

“Our Friends From the Neighboring Nursery School”: A Teaching Program Aiming at the Development of 21st Century Skills

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Abstract: The use of Information Communication Technology (ICT) in nursery school classes can be a mentally challenging and educational experience. Activities involving the use of computers enable students to develop their creativity, cooperate, interact with people from different cultural environments and approach new knowledge effectively. The following paper is a case study and it was implemented mainly in classes of the 9th and 16th pre-schools in Corinth and in schools abroad. The scope of the Program was to exploit the possibilities offered by ICT for the development of cooperation, communication and cultivation of interpersonal relations of students in different schools. The computer served as means of expression and creation of the children. The approach to the Program was achieved through Experience — Active and Collaborative learning, while cultivating I.C.T skills. The needs of the 21st century make the development and the cultivation of skills such as critical thinking, creativity, communication, cooperation, starting from nursery school education, compelling.

Key words: ICT, 21st century skills, multicultural education

1. Introduction

The teaching program presented in this paper was designed to highlight creative actions and activities carried out by students of early childhood and primary school age (4–8 years old), from different schools in Europe. The resulting collaborations led to the production of a variety of projects, such as art exhibitions, greeting cards, organizing school celebrations etc. The program was implemented during the first semester of scholastic year 2013–2014 in Nursery school classes in Greece (9th and 16th P.S of Corinth) and in Europe (United Kingdom, Poland) and is part of the project, entitled We Are Friends, which was approved by the National e-Twinning Support Service and is implemented during scholastic year 2013–2014. Internet connections were used and exploited where activities encouraging the cooperation of those involved and the cultivation of Multicultural awareness were implemented. I.C.T proved to be a useful and interesting tool throughout the project and decisively helped in its successful development. There was an interdisciplinary approach to the whole action which was fully compatible with the principles of The Steering Board of Model Experimental Schools (ΔΕΠΠΣ) and the objectives outlined in the new Curriculum for the Nursery school (2011), which appears on the digital school website.

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1.1 21st Century Skills

In recent years with the development of the information society, we recognized that the basic objective of education has ceased to be simply the acquisition of knowledge, but especially the cultivation of skills that can apply to different areas in a person's life beyond and after school. This philosophy governs Modern Curricula worldwide and it is also reflected in the new Curriculum that complements the existing one.

In accordance with this philosophy the “21st century skills” were formulated by a scientific group, in which participated public and private sector bodies, namely private and prestigious state-owned companies (Framework for 21st Century Learning, 2009). “21st century skills” have influenced the pursuits of education around the globe. First, the importance of traditional courses, (reading, writing, arithmetic, physics, geography etc.) is not disregarded. The significance of the “traditional” subjects has been supported theoretically by Gardner's theory of multiple intelligences (1985). According to Gardner's theory, children of nursery school age develop in many different fields at the same time, which are closely related and each of them is equally important for the child. Children have different skills, different preferences with regard to their ways of learning and different types of intelligence. He suggested eight different types of intelligence, i.e., linguistic, logical-mathematical, spatial, physical-kinaesthetic, musical, naturalistic, intra personal and interpersonal intelligence (Schiller & Phipps, 2002).

However, beyond what is mentioned above, it is aimed that children develop skills such as communication and cooperation, creativity and problem solving competence. Moreover, nowadays, since we live in a constantly technologically developing society characterized by information galore and fast changes in technological tools, the need for cooperation and contribution becomes imperative. Besides, pupils should develop a series of life and career skills such as flexibility and adaptability, initiative and self-regulation, social and multicultural skills, responsibility and leadership (Marzano & Heflebower, 2011). Many of these skills can be developed in Pre-School. Some of these are included in the Cross-Thematic Curriculum and in the new Nursery school Curriculum, which complements it. The present teaching program focused especially on I.C.T. literacy as well as multiculturalism as basic skills that preschool children need to acquire from the spectrum proposed by the 21st century skills

1.2 I.C.T

Scientific research has shown that I.C.T have a positive influence and substantially help the learning procedure and the teaching of all cognitive topics ((Mioduser, Tur Kaspas, & Leitner, 2000), without being considered substitutes for life experience but as a means to widen and enrich the experience of young children (Nokolopoulou, 2008).

School children should learn to manage information, understand the perplexity of problems, know how to ask relevant questions and digest information (Nikolakaki, 2004). Knowledge acquired via a computer but also the management of this knowledge is what matters (Nikolakaki, Moraiti, & Dossa, 2010). I.C.T can provide an interactive and dynamic environment in which, preschoolers working in groups communicate, manage information, compose assignments and get involved in discourse, formulating criticism, questioning, hypothesis and conclusions (Crook, 1994). In Nursery school every day practice, the use of I.C.T widens and enriches learning (Kyridis, Drossos, & Donas, 2003), while at the same time it reduces the digital gap among children of different backgrounds. New Technologies and multimedia help pupils to approach new knowledge effectively (Raptis & Rapti, 2007), because the approach can be achieved through activities relevant to their interests. The activities developed are suitable for nursery schoolchildren, take into account their needs and interests and involve computers in the learning procedure as a means for discovery, expression, communication and creativity

Cooperation is strengthened by easy digital communication and sharing of information. Through this process intelligence “spreads” in space and among the rest of people and each person’s competence does not only consist of personal work but also the creative exploitation of the resources-people and tools available.

1.3 Multicultural Education

Over the last years, the influx of foreign people, immigrants, expats and refugees in Greece, has not only changed the composition of society, which has become multicultural, but has also changed the composition of school classes which are no longer attended uniquely by Greek schoolchildren. The introduction of Multicultural Education in school curricula as a means of dealing with the new social, economic, political and cultural world order becomes necessary and useful because of the intercourse, equality and mutual acceptance of the cultures it promotes. The term Multicultural Education refers to a dynamic process of meeting others, of interaction and mutual cooperation, recognition of otherness and cultural promotion (Markou, 1995). Its basic principles must govern teaching and learning and permeate all subjects in the school curriculum.

Multicultural interaction is defined as the process of reflective perception and experience of cultural inter pluralism, recognition of otherness and cooperation among people of different cultures. Schoolchildren are the recipients of multiculturalism regardless of their cultural origins (Govaris, 2004). Modern teaching aims at multiculturalism, involving students in building a third place, a place of contact, meeting and interaction among languages and cultures through comparison, exchange and negotiation in the classroom. The aim of Multicultural Education/Training, according to Vacalios, Kanakidou, and Panagiotidis (1997), “is defined not by reference to the school context of the school (or classroom), but to the wider social and cultural context within which the school operates, which on the other hand, is faced as a integral part of society.” Damanakis (1997) notes that multiculturalism presupposes the overcoming of the narrow concept of “nation-state” that permeates the school curricula and the acceptance of multiculturalism as a happy situation and challenge for the transformation of individuals and the society into a direction that will be characterized by tolerance, acceptance of differences and osmosis generated by the coexistence of people and groups with cultural differences. The teacher has a key role, with regard to his didactic readiness, the degree of his responsiveness to modern problems that arise within the teaching procedure from contemporary multicultural reality (Karabatsos, 2000). E-twinning programs promote multiculturalism because they are based on the participatory process, promote the interdisciplinary approach and rely on situations and problems of everyday life, linking the school to society (Frentzou et al., 2006).

1.4 Aims and Objective

In the context of 21st century skills development, the purpose of the program is the development of cooperation, creativity, interpersonal relations and Multicultural Awareness through the use and the possibilities offered by I.C.T in the educational process. At the same time, individual objectives are compatible with the eight fields of the new Curriculum for Nursery school (2011). More precisely, as regards the Information and Communication Technologies, attempts were made to make pupils: a) experience the use of ICT and create, b) communicate and cooperate through them, c) explore, experiment, discover and solve problems and d) realize the value of ICT in society and culture.

In particular, it was sought that children develop digital literacy skills, realize that a PC consists of a single system which is connected to peripheral devices for specific purposes, get involved, get acquainted, and be gradually independent with the use of I.C.T, communicate and cooperate with the use of the Internet, manage information and express themselves with generic software, express themselves creatively by using design, editing,

reproducing and recording audio, image, video software, explore, experiment and discover knowledge with open source software and recognize I.C.T as a means for entertainment, work and interaction.

2. The Teaching Program

2.1 Participants

Participants of the present intervention study included:

- 9th Nursery school of Corinth: 16 preschoolers - 8 first age school children, 8 second age school children.
- 16th Nursery school of Corinth: 19 preschoolers- 15 first age school children 4 second age schoolchildren of which a bilingual Albanian child and 3 children from mixed marriages (country of origin of one parent: Bulgaria, Russia, Ukraine)
- Greensted Infant School and Nurse from Basildon in the United Kingdom: 20 children aged 3-5
- Przedszkole Niepubliczne “Panda” Nursery school from Bydgoszcz, Poland: 15 children aged 4-5

At the end of the activities described in summary, we listed the types of intelligence developed through the modules of learning areas in which specific actions were involved.

2.2 Overview of the Process

The program was implemented and successfully carried out by group-collaborative activities and actions, which involved: Participation of nursery school children from different nursery schools, teachers, the families of preschoolers and it was based on the previously mentioned research. The Experiential – Communicative teaching method was chosen with cross-curricular work plans.

The program divided into three stages (pre-test, implementation, and post-test):

1) Pre-test: Systematic evaluation of opinions, behaviors and attitudes of preschoolers in matters associated with the otherness and I.C.T, before the implementation of the program.

2) Intervention: The content of the activities implemented aimed at the development of otherness with the help of I.C.T. What was implemented:

- Internet connections and cooperation through Skype
- Exchange of visits between the two participating preschools
- Common Aesthetic Creations-Open Art Exhibition
- Exchange of Christmas greeting cards and Gifts

3) Post-test: Systematic evaluation of opinions, behaviors and attitudes of preschoolers after program ended and recording of findings.

Systematic observation data of attitudes and behaviors of all preschoolers in terms of Otherness and I.T.C were collected before the implementation of the program. Moreover, there was a comparative evaluation of drawings undertaken before and after the implementation of the program. Also:

- 1) Information/awareness of parents and other people involved.
- 2) Sociogram before the program starts and after the program termination. Held with the use of personal interviews for each child.
- 3) Interdisciplinary-cognitive activities implementing the use of ICT as a pedagogical tool.
- 4) Diffusion.
- 5) Evaluation-recording of findings.

The present paper focuses only on a presentation of the teaching program and not on the analysis of the collected data.

2.3 Initial Assessments

At an early stage of psychological and cognitive preparation, we investigated the children’s computer literacy by mapping their experiences in the conceptual Kidspiration map. Following that and in the same way the children suggested activities that they would like to share with their new friends from other pre-schools. It appeared that their ICT knowledge and handling of related tools was deficient. Meanwhile, PCs were used by those children exclusively to play games.

2.4 Teaching Actions

Initially simultaneous conversations via teleconferences with the children of both schools from Greece were held, using the web application Skype. The objectives of the actions focused on the development and enrichment of students’ experience and special attention was paid to the acquaintance and acceptance of new friends. The aim was to achieve interaction with peers, relationship development, exchange of knowledge-opinions, exercising in active listening and communication skills. An additional aim was the involvement-familiarization of students with ICT and the acquisition of handling skills. Greek pre-schools were connected on-line approximately once every fortnight. Intra personal and linguistic intelligence according to the Gardner’s theory, critical faculties, language, personal and social development, according to the areas of the new Curriculum were mostly developed.

Preschoolers played welcome games such as “Mirror” where a child was trying to be the “mirror” by making the same movements with his peer using the computer screen as a communication tool. Physical-kinaesthetic intelligence, imagination and divergent thinking through ICT and Physical Education were also developed.

In the next session, the students described the recipe for apple pie to their peers from the other school encouraging them to try to make the pie. Following this activity, they sent the recipe to the schools in England and Poland encouraging the children to also make the apple pie. In return, the English Nursery schoolteacher sent the recipe of a traditional apple pie in their area. This was followed by a discussion about the conditions under which people make cakes and to whom and why they are offered. Multicultural education, practical ability; linguistic intelligence and creativity of the children were developed.

On the celebration of “No Day” (A Greek National Celebration day), the children of one nursery school held their celebration with their peers as spectators who were watching their performance through Skype. This was followed by a video conference with exchange of songs, messages and mutual briefing on the theme the children had to deal in their class each time. “Our friends from the neighboring school”

Interpersonal, musical, spatial intelligence were developed, along with interpersonal and social development.

2.4.1 Exchange of Visits

From the very first moment, the children of both Corinth pre-schools expressed their wish to become acquainted with their classmates whom they were doing joint on-line activities. Therefore, two visits were arranged. The aim of the visits was the realistic acquaintance and interaction of all pupils, teamwork and the development of interpersonal relationships. During the first visit, introductions were made and the children exchanged gifts. Moreover, the students were divided into teams and worked together to create paintings, which decorated the classroom. They all followed the scheduled routine of their daily school program. They developed intra personal and interpersonal intelligence, through the areas of Personal and Social Development and the Arts.

In continuation of the above action, preschoolers were assisted by their nursery schoolteacher and browsed Google earth and Google map and found their school and the school of their friends, their home, the home of their relatives or the neighborhood playground. They developed spatial, logical-mathematical intelligence, through ICT and Mathematics.

A few weeks later, the second visit took place. Before that, an electronic invitation was created using the software publisher. Linguistic and interpersonal intelligence were also developed through ICT, Language and the Arts. The visit took place on the eve of the Polytechnic School anniversary and the visit aimed at joint actions on the celebration. The children of one pre-school, with the help of their teacher, put up a puppet show with the dolls they had created themselves with conventional recyclable materials and at the end of the show, they offered them to their peers. The children themselves recorded the show on camera. The activity was symbolic. Intra personal, interpersonal and linguistic intelligence, were developed through Personal and Social Development, the Arts and Language.

Both visits were photographed by the children and in the end with the help of teachers made a film with the use of movie-maker software. The children chose the photos they wanted and the alternations of photos at the same time. They listened to some songs and later they added music to their film. The naturalistic and interpersonal intelligence were developed through ICT, the Arts and Social and Personal Development.

2.4.2 Shared Aesthetic Creations

From the beginning of the year, children in both pre-schools mainly used closed and open source software during their free activities, for aesthetic expression and creation, such as Tux Paint, Revelation Natural Art, Jigsaw Platinum puzzle and so on. The aim of these activities was, apart from developing the aesthetic expression and creativity of children, to develop cooperation among them, their interaction with the computer and familiarity with specific software.

All nursery school children worked in pairs and created drawings, which they sent to their peers in the nursery school "next door" by e-mail. The teacher showed the students the paintings of their friends and urged them to continue creating on them. The outcome was creations based on the cooperation of children from different schools. All the drawings were presented by their creators in power point format, they were printed afterwards and then formed the material for an exhibition jointly organized by the two pre-schools.

In addition, the children made jigsaw puzzles with the photos of their friends from the nursery school “next door” which they had made during visits or had exchanged via email, using the software jigsaw puzzle platinum. Language, logical-mathematical, spatial, naturalistic, interpersonal and intra-personal intelligence were developed through ICT, the Arts, Mathematics and Language.

2.4.3 Exchange of Christmas greeting cards and Gifts

The aim of the activity was that nursery schoolchildren develop their creativity, to promote their cognitive and linguistic skills and while cooperating with schools from abroad to gain multicultural awareness. On the occasion of the Christmas celebration the schools that participated in the project “We are Friends” through the on-line platform e-Twinning, exchanged greeting cards and information through conventional and electronic mail. Preschoolers from the four European countries that participated in the project created and sent out Christmas cards with greetings, drawings, songs and texts about the traditions and customs of their home countries, which were relevant to the festive period. The cards and the information material was written in the language of origin of each country and in the English language which was used as the language of communication. Common and different

habits emerged spurring the interest of the children. More precisely, in a box sent from Poland, the children had made pieces of work from recyclable materials and packed them in a box, which was sent by conventional mail. Clarifying and exploratory discussion followed. The knowledge of the school-children and the teachers who took part in the program, was significantly enriched, while diversity became more acceptable and respected by everyone involved. ICT annihilated distance and the speed and immediacy of information shared stimulated the feeling of good cooperation and constructive interaction of the participants. Multicultural education, interpersonal, linguistic, logical-mathematical and naturalistic intelligence, through the Arts, Language, Mathematics and ICT were developed.

2.4.4 Reflection-Evaluation

At the beginning and during the daily observation of preschoolers by their teachers, some particular introversion of the interpersonal relationships among preschoolers was found. The judgment of the group members was limited, while some strong hesitation in expressing personal opinion even in simple questions was noticed. In their interpersonal relationships, the working groups consisted almost solely of preschoolers of the same gender and the same origin and exclusion trends against “different” were intense and required frequent intervention by the teacher, something that was also found in the results of the sociogram. According to this, bilingual students seemed to be ranked in less popular positions. The teacher assumed her role as the mediator and often split often teams according to their gender, age and their digital-technological literacy. In other words, the teacher tried to intervene in order to exploit the social structures of the class.

The warm response of both minors and adults, to the creative activities realized is proof of the success of the actions. Through the implementation of the program, collaboration relationships were created that developed into friendships. Easy communication with the help of the Internet led to the wider cognitive and linguistic development of students, who aptly used vocabulary and terminology from the field of ICT Bilingual students felt accepted by the group as a whole and safe in the school environment. Everyone involved seemed to accept the linguistic particularities and otherness within the group. The group showed respect and acceptance of the opinions of everyone. The working groups, which, in daily teaching practice, are usually spontaneous, became larger, while the teams no longer had only two children (pairs). At the same time, the teams consisted of children of both sexes.

During free play, the students did not hesitate to express themselves in their mother tongue and monolingual students were eager to learn words in the language of origin of their classmates. Monolingual children were enthusiastic about “teaching” the correct pronunciation of Greek words to their bilingual peers.

Preschoolers were introduced and learnt several ICT terms, while they satisfactorily used tools such as: laptop, mouse, keyboard, digital photo camera, digital camera etc. They were proud to announce they were able to realize their own Internet connections at home to communicate with a friend or relative who lives far away.

When using the PC children found information, visited educational platforms and websites, made drawings and wrote. The children’s parents were particularly interested to observe that their children’s preoccupation with video games decreased and that their eagerness to surf the web increased.

A critical view of the actions reinforces the opinion that diversity and innovation in educational practice, when dealing with children’s interests can enhance and greatly facilitate the educational process to the benefit everyone involved. Carefully designed and strictly targeted programs in this direction promote the learning ability of preschoolers. The recruitment of technologically expert staff and the support of schools’ units is now imperative.

3. Conclusions-Suggestions

From the intervention described above the following conclusions can be drawn:

A critical view of the actions reinforces the opinion that diversity and innovation in educational practice, when dealing with children's interests can enhance and greatly facilitate the educational process to the benefit everyone involved. Carefully designed and strictly targeted programs in this direction promote the learning ability of preschoolers. The recruitment of technologically expert staff and the support of schools units is now imperative.

- Contact and interaction with students from other countries with the help of ICT and eTwinning create positive attitudes towards otherness and diversity and contribute to the shaping of Multicultural awareness.
- The exchange and negotiation of views leads to positive attitudes and changes in behavior in multicultural classrooms.
- What a schoolchild discovers on his/her own can be more easily recalled than what is offered as information by others.
- The use of aids to relate newly acquired knowledge to old knowledge increases the possibility and frequency of their use.
- Linking knowledge with pleasant emotional states facilitates memorization.
- Particular attention is needed about the use of ICT. It should be rational to avoid abuse both by schoolchildren and teachers.

Finally, the greater the number of senses involved in the input of information, the more the chances to recall it increase. Therefore, the use of teaching aids in the teaching process and the combination of auditory stimuli with pedagogical monitoring tools or other stimuli contributes to the efficient retention of information.

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