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ICT USE IN EARLY CHILDHOOD EDUCATION: STORYTELLING

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Abstract
The aim of this study is to investigate the ICT use by pre-service preschool teachers and pre-service speech and language therapists in developing their digital case of a storytelling. Students were stimulated to use various multimedia editing and authoring tools. The research questions concern the students' accomplishments on integrating technology in digital storytelling and the effectiveness of that learning environment they created. The results revealed a difference by implying that not only the learning theory and the teaching practices but also the content, the structure and the nature of the course together with the social interactions play an important role on how people learn and develop their skills.The results revealed that students of both departments overall accomplished very good project outcomes in digital storytelling meeting technical and pedagogical criteria. Finally similarities and differences of the students' approaches in the digital storytelling development are discussed and concluded in the demands of modern information society.
KEYWORDS: ICT, digital storytelling, childhood, preschool.

Anotacija
Informacinės komunikacinės technologijos (IKT) vis dažniau taikomos integruojant jas į ugdymo programas ir kuriant mokymosi aplinką ikimokykliniame ugdyme. Šiuo tyrimu siekta išnagrinėti, kaip taikomos IKT rengiant ikimokyklinio udgymo pedagogus ir kalbos terapeutus (logopedus). Studentai skatinti naudoti įvairius multimedijos kūrimo ir redagavimo įrankius. Tyrimo klausimai buvo susiję su tuo, kaip studentams pasisekė integruoti technologijas į skaitmeninius pasakojimus ir sukurti veiksmingą mokymosi aplinką. Rezultatai parodė, kad ne tik teorija ir praktika, bet ir turinys bei pobūdis kartu su socialine interakcija vaidina svarbų vaidmenį žmonių mokymosi ir gebėjimų vystymosi procese. Abiejų programų studentai pademonstravo labai gerus skaitmeninio pasakojimo projekto rezultatus, vertinant juos pagal technologinius ir pedagoginius kriterijus. Studentų rezultatų panašumas ir skirtumai aptariami ir apibendrinami iš modernios informacinės visuomenės pozicijų.
PAGRINDINIAIA ŽODŽIAI: IKT, kompiuteris, skaitmeninis pasakojimas, vaikystė, ikimokyklinis ugdymas.

Introduction

Research revealed that Information and Communication Technology (ICT) has a leading part in nearly every part of the modern life including education (World Bank, 2003; United Nations, 2005; Organization for Economic Cooperation and Development, 2006; Kozma, 2008; Toki, Pange, 2012). ICT's significance and potential benefits and innovation in education is well establish at all levels (Haugland, 2000; Pange, 2005; United Nations, 2005; Tondeur et al., 2007; Schmid, 2009; Tezci, 2009; Toki et al., 2009; Wise et al., 2011; Toki, Pange, 2012) and researchers even state that "there can hardly be a country in the world which is

not currently engaged in the process of introducing ICT into its education system" (Tsitouridou, Vryzas, 2004) and that "the importance of educational technology in the classroom will continue to increase" (Becker, Ravitz, 2001).

New educational environments and teaching methods can be presented when ICT are employed posing a change to the traditional teacher-student relationship and upgrading educational quality (Pange, 2007; Pange, 2008; Toki et al, 2009). Young people today, the current students, commonly use the web, social web (such as Facebook, Youtube, Twitter, Myspace), they collaborate through wikis, blogs or Skype, they have mobile connectivity and the form everyday tasks such as learning, listen to radio, applying for a job, shopping, dating, and only on (Robin, 2008; Kim et al, 2010, Toki, Pange, 2011). These activities involve the use ICT not just for gathering information but also for creating and publishing information (Toki, Pange, 2009; 2010; Toki et al 2012) usually in a multimedia form.

Traditionally, storytelling is the oldest form of teaching (Stanley, Dillingham, 2009). Robin (2008) describes digital storytelling as the combination of the art of telling stories and digital multimedia. It is "a form of short narrative, usually a personal narrative told in the first person, presented as a short movie for display on a television or computer monitor or projected onto a screen" (Davis, 2004, p. 1). Stories have various uses, i.e. the telling of personal tales, the recounting of historical events, or as a means to inform or instruct on a particular topic (Robin, 2008).

A digital story is a collection of audio, video, images, text, all put together to form a story on a screen that help individuals rediscover how to listen to each other and share first person stories (Center for Digital Storytelling, n.d.). Digital storytelling may involve interactivity. Precisely, the Center for Digital Storytelling supports that sharing stories can lead to positive change as everyone has many stories to tell and people need to be heard even though listening is hard. Given that people see, hear, and perceive the world in different ways and that people are creative, technology can be the powerful instrument of creativity. Thus digital storytelling associates the use of ICT with the benefits of storytelling offering the prospective for an engaging student-centered approach (Jenkins, Lonsdale, 2007; Sadik, 2008; Stanley, Dillingham, 2010).

Pelayo (2013) supports that "digital storytelling promotes and multiplies the ways in which we see, listen, read, write, signify, relate and, above all, become aware of the innate capacity for creativity common to each and every human being, and which is not an exclusive attribute of what is traditionally called an artist". Consequently, students in their digital stories performed a double function: learning and pleasure at the same time. The use of ICT in story telling can inspire students' learning, creativity.

Robin (2008) states the importance of teachers' knowledge for effectively motivate and engage students in learning new content and for deeper understand with the help of multimedia technologies, like digital storytelling.

There are seven elements that should be kept in focus in digital storytelling (Lambert, 2006):

- point of view: stories are told to make a point considering the audience and directing the point to them;
- dramatic question: capture the audience's attention at the beginning by posing a dramatic question, hold interest and resolve it at the end;
- emotional content: give emotion to the story with the contribution of text, images, music, tone of voice, and audiovisual effects;
- voice: a conversational voice recording can enrich the story;
- soundtrack / music: the right music and sound effects can enhance emotion, tension and excitement in the story;
- economy: the story should contain the fundamental elements to move the audience from beginning to end;
- pacing: establish pace to keep audience's interest by image duration, speech rate, music tempo, and panning and zooming speed.

Many different software tools are available that support digital story development (Stanley, Dillingham, 2009). These multimedia authoring tools, can be tools that create a presentation (Microsoft PowerPoint, Apple's Keynote), or a full video project (Microsoft MovieMaker, Apple's iMovie) that are easy to use, but also can be more professional tools such as Flash, Adobe Presenter or Adobe Premier. However, there are various web-based tools like Animoto (http://animoto.com/), ComicLife (http://plasq.com/), Digital Vaults (http://digitalvaults.org/), Glogster EDU (http://edu.glogster.com/), Kerpoof (http://www.kerpoof.com/), StoryBird (http://storybird.com/), VoiceThread (http://voicethread.com/) and so on, for creating unique user experiences as they tell their stories (Digital Storytelling in the Classroom, n.d.).

Digital storytelling has been used for a variety of purposes in education, such as in terms of special education, historical matters, political science or even medical, psychological and therapy. Digital storytelling can be a powerful tool for the Higher Education Departments tending to adjust the todays' learner needs and bridge the existing technological gap. This is done by upgrading the curriculum and employing the necessary skills and knowledge for teaching and learning processes in a digital environment that is characterized by collaboration, shared resources working spaces and digital creativity. The study aims to contribute to the upward demand for educators, practitioners and health professionals involved in

school settings, to be able not only to work on ICT but also to integrate ICT tools in preschool activities for the digital natives. In particular the focus is to investigate how students use ICT to develop a storytelling. The research questions concern (i) how effectively have students used ICT (how and why technology is used) and (ii) in what extend did the students manage a meaningful integration of digital storytelling that contributes to the effectiveness of students' learning accomplishments.

1. Materials and Methods

During the last academic year, students in an educational department in Greece and in a clinical department, in Greece, during their ICT courses at the last year of their studies, were given the option to apply ICT in storytelling. A self-selected group of 34 students, 16 from the educational department and 18 from the clinical department, were asked to create a digital storytelling. Both courses were using blended learning and they asked to present their digital stories at the end of the semester to their classmates.

The students consisted of 27 females and 7 males. In their departments in Greece, the majority of students are females. The mean age of the students was 21 ± 2 years.

For the purpose of the study the teacher presented an introduction to digital storytelling process, the seven elements of digital storytelling as stated by Lambert (2006) and special examples. Then students were asked to form groups of common interest consisted of 2–4 students. They were free to make stories targeting to a preschool audience with any learning tasks in language development. All groups had to take part in several talking and/or writing activities as preparation to their script. Once they had formulated their script on paper, they then had to gather and create all digital material (such as computer-generated text, images and computer-based graphics, animations, video clips, music, recorded audio, visual and sound effects) in order to create a digital story. They saved their story either locally or on the web. For their final test (exam) they had to create a short report with literature review and the presentation of their digital story.

The research instrument was a questionnaire designed for the purpose of this study and consisted of two sections. Section one, was composed of 6 questions, aiming to collect general information regarding the participants' age, occupation, sex, computer ownership and Internet access. Section two, was composed of 9 questions, aiming to gather information on course structure, materials used by the teacher and students' attitudes towards using ICT in storytelling. In particular, students were asked about course structure, types of learning, learner-instructor interaction, learner-learner interaction, creativity, engagement, motivation, time

devoted, learning outcomes, materials used and digital rights. The questionnaire scores in section two follow the Likert scale 1–5 (1 – strongly disapprove, 2 – somewhat disapprove, 3 – average, 4 – somewhat approve, 5 – strongly approve).

Additionally, an evaluation of groups' effectiveness on using digital storytelling to express the point of view, dramatic question, emotional content, voice, soundtrack/music, economy, pacing was applied.

The data was analyzed using SPSS to provide descriptive statistics and testing of hypothesis (z-test).

2. Results and Discussion

The students in Educational Department formed 5 groups of collaboration and the students of the Speech and Language Therapy Department formed other 5 groups of collaboration. The groups were consisted of 2, 3 and 4 members as described in Figure 1.: members in groups of collaboration.

N of member in a group	Frequency	Percent
2	1	10,0
3	4	40,0
4	5	50,0
Total	10	100,0

Figure 1. Members in groups of collaboration

Regarding computer ownership, this study's participants revealed that all (100 %) owned a computer and had internet access.

As to the course structure, the majority of the participants (94 %) were satisfied with the structure and the content of the courses that included various materials (e.g. exercises, examples and videos with case studies, assignments and reference books) created a very supportive ground for practicing and learning the topic of ICT use in storytelling.

Participants stated their general satisfaction (97 %) for the type of learning and the interactions face-to-face and over the internet with instructor and their peers, as it was easy and quick to communicate for any matter and provide guidelines or additional information in case of need.

As our sample was self-selected it is clear that they were really attracted to the subject of digital storytelling. It is important to point out that they all stated that they found the learning activities very enjoyable. The use of sound voice and video and images motivated them and enhanced engagement and time devoted.

They noted that they were inspirited and enthusiastic for self-expression and they wanted to learn in depth effective uses of ICT in storytelling.

The evaluation exposed above average to mostly very good results. Precisely figures 2 to 8 present respectively the scores for point of view, dramatic question, emotional content, voice, soundtrack/ music, economy and pacing. The digital stories created by the students mostly contained images and stories related to preschoolers' life. The multimedia design was very good having a clear goals, and multisensory stimulus with sound, images text and videos/animations. Students used various speakers in their recordings with a maximum 4 different speaker. The quality of the recordings was average to good. The language used in the recording was good to very good. The stories were well structured. Images were mostly from digital cameras, downloaded from the web or cartoon and comics. Some stories used interaction and animation.

The results of the study revealed that all groups accomplished their tasks on time. According to teachers evaluation they achieved good or very good grades and there was no significant difference in the evaluation between the two departments. Comparing the % of the scores achieved graded as excellent in the educational Department we found that 10 % above average and 20 % on the clinical department. According to z-test with a significance level of .05 the z-value is 0.8, thus pointed to be not significant, so to accept null hypothesis that sample proportions of the two departments are equal.

2.1. Classification of storytelling

The groups of students while working used the following types of storytelling:

(i) one group used historical type;

(ii) three groups chose to use personal Narratives that deal with life adventures [specifically vocabulary, learning the alphabet, recognizing phonemes, initial sound /a/ in word and syllabication];

(iii) four groups used a story to inform/instruct [specifically feelings, what they have to do when they prepare themselves to go to bed, when they wake up and prepare to go to school when they have to cross the road and when they wait for the school bus].

It is important to notice that students managed dynamically the customization of learning activities and used ICT according to their personal styles. They even demonstrated the ability to address preschool with diverse learning normal population or population at risk for learning disabilities.

In detail Figure 9 describes the types of storytelling that the groups of students used.

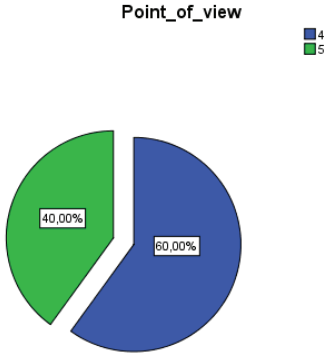

Figure 2. Evaluation on the effectivness on point of view

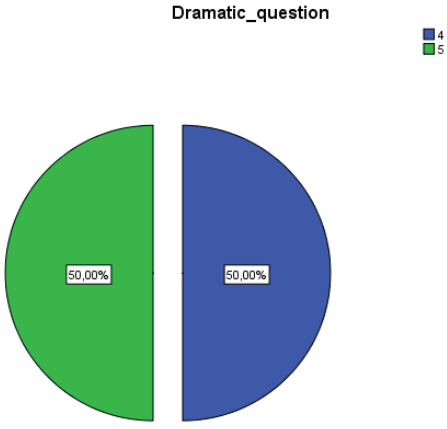

Figure 3. Evaluation on the effectivness on dramatic questionnote

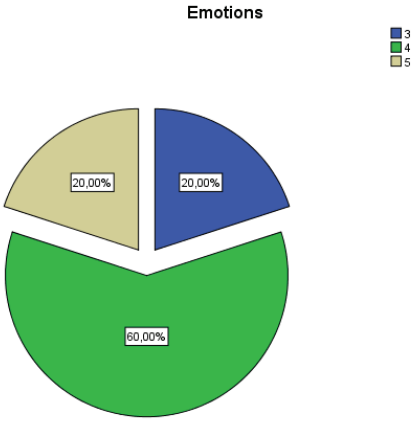

Figure 4. Evaluation on the effectivness on emotions

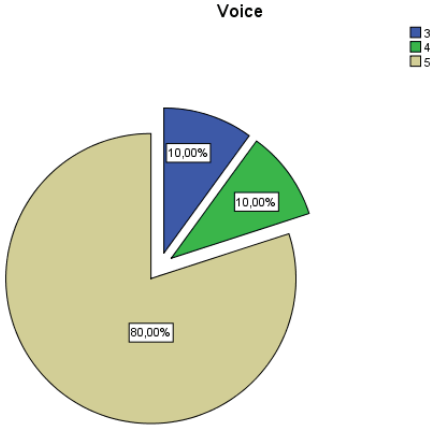

Figure 5. Evaluation on the effectivness on voice recordings

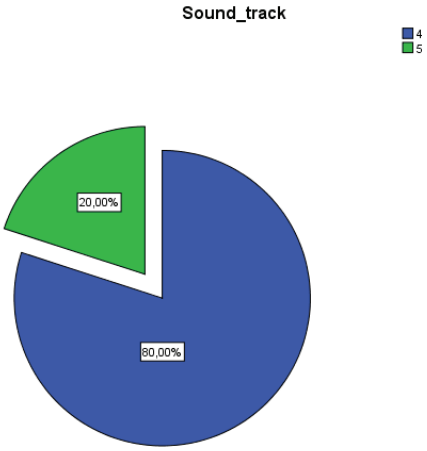

Figure 6. Evaluation on the effectivness on sound tack/music

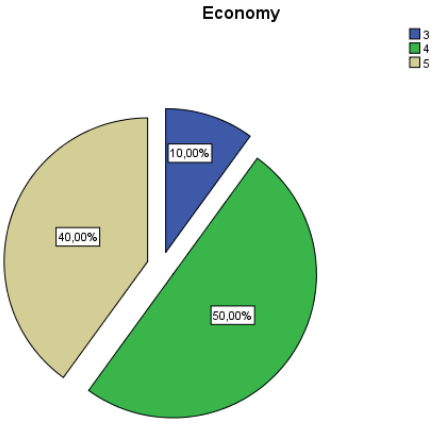

Figure 7. Evaluation on the effectivness on economy

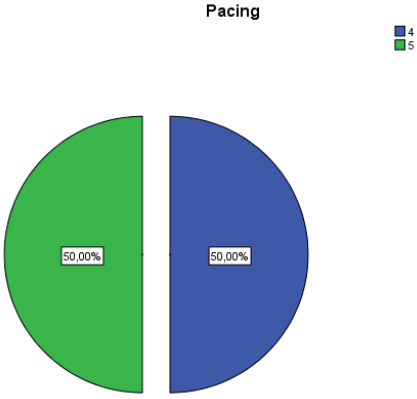

Figure 8. Evaluation on the effectivness on pacing

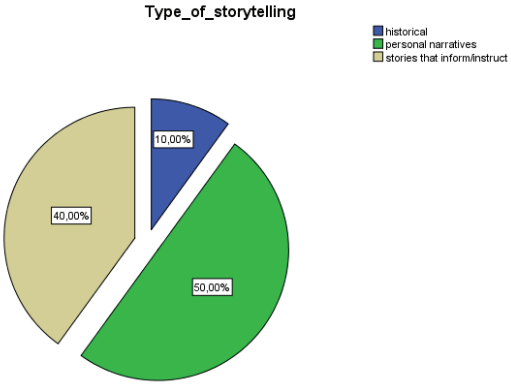

Figure 9. Type of story telling used

The results of the study reveal that students of educational and clinical undergraduate university departments while working in a team they are able to accomplish the task of successfully integrating technology in classroom activities. Digital storytelling can be a successful and creative tool that although students had no previous exposure they effectively used it to easily integrate technology with teaching and to make a multimedia approach that has the potential to raise the preschool pupils' interest and participation in the classroom activities and come to an agreement with similar research, (Robin, 2008; Stanley, Dillingham, 2009; Pelayo, 2013).

Conclusion

In conclusion the results of this study indicate that all students from both departments when working in groups they manage to:

- demonstrate knowledge and skills to support effectively our digital society;
- model and use effectively ICT in storytelling for preschoolers;
- consider digital storytelling as a positive experience promoting learning and creativity;
- apply dynamic customization and personalization of learning activities to address diverse learning styles.

Moreover this study was formed in a specific sample and so there are limitations. Additionally preschool pupils' views together with a more generalized future research may provide more information on this matter.

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