led through the same process of digital storytelling that they were to implement with children later on. Additionally, they were asked to reflect on the activities, and to improve their design. For example, teachers and educators were asked to reflect upon different aspects and patterns of stories, then moving on to the creation of their own stories. In parallel, they were trained on drawing skills, focusing on the special techniques that can help when teaching children with special needs. Finally, teachers and educators were trained on the use of software for editing images and audio to be used to package the final product with children.

Listening to stories (phase b)
While phase a aimed at developing new skills for teachers, during the second phase children started to be actively involved in the project. Teachers and educators read some stories in class, and children were progressively pushed to take a more active role, expressing their preferences on topics and aspects of the stories.

During this phase teachers and students chose a common guiding topic for all the stories: namely, the journey.

Meetings with teachers and educators and a psychologist expert in special education were organized during phase b in order to coordinate the activities, indicate a common direction and focus on the idea of establishing specific educational improvement goals for each children involved in the project and moving toward reaching them.

Telling stories (phase c)
The third phase put children in motion, and had them collaborate in creating stories of their “virtual journeys”. Children were divided into mixed-class groups, according to competencies and interests. Each group focused on a specific journey, such as “travel to the South” focusing on animals of the savannah, “travel to North” focusing on Northern area destinations or “travel on a hot air balloon” concentrating on maps and air view. One additional group decided to work on the soundtrack to accompany all stories. Cross-class collaboration, which was unusual in the common practice of the school, was perceived as a great added value of the project. Under this respect, technologies provided an opportunity to “think out of the box” and somehow reinvent also interpersonal relationship between teachers and educators.

Figure 1 - snapshot of one of the digital story videos developed during the project
Children, according to their abilities and a learning plan, developed, wrote, illustrated, narrated and animated stories. The groups, each coordinated by one or two adults, worked in parallel, with moments of “sharing stories”, and keeping an eye on mutual aid – for example, the “hot air balloon” group provided graphic backgrounds for the other groups.

The output of the project was surprising: a DVD with over 20 minutes of animated digital stories was presented to the people participating final school year event, along with a live performance explaining the project. The soundtrack, recorded in a professional studio, was also released as a CD. But such output are only a signal of the much deeper outcomes of the project, which are discussed below.

**Phase d**

During all phases, continuing evaluation was conducted to monitor results and evaluate the efficacy of the approach.

The evaluation of the project included three layers:

1. **Formative evaluation**, i.e., evaluating the actual learning achievements of teachers (for teacher training) and children. Formative evaluation was conducted through a post-training survey with teachers after phase a, and through qualitative data collection by a psychologist, expert in special education, who constantly monitored teachers and educators, participating in class activities and in meetings.

2. **Confirmative evaluation**, i.e., for improving the project design, and for identifying an adequate follow-up in the same school. Confirmative evaluation was conducted through interviews with all participating teachers and the director of the school.

3. **Summative evaluation**, i.e., for assessing and understanding project outcomes at an organizational level, also from the perspective of the organizational change process started and its management. Summative evaluation was conducted through a debriefing with the school director at the end of the project.

**PROJECT OUTCOMES**

**Training and project evaluation**

Teacher training received very high evaluations both in terms of formative and confirmative evaluation. In particular, all the three topic areas (storytelling, illustration, digital technologies) were assessed as relevant, and all teachers indicated a strong perception of high learning and high transferability to class activities. Indeed, the new skills acquired by teachers were proofed during the activities carried out in the rest of the project.

The project as a whole also was evaluated as very satisfactory from the teachers, and highly impactful as well. This was clearly expressed in the final interviews, testified also by the excitement of children.

But while explicit assessment reflected the satisfaction for reaching the end of the project, the evaluation went beyond, trying to assess learning outcomes for children and teachers, and contributions to organizational change.

**Learning outcomes**

Measuring learning outcomes is a challenge, as deep learning does not always result in explicit and immediate behavioral change. On the other hand, superficial learning sometimes is very visible, but does not last in the long term. The evaluation carried out in this pilot project consisted in teacher assessment of the progress made by children on (a) expressive skills (b) social abilities including group work, and (c) project working skills. The assessment was carried out right at the end of the project, so that the evaluation suffers of the limitations mentioned above. Nevertheless, the outcomes reported clearly indicate that the method developed in this pilot project has a good potential.

Teachers reported that children participating in the project engaged much more than expected, activating previously untapped resources. Reasons indicated for this included the novelty of the proposal, the charm of technologies, but also the possibility to express feelings and values in a different way. Children clearly perceived that stories were for others, for a real audience: their parents, their friends, people outside the school. This apparently little thing, represented a huge stimulus for these children, used to live within a special education school, rarely relating to the outer world.

This was particularly evident for the groups that recorded the soundtrack in a professional recording studio. Some children who barely opened their mouth during rehearsal, when confronted with a real microphone, instead of being frozen by shyness, just sung as good as they could. The opportunity of doing something about which to be proud was the definitive push for self-confidence and learning.

This un-tapping dynamic was guided by teachers, who enjoyed the opportunity of individualizing learning paths that the project provided. Supported by the project staff, teachers were able to identify individual learning goals, and to integrate them into an interdisciplinary project that provided opportunities for everyone. All different tasks were then integrated into the final product, which was everyone’s product. This feature of individualization with a common final output, was highly appreciated and served as a reference model for future activities.

Teacher also appreciated the update in their teaching skills, not only from a technical and technological point of view, but also in terms of instructional design (individualized learning paths, finding a common output as instructional focus, etc.). These newly acquired skills were observed by the director, and confirmed by the planning of learning projects for the next school year.

Finally, the project provided an opportunity for teacher to work together, and to learn to do so beyond class schedules and routines. While teachers feared the more complex organization required, they soon came to recognize this as one of the best outcome of the project: the extra effort required for coordination was compensated by the discovery of rich peer interactions, and of the combination of more and less challenged children on common tasks.
Organizational transformation
Learning to work together was the most visible project outcome related to organizational change. Teachers started the project as class leaders, and ended it as a team.

While the project started as a small pilot, the activity proposed were soon recognized as an important place where teachers could reflect on their role and practice. From this perspective, educational technologies have been the opportunity and the challenge for unraveling old ideas and for starting a process of re-thinking at an organizational level, strongly supported from the direction.

The outcomes of the project are stronger peer relationships and richer professional interactions, that result in the development of educational projects, in more interaction across classes, and in a more positive attitude towards change and innovation.

CONCLUSIONS AND OUTLOOKS
The pilot project presented in this project weaved storytelling, figurative arts and digital media into a learning experience to enhance the communicative skills of children with special needs. The project leveraged on teacher training and its evaluation indicated a good potential, which led to high quality tangible output, positive learning outcomes and initial organizational change.

The paper presented the framework of the project, its design, and provided some insights from its implementation. While not designed as a research project, continuing evaluation was paramount to understand the dynamics at work and to steer the project during its phases.

The positive achievements of the project led to the extension of teachers training over the following school year, and to the development of new project ideas in the school. Other schools also asked for a new implementation of the project, which is currently ongoing, involving two classes in a primary school that interact with a small groups of children with severe disabilities.

Seed also replicated the same approach for the development of children and children organizations in developing countries (Croatia and Mexico). The project was also proposed as Swiss contribution in the European project P.I.N.O.K.I.O, funded under the Comenius Lifelong Learning Program.

ACKNOWLEDGMENTS
This project was funded with a grant from the Fondazione Margherita in Lugano.

REFERENCES