

Human Journals

**Research Article**

December 2022 Vol.:23, Issue:2

© All rights are reserved by Panagiota Xanthopoulou et al.

## E-Learning in Primary Education: The Use of eTwinning Program for Enhancing Students' Interaction



**Ioannis Makris<sup>1</sup>, Panagiota Xanthopoulou<sup>\*2</sup>**

*1. Msc, Hellenic Open University, School of Humanities,  
Greece*

*2. Academic Staff, Hellenic Open University, School of  
Humanities, Greece*

**Submitted:** 22 November 2022

**Accepted:** 28 November 2022

**Published:** 30 December 2022

**Keywords:** eTwinning, Primary Education, Social Media, Information and Communications Technology (ICT), European Union.

### ABSTRACT

The dissemination of innovation into educational programs and the way they are conducted have undergone significant changes in recent years. The European Union plays a significant role in the implementation of collaborative initiatives across schools in Europe through the eTwinning program, which uses a specific digital platform for collaboration. The aim of the research is to examine how well e-twinning is working in Greek elementary education. Due to this, the research was implemented using the triangulation technique, which involved asking students to participate in a focus group and questionnaire as well as conducting in-depth interviews with two teachers. Findings demonstrate that there are numerous advantages, including those of using collaborative tools and using the English language for students and the exchange of know-how for teachers while the use of collaborative tools is important.



HUMAN JOURNALS

[www.ijssrm.humanjournals.com](http://www.ijssrm.humanjournals.com)

## 1. INTRODUCTION

The area of education has to present important innovations and interventions aimed at upgrading the educational work offered by the educational units to the students. Largely, these innovations have been promoted by the high penetration of new technologies in school facilities. At this point, it should be mentioned that there is a number of technologies and applications that help learning through the knowledge and skills that are built by the acquaintance with new peoples and the acquisition of multiple skills through cultural exchange over the Internet (Zhang *et al.*, 2016). It is worth mentioning another parameter, that of upgrading the interest in education at the political level, and in particular from the European Union. This is done through the implementation of programs related to the cooperation of school units within the Union such as Norway. Within this context of the continued penetration of New Technologies and coordination in education in the framework of cooperation between the EU Member States, is the case of eTwinning (Cruz-Jesus *et al.*, 2016). eTwinning aims to upgrade pupils' knowledge and skills across a wide range of areas of action such as specific educational fields (intercultural education, environmental education, etc.) as well as to learn them how to use creatively new technologies as well as how to collaborate with students from other EU countries (Papadakis, 2016). This means that we are talking about a training program related to the acquisition of multiple skills for students, including the use of collaborative tools, designing and implementing projects and other similar skills. It should be mentioned that this program is widely accepted by both educators and students (Vuorikari *et al.*, 2015). Of course, the program has the special ability to constantly change and adapt, as well as a continuous flow of new data and information. For this reason, it is considered necessary to have a description and evaluation of the studies so far done through a scientific study, which will synthesize all previous studies to draw conclusions about the course of eTwinning so far.

Greece's educational system has undergone significant modifications recently. The inclusion of distance learning tools in classrooms is one of the most significant innovations. It is crucial that pupils have a variety of options for the sources they will use to gather knowledge. The term "eTwinning" is used in this research to refer to a specific invention that improves student engagement and collaboration. E-winning is one of the most significant initiatives to promote ICT in the traditional educational system, according to Anastasiades (2016). More specifically,

e-winning is a very well-liked program that can help students learn more than what their schools teach them and, in particular, connect with students from other countries. It also has a very important aspect in that it greatly promotes school cooperation on a global scale, according to Anastasiades (2016). Therefore, it is essential to examine such a significant program in terms of the opportunities and experiences of students. Studies like Tsapras (2011) have made progress in the research of eTwinning acts by capturing both the program's content and the opinions of the stakeholders. Given that eTwinning is a continuing program that is constantly improved, it is essential to keep a communal record of what has been accomplished so far.

## **2. LITERATURE REVIEW**

### **2.1 E-LEARNING IN PRIMARY EDUCATION**

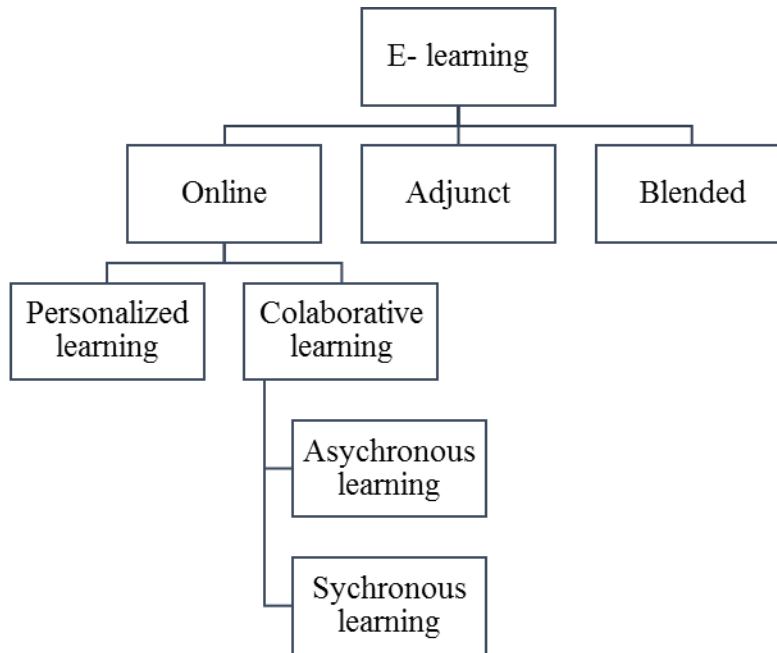
Lionarakis (2010) reports that distance learning based on a mechanistic interpretation, is a process where the trainee is at a physical distance from the trainer and therefore he/she needs to understand with the help of new technologies how he/she should work alone in a heuristic course of self-learning and knowledge. Thus, since 1990, the enormous technological advances have invaded the field of distance learning and have shown a tremendous growth which has been defined as a new framework of methodology and terminology, with the result that new technologies today evolve at a very high rate (Anastasiades, 2004). Particularly based on the available technological resources, educational approaches to the learning environment can often be ignored. In recent years the way in which pedagogical approaches are used may in some cases raise concerns. In the learning environment, the emphasis given to technological tools in recent years can in many cases not substitute for the pedagogical and social dimension of learning (Anderson & Dron, 2010; Papadakis & Xanthopoulou, 2021).

A digital dualism threatens primary education in many circumstances, and in this regard, education is urged to creatively incorporate new technologies and to harmonize them with education by changing how children will be taught so that they accomplish the goals that education sets. The formal educational system is currently accelerating the trends in distance learning, particularly in primary school. However, traditional education, which is defined as instruction in a classroom, is still the pioneer in its sector. The phrase "distance learning" was originally used in the 1970s, and interest today is mostly focused on the fact that distant learning

is constantly open and accessible in response to each learner's individual learning needs. Since the mid-1990s, distance learning has provided additional impetus in the field of primary education, contributing dynamically to its proliferation and giving it a new character (Bonk & Graham, 2006). Initially, there were technocratic approaches that contributed to the creation of a new educational environment that did not favor critical thinking, with the result that, for a while, a tendency to transfer social standards had been created. Moreover, in recent years, the pedagogical dimension of the use of distance learning is at the center of research interest as it contributes to the creative integration of a child into the wider social and learning context by exploiting new technologies. This has the effect of creating the conditions for the development of a collaborative knowledge building network that encourages research thinking and shapes a set of conditions for a multidimensional education that is multidimensional, flexible and democratic. At the same time, this training works complementarily at all levels by activating the learner in a self-learning way and working autonomously (Abrami et al., 2011). The modern form of distance education through technology and synchronous transmission also enables the instructor and student to interact through the image and sound in real time regardless of the geographical area, with the result that the advantages are the adequate time reaction, interaction and the use of effective technology (Anastasiades et al., 2010). Contemporary and asynchronous education should not work competitively but complement each other, thus creating the conditions for an integrated learning environment, highlighting the need for an environment that works with specific pedagogical prerequisites by combining the positive elements of both together with face-to-face teaching. In general, blended learning (see Figure 1) involves a series of dimensions. It combines blending of a range of web technologies that aim to achieve educational goals, combining pedagogical approaches to positive learning outcomes, combining teaching technologies with face-to-face teaching, and technology blending in real-world conditions. Learning, from the learner's point of view, is based on forms of teaching that have their roots in pedagogical processes. The consequence of this is that the term "learning" needs to be redefined. Mixed learning offers learning gains attributed to how it works and a new way to understand its theoretical basis based on the theory of the use of online services (Lionarakis, 2010). However, it is noted that there are no specific methods for this mixed, blended learning environment to work, so that the best possible success of this model is based on a well-organized teaching approach in

which the model will have the basics of educational theory, logistical infrastructure and evaluation mechanisms (Oliver & Trigwell, 2005).

Collaboration through eTwinning is centered on giving presentations in classrooms and explaining subject to students from other countries through blogs. The wall art serves as a reflection of the job that teachers must finish with their students. The content frequently represents the culmination of initiatives or solitary efforts undertaken by program teachers. Most teachers appear to believe that contact via email, videoconference, presentations, creation of photo albums, e-journals, etc. is particularly crucial for expanding knowledge from the perspective of the suggested activities. The involvement of students from various nations in cooperative development and presentation projects, the creation of scientific experiments, debates with peers from different nations, etc. constitute a smaller portion of innovative activities (Velea, 2011). At this point, Anastasiadis' (2017) critique that the goal of education in schools is to prepare students for the workforce should be emphasized. But because the environment is constantly changing, we are unsure of how civilizations will function in the future. A significant amount of information has accumulated on the internet as a result of the ongoing changes in the social and economic environment. According to Lee et al. (2016), there is a problem with information overload and there is an increase in the usage of digital media and e-learning, making it difficult for teachers to decide which materials to utilize and how. For this reason, Murayama et al. (2016) conclude that e-learning is a particular challenge for the education system and especially for the educator, because it is no longer a matter of being able to use e-learning systems but above all to be able to evaluate the information they have in their hands and use them in the best possible way.



**Figure 1. Types of e-learning**

To make the learning environment in Greece more comprehensible, a PEST analysis with four macro-environmental dimensions will be summarized and presented in Table 1 below:

- **Social dimension:** Both the social crisis and changes in demographic data are important. Elements such as the rise of immigrant pupils who need to be integrated and address some misconceptions, but also the fact that many children carry in school the faculties they encounter at home and in society in school. An important issue is a conservatism in society, but it seems that schools are not going through.
- **Technological dimension:** It is now understandable that new technologies affect education, and for this reason the Ministry of Education has given a similar importance to the introduction of new technologies in schools as well as to the training of staff. Also, teachers themselves are now familiar with the use of new technologies.
- **Economic dimension:** The economic crisis is forcing the Ministry to make cuts in the structures and programs it runs.
- **Political dimension:** Education is still hostage to fragmentation, while the education system remains highly centralized.

<b>Table 1. PEST Analysis of the Greek educational system</b>	
• <b>Economic</b>	Country development rate, education costs, school funding
• <b>Social</b>	The social characteristics of the school area
• <b>Technological</b>	Technological achievements, innovations
• <b>Political</b>	Political situation, legislation, political objectives for the Greek education system

As a result, learning is addressed to an audience that is constantly expanding both in quality and in scale. At the same time, trainees have the opportunity to choose how they are trained and the time they will attend their courses, with the result that new technologies and media can significantly facilitate learning.

## 2.2 THE INNOVATION IN EDUCATION AND THE ROLE OF ETWINNING

Changing principles and attitudes, implementing new teaching strategies, and utilizing new teaching instruments are all examples of educational innovation. Educational innovation is often referred to as a series of behaviors (Dakopoulou, 2008). On this foundation, the idea of innovation refers to the process of turning an idea into a good that can be sold or used in society. An existing product may be improved through innovation (Griffin, 2009). A methodological change, such as planning and social strategy, is necessary because establishing a partnership in an international setting, as eTwinning does, has the effect of generating benefits for students because they interact, understand, and share specific ideas. As a result, learners take a step toward taking responsibility for their learning.

In addition to learning how they make judgments, instructors need to develop abilities that will help them in the future, such as working in collaborative contexts. Intercultural benefits are built on new partnerships through education, which have the impact of giving students new information and abilities in relation to other cultures' experiences while gaining from the enabling frameworks of fostering European cooperation. Schools need to create credible

structures that will be acknowledged in order to promote this activity, and they must also offer pedagogical recommendations for cooperation and support throughout its execution. This structure consists of an office assisted by qualified teachers, a European-level technical support service, and technical support services for each individual nation. The workforce in Greece is made up of skilled information technology instructors who are familiar enough with our nation's educational system to support and help students in the framework of cooperation.

More generally, eTwinning is a significant endeavor that encompasses a multi-level project and is being developed at various levels, including those of instructors and students. This cooperation is in reality successful and produces student and teacher groups. In the case of a multilevel endeavor, it might also be a complete school strategy. Schools have been exchanging instructors and students on the occasion of student and teacher exchanges for a number of years, transforming friendship as a teaching experience. Schools are connected to other initiatives like "Socrates," which continue to strengthen their relationships, in contrast to more established alliances. As far as older collaborations are concerned, they strengthen the newer partnerships as many schools want to complete a generalized cooperation and strengthen the concept of the European dimension (Stamenos and Prokos, 2011). A particular element of eTwinning is that it allows students, but also teachers, to be creative.

According to Camilleri (2016), the benefit of eTwinning is that it encourages students to be original and creative, which is frequently impossible in a traditional classroom setting. This is why e-winning is so crucial, as Papadakis (2016) affirms when he mentions how students are now trying to be creative and how this is done through acts outside of the classroom, using e-winning as a challenging example. Additionally, groups of instructors are paired up by choosing thematic curricula where the same lesson is given, teachers are tackling similar problems, and they are comparing various responses to cultural variances. In cross-curricular programs, they can teach several topics about a single topic and learn that the world of education is one. Additionally, there is a choice of a multidisciplinary program where two groups of students are the subject of the project, accompanied by all the teachers in charge of that program. As a result, the two groups' presence is viewed as a collaboration on thematic pairs and cross-thematic groups. The opportunity for a European openness of the educational potential that wants to connect with other colleagues is provided by the cooperation of the schools. This can cause the



interest of students making the process particularly innovative and exciting. At the same time, educators are informed about the new systems of other countries and are taught new different cultures developing a cultural consciousness.

They are also accustomed to the modern information technology environment, which enables them to overcome geographical barriers and investigate seemingly complex subjects while also exchanging electronic educational ideas that expand their experiences. The national support service specifically approves all schools that declare their cooperation within the framework of cooperation on the European portal. The national service and the country support service have both signed this digital certificate. These services pick the top partnerships to display at their main gateway for a month. This provides nations the chance to showcase their most inventive policies. Thus, eTwinning promotes quality and gives high recognition to collaborations by answering to questions such as whether it is required to use information technology today to improve the understanding of both teachers and pupils. With teachers' assistance, students who participate in e-winning gain information and skills for themselves and apply the pedagogical process to their daily lives. Students gain information and skills during e-winning and learn how to manage their experiences online, both of which are advantages. In order to prevent any problems, the topic was chosen since it is flexible and adaptable to the requirements of schools. Through corresponding seminars and other curriculum offered by various European nations, questions about eTwinning can be answered. This is a turning point in the digital age that affects students' lives in different ways because they must develop the skills and talents necessary to take advantage of the options available to them. In a broader sense, eTwinning is a learning community where users join the platform, participate as a community of learners, and interact with the trainer within the system (Velea, 2011). The objective is to engage the person in problem solving and encourage him or her to share ideas in order to build friendships with other students and teachers that foster communication.

### **3. METHODOLOGY**

Triangulation validates the data during the survey using the available information. This method reinforces the research part of the diploma because the data with their processing can be further analyzed. The methodology of triangulation occurs when multiple theories, materials or methods

are used, such as a combination of qualitative and quantitative investigation. Data from different types of data sources, such as primary and secondary data using interviews, documents, public records, and triangulation observations using multiple data collection methods, are used to ensure the validity and credibility of present research (Patton, 1990). Additional information sources often give more insight into a subject while the deficiencies identified in the data are minimized when multiple sources confirm the same data. Multiple sources also provide verification and validity while considering all data and information making it easier to analyze them to draw conclusions (Wright, 1997). Using these two different approaches to data collection, it acquires different information that provide complementary datasets (Wright, 1997). In the present case, the use of triangulation is intended to reinforce the student's attempt to cover the subject from different visual approaches. On the one hand, they are the students and the teachers on the other. Through triangulation, the researcher can record different elements, such as student views (quantitative) and teacher experience (qualitative element). In this way, it can also cover the issue from different sources, but also cross-check whether these data converge or not. Another perspective is that triangulation allows for a research that will reduce the disadvantages of each approach, such as quantitative research cannot identify the causes of behavior-perception, while quality research is based on generalizations and personal interpretations. Therefore, the combination of these two approaches allows to limit the impact of these weaknesses (Morgan, 1997). If both approaches yield results supporting the hypothesis or bibliographic review theory, the data is more valid. The researcher could also combine these datasets with the results from conducting an observation or combine them with another tool, such as the use of focus groups. This type of data triangulation is slightly different because it incorporates results that show greater power. It also helps the researcher to have a better understanding of the data gathered. (Patton, 1990). The research tools are the student questionnaire, the individual interview with teachers and the focus group with students. The SPSS statistical tool was used in order to analyze the answers. The sample consisted of students and teachers from schools in the municipalities of Attica. The basic prerequisite for the participation was that the school had participated in an eTwinning program as well as the two schools that were under investigation.

As to the sample of work, it consisted of 3 groups that were:

- 87 students who participated in the eTwinning program and completed the relevant questionnaire
- 8 students who participated in the focus group
- 2 teachers whose departments participated in eTwinning

It should be noted that the approach was done by sampling ease, while before the survey was made, the Director of the school unit as well as the teachers and the parents were informed that their consent for participation, in order to ensure an ethical process.

#### 4. RESULTS

##### 4.1 QUANTITATIVE RESEARCH

Quantitative research was carried out by distributing 87 questionnaires to a sample of students who participated in an eTwinning program at a school in the Northern Sector of Athens. The first issue to be considered is which instruments were used for eTwinning (Table 2).

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	I did not use it	14	16,1	16,1	16,1
	I used it but not many times	25	28,7	28,7	44,8
	I used it many times	42	48,3	48,3	93,1
	I always used it	6	6,9	6,9	100,0
	Total	87	100,0	100,0	

Email seems to be a highly accepted medium, although 44.8% refers to the fact that they either did not use it or used it very little.

**Table 3: Chat**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I did not use it	26	29,9	29,9	29,9
	I used it but not many times	33	37,9	37,9	67,8
	I used it many times	20	23,0	23,0	90,8
	I always used it	8	9,2	9,2	100,0
	Total	87	100,0	100,0	

Although Chat is very widespread today, it appears to have used it to a high degree only 30.2% of the sample of students who participated in the survey (Table 3).

**Table 4: Forum**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I did not use it	41	47,1	47,1	47,1
	I used it but not many times	30	34,5	34,5	81,6
	I used it many times	11	12,6	12,6	94,3
	I always used it	5	5,7	5,7	100,0
	Total	87	100,0	100,0	

In relation to the forums (Table 4), their usefulness was limited to only 12.6% who used them several times and to a 5.7% who always used them.

**Table 5: Video call**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I did not use it	8	9,2	9,2	9,2
	I used it but not many times	13	14,9	14,9	24,1
	I used it many times	40	46,0	46,0	70,1
	I always used it	26	29,9	29,9	100,0
	Total	87	100,0	100,0	

The video call, for example via Skype, seems to be particularly popular since 46% said it used it many times while 29.9% always used video calls, as shown in Table 5.

**Table 6: Additional- collaborative programs (for example Google docs)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I did not use it	12	13,8	13,8	13,8
	I used it but not many times	37	42,5	42,5	56,3
	I used it many times	23	26,4	26,4	82,8
	I always used it	15	17,2	17,2	100,0
	Total	87	100,0	100,0	

As far as co-operative programs are concerned, there is a group of students who said they used them. More specifically, Table 6 shows that 26.4% used them several times while 17.2% said they always used them.

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	I did not use it	4	4,6	4,6	4,6
	I used it but not many times	13	14,9	14,9	19,5
	I used it many times	34	39,1	39,1	58,6
	I always used it	36	41,4	41,4	100,0
	Total	87	100,0	100,0	

Social media are particularly popular in our days, and this is shown by the results of the survey that 39.1% said they used them several times while 41.4% said they always used it (Table 7).

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	I did not use it	69	79,3	79,3	79,3
	I used it but not many times	14	16,1	16,1	95,4
	I used it many times	3	3,4	3,4	98,9
	I always used it	1	1,1	1,1	100,0
	Total	87	100,0	100,0	

In relation to the use of other instruments, there does not seem to be any particular interest as presented in Table 8.

The results of the fifth question, which is a series of Likert-scale statements in relation to the implementation of the program, are presented in Table 9.

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Through eTwinning I learned things I could not learn at school	87	1,0	5,0	3,264	1,0616
It helped me become more social	87	1,0	5,0	3,379	1,2318
It helped me to learn a foreign language	87	1,0	5,0	3,540	1,1793
Through eTwinning I improved my communication skills	87	1,0	5,0	3,563	1,1483
ETwinning helped me better use new technologies	87	1,0	5,0	3,667	1,0192
Through eTwinning I realized that I live in a global society and I can learn a lot from this world	87	1,0	5,0	3,793	1,1426
ETwinning taught me things that will be useful to me in the future.	87	2,0	5,0	3,989	,8693
Through eTwinning I learned to respect people from other countries	87	1,0	5,0	4,000	1,0783
At eTwinning I met children from other countries and I worked with them, which I think is very good	87	1,0	5,0	4,046	1,0105
It helped me work in groups and share information with other team members	87	1,0	5,0	4,046	,9010
ETwinning helped me learn new things	87	3,0	5,0	4,264	,7227
Valid N (listwise)	87				

It should be noted that eTwinning has generally been widely accepted by the answers to the statements. The most popular statements were:

• At eTwinning I met children from other countries and I worked with them, which I consider to be very good (4,046)
• It helped me to work in groups and share information with other team members (4,046)
• ETwinning helped me learn new things (4,264)

These statements show that their pupils are very fond of getting in touch with pupils from other countries and the spirit of cooperation in general. It is also very positive that very often the issue of eTwinning programs are issues that have not been elaborated in the classroom and they consider it very important to understand them.

As far as the statements were less important, but without being negative because they were above the average, these were the following:

• At eTwinning I learned things I could not learn at school (3,324)
• It helped me become more social (3,379)
• It helped me learn a foreign language (3,540)

They are statements that relate to socialization and the acquisition of non-school knowledge (although it contradicts the statement: eTwinning helped me to learn new things). Finally, it is very important that the overall picture of eTwinning is positive.

Regarding whether the content of the program was understandable, it should be noted that all the answers were positive, so it does not need to be presented with a table. This also shows how well eTwinning is acceptable from students and that educational communities should invest even more in it. Regarding the benefits of using eTwinning, the students stated that they helped them with elements such as better understanding of the use of social media and ICT in general, as well as intercultural dialogue as they come in contact with students from other countries, which helps them to better understand culture from other countries. Then the respondents are asked to state what the problems they are most concerned about with the use of eTwinning (see Table 10).



**Table 10: Problems with implementation**

	N	Minimum	Maximum	Mean	Std. Deviation
Lack of infrastructure	87	1,0	4,0	1,862	,9785
Difficulty working with other children	87	1,0	4,0	2,023	1,1511
Lack of knowledge in new technologies	87	1,0	4,0	2,115	,9453
Lack of time	87	1,0	4,0	2,172	,9176
My parents did not support me	86	1,0	4,0	2,233	1,3344
Difficulty communicating with children from abroad	87	1,0	4,0	2,345	1,0210
Valid N (listwise)	86				

In general, it does not seem that the issues in question have been heavily concerned. Perhaps these issues that require greater understanding are the difficulty in communicating with children from abroad because they speak another language, as does the lack of support from parents. On the other hand, the issues that least concerned them were infrastructure and the difficulty in working with other children.

As far as acquiring skills, the answers are presented in Table 11 below:

**Table 11: Skills acquired**

	N	Minimum	Maximum	Mean	Std. Deviation
Writing skills	87	1,0	4,0	2,506	,9260
Communication skills	87	1,0	4,0	2,770	,8311
Reading	87	1,0	4,0	2,862	,9044
Acquiring knowledge that I learned at school	87	1,0	4,0	2,989	,9584
Use of new technologies	87	1,0	4,0	3,000	,9022
Use a foreign language	87	1,0	4,0	3,023	,9880
Valid N (listwise)	87				

It is expected that it did not help eTwinning in writing as everything is digital but it seems to have given a significant boost to acquiring new knowledge as well as to using new technologies as well as to using the foreign language.

Then the students were asked about how prepared the teachers (Table 12) were:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	83	95,4	95,4	95,4
	No	4	4,6	4,6	100,0
	Total	87	100,0	100,0	

It is especially positive that teachers were prepared and aware of how to use eTwinning and its applications, which is particularly positive for the operation of eTwinning.

The next question is the general support that existed during the program and the results can be shown in Table 13.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Exceptional	39	44,8	44,8	44,8
	Very good	36	41,4	41,4	86,2
	Good	9	10,3	10,3	96,6
	Moderate	2	2,3	2,3	98,9
	Bad	1	1,1	1,1	100,0
	Total	87	100,0	100,0	

The overall picture is that support was excellent (44.8%) to very good (41.4%). This shows that eTwinning has the appropriate support for its implementation.

Data analysis continues with the demographic analysis of the survey as presented in Tables 14 to 16.

**Table 14: Gender**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Boy	55	63,2	64,0	64,0
	Girl	31	35,6	36,0	100,0
	Total	86	98,9	100,0	
Missing	System	1	1,1		
Total		87	100,0		

As for gender, the sample consists mainly of boys (63.2%), while girls are 35.6% of the sample.

**Table 15: Class**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 <sup>th</sup> class of Primary school	43	49,4	49,4	49,4
	6 <sup>th</sup> class of Primary school	44	50,6	50,6	100,0
	Total	87	100,0	100,0	

For the pupils' class levels, 49.4% are pupils of the fifth class, while 50.6% are students of the 6th class.

**Table 16: What was the name of the eTwinning you participated in and what was the subject:**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Human Rights	38	43,7	43,7	43,7
	My city	49	56,3	56,3	100,0
	Total	87	100,0	100,0	

The survey was conducted in a sample of students who participated in previous two weeks in two eTwinning programs: Human Rights (43.7%) and My City (56.3%).

## 4.2 QUALITATIVE RESEARCH

### -Results from the focus group

The focus group study was conducted on a sample of 8 students who discussed the programs they participated in. For the purpose of this study, it has been done to decode the main phrases in order to understand what the students' experiences from this program have been. The analysis has been made on thematic axes related to research questions.

### Axis 1: Description of the program

This section provides a description of the program and its content. As stated, *"Our program was about our city and how we will make it known to our classmates. In the end, we produced a printed and electronic magazine that included general information about our city, its map, access and historical background. Also, there were suggestions for accommodation, food and entertainment complete guide to the city's attractions such as museums, churches, parks, public buildings, statues-monuments. Information about cultural events, customs and customs - traditional food and various cultural and sports clubs that are active in our city are also lacking. " It is very important that students enter into a process of discovering the city, but also get into collecting relevant information. Sure, it is a process that enhances the understanding of the cultural content of their place and of its analysis. Another report said that "the texts were accompanied by images and were also written in English. We sent the whole package in printed form with a Greek flag to get into their library. It cost us a little expensive but the parent club has covered the costs. "* At this point, support from the Parents Association appears, although in quantitative research it was mentioned that parents did not support as much as they should. Another statement stated that "our program was about human rights and, in particular, the rights of children. For example, we chose an article from the Convention on the Rights of the Child and presented it as a work of art, we worked in groups, and we prepared a list of proposals for classroom rules that are in harmony with the rights of the child. We created illustrated reference cards where on one side had a picture, and on the other a text relevant to the rights of the child and so on. The texts were written in English, the material was in electronic form and only for our use in printed form. We started in mid-November with our teacher in Social and Political Education and Master of Computer Science completing it in the middle of the year. " This

statement states how eTwinning has helped in a number of critical elements such as statehood. In this way children get conscious. Also, an important aspect is the fact that they learn to use English in practice as well as ICT.

### **Axis 2: Use social media and other media**

In both programs, students used skype and viber for their teleconferencing, email, presentations such as power point, padlet, voki, animoto and others. One description says that *"Facebook, twitter and Instagram did not use it, however, we learned the existence of many other web applications that we did not know"*. The truth is that social media is very often very toxic to students and they are paying particular attention. There are also other social media that may be more useful to students. For this reason, organizers must be particularly careful with the operation of the relevant programs.

### **Axis 3: What were the cognitive benefits?**

As far as the cognitive benefits are concerned, it was reported that *"the best of all is that we learned to speak better English and we are not afraid to use language to talk to other children. Of course, we did it well and the other kids were like us. At first, we thought that they would speak perfectly. This gave us courage. Because we had to translate our works with the help of our lady, we learned more words"*. From the answers to this question, it is clear that eTwinning helped to better understand and use the English language, which is a very basic skill and for the professional future of children. It was also reported that *"what we really liked was our computer engagement and our acquaintance with applications that were unknown to us. The computer was not just a means for Facebook but a means to create, communicate, and connect with a world we were unaware of but there is. In the end, the internet tools were playful for us, and the IT owner helped us. We were forced to work in a team, and that gave us more confidence about the outcome of our work. We learned to cooperate with each other and expose our work to compare it with others. "* A second point that seemed to be particularly useful is the fact that they gained skills in terms of better understanding of social media and more generally the use of the internet. For this reason, it is considered to be a very important benefit for the pupils' future.

#### **Axis 4: More general impression**

The overall impression is positive. As stated, *"we would very much like to participate in such a program for years, and I wish we could accommodate and host children from other countries. We were very impressed by the result, although at first, we did not understand well what was happening. I have made new friends and I hope to continue to communicate with them"*. It should be noted that the overall impression is positive for the future. What they would like would be physical contact with the future implementation of eTwinning programs.

#### **-Results from the interview with teachers**

The interview was conducted on a sample of teachers who had previous experience from eTwinning. The analysis will be made per question.

#### **1. Describe the eTwinning program you have participated in**

The interviews state that the main purpose of the program was to get children to know, understand and learn their rights, in relation to the cooperation of other peers from the countries of Europe. The very important objective of the program was to acquire and values, skills and attitudes in their everyday life and their way of thinking with the ultimate goal of becoming future active citizens who know their rights and respect their obligations. The program was attended by the students of the 6th grade and the teachers involved were: the teacher who taught Social and Political Education, the computer scientist and the English teacher. The program lasted for one year and produced rich material - printed and electronic - and presented to their classmates and parents at the end of the program. It was also mentioned that *"the main objective of the program was to capture the cultural heritage of the cities from which we come, knowing them through a rich material of electronic and printed tourist guides enriched with photos, written in the basic language of each country, English primarily and finally a multilingual vocabulary of basic communicative phrases, trying to highlight the similarities and differences concerning the cultural culture of each country. Specifically, for our city we have shown all the historical monuments, museums, parks, churches, recreation areas, etc. We used the Flexible Zone time one hour a week"*. The overall picture is that through eTwinning programs both students and teachers acquire a better picture of the surrounding environment.

## 2. How do you evaluate the effectiveness of the program?

The general experience was positive, and many teachers have mentioned how important it is to interact with another culture but also to understand the use of ICT. More specifically, it was mentioned that *"for the first time I started when I was a pupil of the 6th grade and because my parents knew very well English, I had the ability to communicate later with my colleagues from all over Europe and exchange between us our experiences. I certainly widened my knowledge of the differences in education systems in the countries of the European Union and further improved my oral communication in English as I had to use them in practice. I had previously participated in e-twinning projects in contact with students and colleagues in Europe at a more exciting time when I was fortunate to take part in a pupil exchange program in Bulgaria"*. In addition to language and intercultural dialogue, there is also a better understanding of use and ICT in a globalized environment. In particular, it is stated that *"my first experience with something beyond my country was e-twinning. The language barrier was overcome using English, so for the first time I came into contact with colleagues and students across my country. We exchanged views, information, opinions and especially realized that there is another reality beyond ours. E-twinning is an experience that has allowed me to see that I am part of a larger piece of the world and that has helped me develop my personal development and my ability to adapt to a globalized modern society. I have made many friendships and I keep contact even if the work is over. I also advise my students to take advantage of e-twinning and encourage them to make friends"*.

## 3. How do you evaluate eTwinning in terms of its effectiveness for your students?

As a follow-up to what has been said in the previous question, eTwinning has an important role in upgrading knowledge in ICT and communication. As stated, *"in my opinion, the greatest benefit to my students was that they learned the importance of programming in media and ICT respectively. Their communication skills have improved and developed. They realized that learning foreign languages opens their horizons, enabling them to communicate with them. So, they are better prepared for their future and career in general. E-twinning promotes open thinking and supplies students with a lot of resources because they communicate with peers from one end of Europe to the other, make friends and know different cultures and a different way of*

*seeing the world". Another point is that "eTwinning opened for my students the window to Europe by giving them the opportunity to communicate in a foreign language while also adding knowledge to various scientific fields such as science, culture etc. With a lot of anticipation, I remember the first virtual communication through skype with their classmates. Their level of knowledge in the use of English and ICT improved significantly. They met and made new friends, gained new experiences, and saw a different way of living than the European partners in the program. The more they liked skype conferences where, with the help of the English teacher, they had the opportunity to get to know each other. The main goal of our work of getting to know our city of others and at the same time acquiring knowledge about their own cities and their cultural culture has been achieved. In the end, the students became more responsible and more confident". More generally, it is clear that students must understand that they operate in a global society. This also means that they have to understand that they are living in a globalized society, so they should also think as citizens of the world. In this process, i.e. the transition to a model of the citizen of the world, ICT has an important role to play and an understanding of the English language, which helps eTwinning.*

#### **4. More specifically, how do you assess the skills, knowledge and skills your students have acquired?**

The interviews indicate that the students gained confidence, were ready and had no hesitation in the course of the program (at first, they were shy and afraid) to speak in front of a different audience than their classmates. Public communication, even though it is via the Internet, can hardly be developed anywhere else, even though it is needed everywhere. This gap will best cover e-twinning. Participation in the program strengthened and developed the communication skills, critical thinking and the ability of students to handle the opportunities offered by new technologies. For example, students used Animoto, Prezi, Padlet for their presentations, knowing in this way how to use online tools that they had never heard before. They are also reported to have chatted live via skype and viber, learned to make posters and to prepare with the help of their teachers a short video to present the sights of their city. have become more creative discovering new ways of acquiring knowledge. E-twinning was an entertaining way for children to learn. Another skill they developed was the translation of texts, enriching their vocabulary in English and French-German. In this way, they understood the language better through their



necessity to use it and eventually encouraged them by giving them the motivation to work and learn foreign languages. Students' attitudes towards reading changed, became more creative, gained courage and learned through practice. Finally, their co-operative skills were developed as the program required in many places' cooperation within groups. In the long run, they learned to respect different views and use business reason to support their own.

### **5. How do you evaluate the benefits of the program?**

In addition to benefiting students, the benefit to teachers was also examined. More specifically, it was mentioned that "my benefit from my participation in the eTwinning program helped me as a responsible departmental teacher first of all to improve my English and my oral communication gave me the opportunity to meet and to present my work to a group of completely unknown people. It provided me with a deeper knowledge of human rights and the ability to lead the group of my class who participated in the project. My experience was amazing not to be afraid to get involved in new adventures. I realized more deeply that the borders are artificial, around us there are people with different cultures and together we are a globalized society where we cannot have our windows closed. " It was also reported that "I realized in the best way that around me there are thousands of European teachers ready to listen to me willingly to learn and to benefit from me. This is also a two-way relationship. Even today, when I speak to you, I have been contacting two of my colleagues from Italy via Facebook (Facebook) with whom I exchange views and ideas in our quest for self-improvement in the transmission of knowledge, values and skills to our students. " These statements are clear and the fact that teachers also have a lot to gain. The program takes them out of the routine of work and allows them to look at how other education systems work. It is also possible to examine how they can transfer technical and teaching skills from other countries to their own program.

### **6. Did you have the required support? (Training, infrastructure, etc.)**

A very important parameter is the support that exists. As one teacher reported, "*With regard to support, I can say that it was excellent. There was direct communication with the program coordinator in Athens and every question that at first was many solved directly. Of course, there were training sessions to get acquainted with the eTwinning program*". Also, the other teacher said: "*In our school unit we were lucky because we had a fully equipped room with twenty-four*

computers, while in our class we had an active table. That's where we did our teleconferencing. We also had the support we received from the school management that passionately strengthened our effort by converting our connection to vdsl 50mbs". The overall impression is that there are now the necessary infrastructures for a unit to be able to host and organize a program based on the use of new technologies. In all cases the infrastructures exist, so the implementation of eTwinning is largely a matter of will.

### **7. Which media did students use more?**

Teachers were asked to state what means their students used. The answer was "*The most used medium for our conferences was skype and less the viber. The project method was selected to run it. Cooperative learning, research, brainstorming, experiential learning and artistic activity were applied. In the need to present and highlight our projects, we have used Cooperative Programs such as Google Docs*". At this point, it should be noted that teachers' responses were similar to those of their students, namely that skype and collaborative tools were the main tools used.

### **8. What the efficacy of eTwinning**

In connection with the benefit that eTwinning may have, the answers were that "*eTwinning contributes to the formation of personality. It creates experiences and new friendships for the future. Perhaps the most exciting is the discovery that neither the language nor the distance nor the country can prevent anyone from opening up their horizons, conquering new friendships, acquiring new knowledge, building bridges among the peoples of Europe. Our participation in the program was fascinating, expanded our horizons, gave us unforgettable memories and opened new paths for our future personal development*". And the second teacher mentioned that "*eTwinning allows you to escape from the strict curricula of the curriculum, teach more and more and ultimately more freely than the textbooks suggest. Another benefit could be the ability of the individual to think critically, to make public speeches without fear. My experience has shown that it makes you more open and receptive to new ideas in a world that constantly changes at a dizzying pace*". In this issue, there seems to be a consensus with students that eTwinning brings many benefits to students both in terms of communication skills and ICT use, and in particular in learning to work in groups and especially in an international environment.

## 9. How can eTwinning improve in the future?

Finally, respondents are asked to state how these programs can be improved, always in their view. The answer was that *"if a program could be funded by the European Union as it clearly serves its purpose and bringing the peoples of Europe together. Also, joining the formal curriculum could involve more educators and consequently more students benefit from its benefits"*. The answers contradict those given by the students who emphasized the need for more physical contact.

## 5. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The experiences are positive from both groups. If there is a dimension, this is from a part of the teachers who encounter some difficulties in using the new technologies and especially the integration of the new technologies in the curriculum they have designed. It is a program that is judged to be particularly important and this is commonly accepted by all respondents. The fact that its idea is based on the cooperation of the schools gives itself a particular value and creates a program that is particularly effective in promoting school co-operation. The study aimed at a very important function of modern technologies related to the educational process in the member countries of the European Union but also in other European countries, which is e-twinning. The operation of this platform can bring multiple benefits to participants in this program. Before analyzing the empirical research data, a brief description of the program should be made.

The purpose of eTwinning is to bring students from different European countries together to work together to implement a project. The implementation of the project can be done by using a special platform from the European Union, as well as other applications related to student communication, such as the use of collaborative tools and communication through Skype. One particular detail is the fact that the first students to implement are related to particular issues such as the environment and culture. Indeed, in many cases, issues are taught at school and do not allow them to process them. This means that the benefits of implementing eTwinning are multiple.

It should be noted that there is no particular difference with how it is implemented in other EU countries. The reason is because it works on a particular platform and there are specific

specifications (Teacher Training in ICT, 2018). Indeed, although there is a picture that Greece lags behind reforms and the use of ICT, the reality for the operation of eTwinning in our country is that there is a very high level (ETwinning Net., 2018) as the country is dynamically participating in the start of the program. In terms of this use, schools put particular emphasis on programs that are not taught in the curriculum but also value the pupil, as we have seen in the case of the human rights program and the program to teach children the city who reside and promote it to other schools that participated in the program. It is also very positive that there is now infrastructure to make eTwinning work in an effective way, as shown by Alamantariotou et al., (2014). In a recent study, Manca & Ranieri (2017) refers to the fact that eTwinning now relies heavily on social media focusing on co-operation. It should be noted that for many parents and educators, social media is considered as something negative and for this reason they often discourage them. However, as reported by Vuorikari et al (2015), social media is not just facebook, but there are many pedagogical tools such as collaborative tools. Indeed, this research shows that collaborative tools, as well as skype applications, which are essentials rather than fun (such as Facebook and istangram) were the ones most used. So, there has been a realistic use of social media for communication and collaboration.

Another negative observation is that the current program can also be used outside of school, mainly in students' homes. That means that they can have access from everywhere there is an Internet connection and thus there is not a monitoring from their teachers. Such openness, caused some problems, mainly between the students from Turkey and Greece. These groups of students, due to historical reasons, made negative nationalistic and critical discussions and comments.

As regards the effectiveness of the program for students, as reported by a number of surveys (Kearney & Gras-Velazquez, 2015; Heindl, 2018; Boffo et al, 2018), referring to the high degree of satisfaction among the participants the programs. This is confirmed by this study, which has a particularly high level of satisfaction, both by teachers and by students. Concerning the teachers that had not be participated in this process, they were very hesitant about this trend, mainly due to lack of IT knowledge and due to their persistence in traditional methods of teaching.

More generally, this research was conducted on a sample of pupils and teachers from schools in Northern Athens who had participated in the program. The aim was to have a more general

picture of the functioning of eTwinning both on the part of the students and on the part of the teachers who implemented it. Indeed, it should be noted that the research shows that the beneficiaries are not only the pupils but also the teachers.

The first general conclusion is that students are particularly pleased with the operation of eTwinning as well as the end-result benefits that have existed. From quantitative and qualitative research, it can be said that the benefits that have been made are very specific and are as follows with regard to students. The first benefit is the benefit of communicating in a different language, with pupils and teachers outside the cultural context in which the students reside. The fact that students have done a project with (other country pupils) their classmates from other countries means that they have been conducting an intercultural dialogue with the other students as well as having learned to use (using) the English language that was main language of communication with the other groups. It is easy to understand that it is very important for pupils to be able to use the English language and to interact with pupils from other countries. Another benefit that has been recorded is that of using modern technological means. In order to be able to implement a project in eTwinning, students should learn to combine the use of a number of applications related to new technologies. Indeed, research has shown that students have not only limited to the most common applications, such as email, but have also used some more developed ones such as collaborative tools and the use of video calls. All these are tools that are useful both for social development and for the professional recognition of today's young people. Indeed, the fact that students can use them in the fifth and sixth primary class level means certainly a significant benefit. At the same time, students understand that new technologies are not just fun, but they ultimately help them work together and deliver a project that benefits both society and themselves. An additional benefit that eTwinning offers to students is to acquire knowledge that is not within the school curriculum. Both programs developed by the present work were aimed at studying the students such as the culture and monuments of their city or human rights. This means that students developed skills related to social research. Indeed, these works are of value not only to students but also to the whole of society. For example, learning pupils better about the city they live in and presenting them to students from other countries means that the city itself wins from viewing abroad but also from the fact that its students will learn better secrets of the city. So far, the benefits have been reported for pupils, but also for society itself. A particular aspect that has been addressed is the benefits for teachers. Indeed, it can be said that it is an

aspect that was investigated as originally envisaged in the objectives set. Indeed, research has shown that there are significant benefits for teachers as well. The benefits can be gained from the very simple benefits of improving their skills in relation to the use of new technologies, but there are many other benefits, such as the fact that they come in contact with other education systems and can be passed through practices that use schools located in other European countries, especially those in northern Europe. At the same time, it should be mentioned that for teachers eTwinning is an opportunity to escape from the everyday life of how many creative people can become outside the school curriculum. A particular issue is language. Although students seem to have no communication issues, there were teachers who shared Crisan's (2013) view that language influences the effectiveness of eTwinning, and that a portion of teachers have limited skills and knowledge in new technologies. Of course, the main problem is language that restricts communication or creates problems in the implementation of eTwinning projects.

The overall impression from this research is the fact that eTwinning has much to offer to students and educators as well as that it offers substance benefits related to their skills and knowledge where the participants have it. But it should also be considered what should be done to continue the same is to be both creative and efficient. The more general picture is that when an educational system works correctly and effectively because of a lot of changes, but some special additions. What many students have mentioned is physical contact with the schools with which they collaborate in eTwinning. Of course, it should be mentioned that the e-twinning philosophy is to implement projects through remote collaboration with the use of related distance learning technologies. Finally, there is the particular question that physical contact between students greatly increased the cost of running the program, which has the effect of influencing its overall functioning. In this case, some resources should be sought in order to bring in contact between schools that also present very original, innovative programs and ideas within the framework of this program.

In the case of a future study, teachers' satisfaction should be examined, as Drivas et al (2018) reports that many surveys focus on pupils but not the benefits to the teaching staff. This is why our proposal for future research on this issue. The most important results related to e-learning and communication are related to participation in debates regarding the duties of teachers in these communities. In general, learning facilitation and direct instructions have a strong

correlation with the participants' satisfaction with electronic communication at eTwinning. Consequently, electronic communication is a strong indicator of satisfaction. Providing helpful and creative feedback and assessing teachers' contribution is an effective technique that teachers use online as part of their educational role and teaching experience. Especially in electronic environments, informative feedback should be provided in time as this process is critical compared to face-to-face discussions, as learners may feel isolated due to the nature of the media. We also have to say that teachers are likely to be more satisfied when there is a good feedback quality offered by the program facilitator, so the importance of mediation should also be explored.

## REFERENCES

1. Abrami, P. C., Bernard, R. M., Bures, E. M., Borokhovski, E., & Tamim, R. M. (2011). Interaction in distance education and online learning: Using evidence and theory to improve practice. *Journal of Computing in Higher Education*, 23(2-3), 82-103.
2. Alamantariotou, K., Lazakidou, A., Topalidou, A., Kontosorou, G., Tsouri, M., Schuldt, M.M. & Samantzis, C. (2014). Collective Intelligence for Knowledge Building and Research in Communities of Practice and Virtual Learning Environments: A Project Experience. *International Journal of Health Research and Innovation*, 2(1), 51-64.
3. Anastasiades, P. (2004). Implement a Hybrid Learning Environment in Higher Education: A Pilot Methodology for Teaching the Course "ICT and Distance Learning" at the University of Crete. *The International Journal of Learning*, volume 10: 297-304.
4. Anastasiades, P. (2009). *Interactive Videoconferencing and Collaborative Distance Learning for K-12 Students and Teachers: Theory and Practice*. NY: Nova Science Publishers.
5. Anderson, T. (2009). The dance of technology and pedagogy in self-paced distance education. . Paper presented at the 17th ICDE World Congress, Maastricht.
6. Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. *The International Review of Research in Open and Distributed Learning*, 12(3), 80-97.
7. Arvanitis, S., & Loukis, E. (2017). *Factors Explaining ICT Expenditure Behavior of Greek Firms During the Economic Crisis 2009–2014*. In International Conference on e-Democracy (pp. 255-271). Springer, Cham.
8. Balanskat, A., Blamire, R. & Kefala, S. (2006). The ICT Impact Report. A Review of Studies of ICT Impact on Schools in Europe: Brussels, European Schoolnet. Retrieved from: <http://unpan1.un.org/intradoc/groups/public/documents/unpan/unpan037334.pdf> (25/05/2018)
9. Camilleri, R. A. (2016). Global education and intercultural awareness in eTwinning. *Cogent Education*, 3(1), 12-19.
10. Crawley, C. & Morvan, C. (2011). eTwinning Projects. *Enabling Schools, Teachers and Pupils to Learn Together*. Brussels: Central Support Service for eTwinning.
11. Crawley, C., Gilleran, A., Scimeca, S., Vuorikari, R. & Wastiau, P. (2009). Beyond School Projects. *A report on eTwinning 2008-2009*. Brussels: Central Support Service for eTwinning (CSS) & European Schoolnet. Retrieved from: [http://resources.eun.org/eTwinning/25/EN\\_eTwinning\\_165x230\\_Report.pdf](http://resources.eun.org/eTwinning/25/EN_eTwinning_165x230_Report.pdf) (20/05/2018)
12. Crawley, C., Gilleran, A., Wastiau, P. (2011). Pupils in eTwinning. *Case Studies on Pupil Participation*. Retrieved from [https://www.eTwinning.net/files/EN\\_eTwinning\\_Report\\_2012.pdf](https://www.eTwinning.net/files/EN_eTwinning_Report_2012.pdf) (24/01/2018).

13. Crisan, G. I. (2013). The Impact of Teachers' Participation in eTwinning on Their Teaching and Training. *Acta Didactica Napocensia*, 6(4), 19-28.
14. Cruz-Jesus, F., Vicente, M. R., Bacao, F., & Oliveira, T. (2016). The education-related digital divide: An analysis for the EU-28. *Computers in Human Behavior*, 56, 72-82.
15. European Commission (2013) *Study of the Impact of ETwinning on Participating Pupils, Teachers and Schools*, Luxemburg:Publications of the European Union
16. European Commission (2014) *Activity Plan for eTwinning National Support Services for 2014* [online] [http://ec.europa.eu/education/calls/s1013\\_en.htm](http://ec.europa.eu/education/calls/s1013_en.htm) (accessed 25 -6- 2018).
17. Flecknoe, M. (2002). How can ICT help us to improve education?. *Innovations in education and teaching international*, 39(4), 271-279.
18. Jensen, B. B., & Simovska, V. (2005). *Action-oriented knowledge, Information and Communication Technology and Action Competence: A Young Minds Case Study. In Health Promoting School: International Advances in Theory, Evaluation and Practice*. Danmarks Pædagogiske Universitets Forlag.
19. Komninou, I. (2010). *New pedagogical theories in practice: multiple intelligences and eTwinning. Multiple Intelligences a challenge for eTwinning*. eTwinning learning event.
20. Kumar, R. (2008). Convergence of ICT and Education. *World Academy of Science, Engineering and Technology*, 40(2008), 556-559.
21. Lee, A. R., Son, S. M., & Kim, K. K. (2016). Information and communication technology overload and social networking service fatigue: A stress perspective. *Computers in Human Behavior*, 55, 51–61.
22. Lionarakis, A. (1998). Polymorphic Education: a pedagogical framework for open and distance learning. In A. Szucs & A. Wagner. (Eds). *Universities in Digital Era: Transformation, Innovation and Tradition Roles and Perspectives of Open and Distance Learning*, Proceedings of the 7th European Distance learning Network (EDEN) Conference, University of Bologna, Italy, 24-26 June 1998.
23. Murayama, K., Blake, A., Kerr, T., & Castel, A. D (2016). When enough is not enough: Information overload and metacognitive decisions to stop studying information. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 42(6), 914-924.
24. Oliver, M., & Trigwell, K. (2005). Can 'blended learning' be redeemed?. *E-learning and Digital Media*, 2(1), 17-26.
25. Papadakis, S., Xanthopoulou, P., & Baxevani, K. (2021). A Technologically Supported Differentiated Flipped Classroom (Fliperentiation) in Vocational Education. Yilmaz, R. (2017). Exploring the role of e-learning readiness on student satisfaction and motivation in flipped classroom. *Computers in Human Behavior*, 70, 251-260.
26. Stamelos, G. Eleni Prokos (2011). Social Dimensions of Policies in Higher Education: Comparative and International Approach Publications Dionikos, Athens 2011. *Social Cohesion and Development*, 9 (1), 90-92.
27. Tsapra. Ch. (2011) Development of environmental education activities through distance learning programs: H case of eTwinning, Thesis, Patras: HOU
28. Velea, S. (2011). ICT in education: responsible use or a fashionable practice. The impact of eTwinning action on the education process. In ICVL. Proceedings of the 6th International Conference on Virtual Learning. Bucharest: University of Bucharest Publishing House.
29. Voogt, J., Knezek, G., Christensen, R., Lai, K. W., Pratt, K., Albion, P., & Resta, P. (2017). The International Handbook of Information Technology in Primary and Secondary Education: Part 2. In Society for Information Technology & Teacher Education International Conference(pp. 1082-1085). Association for the Advancement of Computing in Education (AACE).
30. Vuorikari, R., Gilleran, A. and Scimeca, S. (2011) *Growing beyond innovators – ICT-based school collaboration in eTwinning*, in Kloos, C.D., Gillet, D., Crespo García, R.M., Wild, F. and Wolpers, M. (Eds.): *Towards Ubiquitous Learning*, Vol. 6964, pp.537–542, Springer, Berlin, Heidelberg.
31. Vuorikari, R., Kampylis, P., Scimeca, S., & Punie, Y. (2015). Scaling Up Teacher Networks Across and Within European Schools: The Case of eTwinning. *In Scaling Educational Innovations* (pp. 227-254). Springer, Singapore.
32. Zhang, J., Yang, J., Chang, M., & Chang, T. (Eds.). (2016). *ICT in Education in Global Context: The Best Practices in K-12 Schools*. Springer eBooks.