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Master Thesis in Informatics

ICTs use in the public Greek Primary Schools: the teachers' experiences

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Abstract

Education is a sector that has the potential to become a critical area of action for the full exploitation of ICT. Educational systems of developed and developing countries have an ever-increasing tendency to apply ICT to education, in an attempt to prepare their students for the future's society. This thesis attempted to explore what kind of ICT is used in the Greek Primary Schools and develop an understanding on the relationship between the ICT and the teachers. The philosophical background is post-phenomenology and the methods chosen for collecting data for this research are policy document analysis and interviews. The empirical findings show that various ICT are being used in the classrooms of the Greek Primary Schools, others widely and others occasionally. The research compares the legal framework revolving around ICT in Primary Schools in Greece, with the teachers' own experiences and shows that the guidelines suggested by the Greek Ministry of Education cannot be followed easily, due to economical and pedagogical reasons. It also investigates the ICT's effects on the teachers and the students through the teachers' own words and perceptions. The effects are mostly positive, there are mentioned however, some negative ones to take into consideration. Finally, the research presents a number of sectors where the participant teachers suggested there is room for improvement. By comparing the legal framework with the situation in the Primary Schools, this research adds a new perspective to the previous literature. The findings show that the current situation can be improved and the teachers' statements may trigger further research.

Keywords

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Georgios Agiorgitis.

List of Abbreviations

ICTs	Information and Communication Technologies
IS	Information Systems
IT	Information Technology
PTA	Parent-Teacher Association
ADHD	Attention Deficit - Hyperactivity Disorder

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1 Introduction

This chapter introduces the subject of the thesis, the reasons for its choice, and the research questions.

A characteristic that defines our era is the fast transmission and reproduction of information with the assistance of a vast variety of technological means (Easton, 2011). Education could not remain unaffected from the technological developments of this era, since its purpose is to prepare the future citizens for the world they will live in, a world where technology affects almost every aspect of everyday life. It had become an imperative need for education to adapt to this world and incorporate Information and Communication Technologies (ICT) in the classrooms, in accordance to the requirements of society (Kreps & Kimppa, 2015).

This rapid evolution of technology has enabled education to become more personalized, more interactive and more fast-paced (McCarthy et al., 2017). Education is a sector that can receive maximum benefits from the use of technology, as Eady and Lockyer (2013) highlight the importance of technology in education, allowing teachers to device new educational strategies and learning plans.

More specifically, primary education is considered to be the first most important educational entity as it is entrusted with the crucial duty to produce knowledge, support students in developing educational and cognitive motivation, help them with the transition from kindergarten to school life and assist them in shaping the basic elements of culture and human perception of society and the world (Clifford-Amos & Duda, 2011).

In this context, teachers are assigned with the demanding task to keep up with modern ICT implementations in their schools and to constantly adapt their skills and competencies to successfully integrate this technology into their teaching patterns (Simin et al., 2016). This process, the use of digital technologies by the teachers is a complex situation with various parameters, challenges and external factors affecting it (Salavati, 2013).

1.1 The Research Problem

Konrad (2007) supports that until recently, not much had changed since chalkboards were incorporated into Prussian classrooms at the end of the 18th century. With the dramatic evolution of technology however, ICT has challenged many traditional teaching methods and practices, in hopes to

improve the educational system (Mujis et al., 2014). The call of such high hopes allowed and -in some cases forced- the world's policymakers and educators to incorporate computers into classrooms, requiring new research to examine the new forms of pedagogical practices that recently became available through ICT (Anderson & Simpson, 2012). During this process of incorporation, obstacles have emerged. These hurdles are encountered in many countries and they mainly divided into four categories: lack of financial resources, poor access to the Internet, lack of policies and lack of trained teachers (Gulati, 2008; Kozma, 1999).

In Greece, my country, ICT has made its way into the classrooms with slow but steady steps over the last 20 years (Abbasi et al., 2015). Over these two decades, the Greek Ministry of Education has always attempted to incorporate the use of ICT -besides the Informatics course- in the teaching process of all the other courses of the educational curriculum (ibid, 2015).

However, the incorporation and implementation of ICT in the educational process has not proved to have the desired effect. International and Greek studies have shown that ICT are under-used in Primary Education (Vosniadou & Kollias, 2001; Pelgrum, 2001; Conlon & Simpson, 2003; Muir-Herzig, 2004; Hayes, 2007). In the same context, the study conducted by European Commission Directorate General Communications Networks, Content and Technology in 2015, depicts the situation: students in Greece have relatively low level of access to computers compared to the EU average. Despite the infrastructure obstacles though, encouragingly high percentages of students are in schools where both teachers and students use ICT.

In addition, the teachers' adoption of new technologies can be a "multifaceted undertaking" (Gaffney, 2010). The factors that can affect the teachers' use of ICT are the individual's personality, professional knowledge, experiences, relationships and specific contexts (Mishra & Koehler, 2006; Gaffney, 2010; Hamilton, Roseberg & Akcaoglu, 2016). Similarly in Greece, different ICT used in different schools, combined with factors such as the individual teacher's age, motive and willingness to adapt, have created an unequal picture in the Greek educational system (Demetriadis et al., 2003). These imbalances create a problematic situation and generate questions about the actual use of ICT in Primary Schools in Greece.

Therefore, in order to explore the matter of the educational incorporation of ICT with the focus on Greek Primary Schools, the teachers perspective is

important to be examined. Teachers are the main actors in the educational process and the factors influencing their decisions on the pedagogical use of ICT have to be investigated.

1.2 Aim and Research Questions

The aim of this study is to *explore the relationship between the Greek Primary School teachers and the ICT used in their schools and examine from the teachers' point of view and experiences, how do they affect each other*.

In order to achieve this aim, the following two research questions are examined:

- *What kind of ICT is used in the Greek Primary Schools?*

- *What are the teachers' experiences on the use of ICT regarding the educational process?*

By collecting data directly from the source, the teachers, this study aspires to present its findings about the aforementioned teacher-ICT relationship and if and how does ICT impact their educational strategies, methods and processes. It is a research that attempts to delve deeper into the teacher - ICT relationship in a era in which the transition from the traditional ways of teaching to the new era is still ongoing and teachers are adapting to the new technologies incorporated in their classrooms.

1.3 Scope and Limitations

This research focuses on the experiences of the teachers related to ICT in the Greek Primary Schools. To achieve this, it attempts to explore qualitatively and present the perceptions, opinions and beliefs of the teachers.

The research is limited to the teachers' viewpoints only and the results might have been different if another groups' viewpoints e.g. the students', were included. Another limitation is the geographical boundaries in which the study unfolds. It only includes Greek Schools, so the study revolves around the Greek context only. Furthermore, it is limited to Primary Education, not taking into account possible differentiations that may appear in higher levels of the educational ladder.

1.4 Thesis Structure

The following chapters are structured as follows:

Chapter 2 includes the literature review of the research topic. This chapter summarizes the findings of some of these papers indicatively and also focuses on an aspects of importance: the risks and opportunities that emerge from ICT use in schools, as well as the barriers and challenges faced by the teachers when incorporating ICT into the classrooms. Finally, it narrows down the geographical scope to Greece and presents the work of researchers relevant to the Greek context of ICT in education.

Chapter 3 presents the methodological research approach that was followed. The research setting is described and the data collection methods as well as the process followed when applied are included. Additionally, I refer to this research's validity and reliability value. Finally, the ethical issues taken into consideration when the researcher conceived and applied the aforementioned methods are also included.

Chapter 4 includes the policy document analysis and a summary of its findings.

Chapter 5 includes and summerizes the empirical findings of this research as they have emerged from the data collection process.

Chapter 6 contains the discussion concerning the findings in correlation with the literature review and the document analysis.

Chapter 7 concludes this research, answers the research questions and presents the contribution as well as suggestions for further research.

2 Theoretical Framework

This chapter describes the philosophical approach followed in this research and includes an explanation of what phenomenology and post-phenomenology is, along with the reasoning behind the selection.

2.1 Phenomenology

The philosophical approach most relevant to this research's setting is the phenomenological approach. Phenomenology revolves around the intent to understand phenomena in their own actual terms and describe human experiences as experienced by the person in focus (Bentz & Shapiro, 1998). Developed by the German philosopher Husserl (1859–1938), phenomenology supports the belief that in order to arrive at a certainty about something, anything outside the immediate experience has to be ignored and rely on the individual's consciousness (Fouche, 1993). Conciousness is an important concept in phenomenology and is considered to be the means of access to anything that is given to awareness (Giorgi, 1997). People can be certain about the way objects and ideas appear in the minds and conscousness, while realities are treated as pure phenomena, which is also how phenomenology got its name from, the science of pure phenomena (Eagleton, 1983). Phenomenology attempts to understand the people's views and perspectives on social reality (Willcocks & Mingers, 2004; Verbeek, 2006). According to Giorgi (1997) phenomenology refers to the lived experiences of a person. It is concerned with the analysis of how things are experienced, as well as the meaning they are given from the indicidual (ibid, 1997).

This study attempts to gather data about the teachers' experience with ICT through their own eyes, using their own words and feelings. The phenomenon of ICT use in the Greek Primary Schools will be examined through the teachers' experiences and perspectives, in order to understand the meanings that the teachers assign to ICT. The intent is to present results that are true and based on the participants' real, daily and constant friction with ICT and not just a statistical analysis, therefore phenomenology would have been a strong candidate to draw upon.

2.2 Post-Phenomenology

For this specific study, a more suitable approach as a hybrid, modified phenomenology is post-phenomenology. Since the philosophy of technology

has emerged and strengthened its position in the research field over the years, phenomenological approaches had to adapt to match the new standards and reflect the historical and technological changes in the 21st century. Idhe (2012) equates post-phenomenology as "pragmatism + phenomenology". Post-phenomenology has the potential to analyze the role of technology in cultural, social and personal life and avoids certain vague spots in phenomenology that could lead to misconceptions and inadequate and one-sided understanding of technology (ibid., 2012). Phenomenology has received criticism for those vague spots, based on that its *descriptivism* tends to ignore, or make it difficult to propose, normative issues - politics, ethics, social issues do not seem to be a phenomenological *forte* (Idhe, 2012). Classic phenomenology has attempted to understand technology in terms of its potential and its possibilities (Verbeek, 2007). Idhe (2015) argues that post-phenomenology is the answer in this attempt, since it is concerned with how technology shapes our actions, choices and subsequently, experiences of the world. Additionally, it includes questions related on how can technology serve our purposes, but at the same time it has an influence on us. He states that post-phenomenology had to emerge as a philosophical response to the technological advance and change and that it finds a way to analyze the role of technology in personal, societal and cultural life (ibid., 2009).

What is being done in this research though is not a study of ICT in the classrooms on a theoretical level, but an analysis of what they actually do and the interrelated relationship between ICT, teachers and their environment. ICT plays a mediating role in this relationship and this role can be truly visible if the philosophy around them thinks from the perspective of things (Verbeek, 2007). By adding pragmatism into the equation, post-phenomenology reveals a way to contain the possible misunderstandings in phenomenology, derived by its nature as a subjectivist philosophy with traces of idealism or solipsism (Ihde, 2009) and therefore, it is suited better for the current research.

With this research, I want to examine the ICT use in the Greek Primary School classrooms and how do the teachers perceive their existence and use these ICT. They come in daily contact with ICT, therefore there is a two-way relationship between them: they use technology for their own purposes and at the same time, technology has an influence on them. My intention is to explore and understand this phenomenon of human-technology interaction, as well as its meaning through the views of the teachers themselves and gather their opinions, thoughts and perspectives. Therefore

the qualitative approach and post-phenomenology are best suited for my research.

3 Literature review

In this chapter I will give a review on relevant literature on ICT in education. Starting with general works about the subject, I later shift my focus to teachers and ICT, then students and ICT. I continue by presenting literature on opportunities and risks related to ICT in Primary Education as well as the challenges that teachers encounter in relation with ICT and the variables influencing them. I end this chapter with some studies that are relevant to Greece and provide some statistical data for the country's educational system.

3.1 Technology in Education

ICT has not been specifically designed for educational purposes (Christensen, Horn & Johnson, 2008). However, its use in teaching and learning has gradually become a basic component in educational policies and an object of scientific research (Laurillard, 2012). ICT is considered to be not only the backbone of Information Society, but also an important asset and tool for inducing reforms that improve the educational system (Pelgrum, 2001).

Computers were introduced in schools in the early '80s in the United States and since then, they have become an irreplaceable asset for the educational system, providing the means to improve teaching and learning (Lefebvre, Deaudelin & Loiselle, 2006). They could also support communication between students and teachers in ways that have not been possible before (Dawes, 2001).

ICT can be generally defined as "a diverse set of technological resources and tools used in order to communicate and to create, store and manage information" (Blurton, 2002). In the educational sector, these tools and resources are numerous. Computers, projectors, monitors and televisions, printers, cameras are some of the hardware used, while the Internet, educational software and blogs are some of the software enrolled to assist in the educational process (Tinio, 2003; Eady & Lockyer, 2013). However, ICT's true strength lies in the fact that they can cooperate and complement each other, providing the teacher and the student with a full arsenal of pedagogical choices and suggestions to serve the needs of each individual separately (Jóhannsdóttir & Skjelmø, 2004).

ICT have changed the contemporary education's environment, being a catalyst in the schools infrastructure and contribute greatly in the evolution and the modernization of the educational system (Panetsos, 2001). Its incorporation in the educational process is considered obligatory according to Lionarakis (2001) since ICT increases competitiveness between the national educational systems, also increasing the quality of the education overall. It overcomes geographical borders and time boundaries, offering the same quality education to every student, and ICT prepares the future citizens and equip them with the invaluable knowledge and skills, necessary for entering today's "Information's Society" in which they are asked to live and work into (ibid., 2001). Anthony (2012) also emphasized the importance of ICT in education, stating that ICT removes problems concerning time and space, it facilitates access to knowledge and it makes serving and sharing knowledge easier.

The incorporation and use of new technologies in classrooms is essential for providing the students with opportunities to learn to operate in the information age we live in (Koutsoukou, 2014). Studies highlight the importance of ICT in education, especially in comparison with the traditional educational environments and show that the potential to enhance modern teaching methods is greater when ICT is present (Bransford, Brown & Cocking, 2000; Yelland, 2001; Karanezi, 2014). In addition to enhancing the pedagogical practice, ICT can also assist students directly with their learning. Technology has proved to play its role in student skills, motivation and knowledge and can be used to help students complete learning tasks (Grabe & Grabe, 2007; Bietenbeck, 2014), become knowledgeable, reduce the amount of instructions given directly to them and find help without the intervention of the teacher (Shamatha, Peressini & Meymaris, 2004; Romeo, 2006).

Over the years, the pedagogical curriculum in schools has changed in order to adapt the technological advances. According to Gillespie (2006), new technologies allow students to collect information and interact with resources, instead of just searching for them, as well as communicate and collaborate better. A great example is the Internet, which is used both as a reference source and as a means of communication (Murphy, 2006). Students are motivated because of the interactive nature of ICT, think more clearly and develop better data analysis and interpretation skills (Newton & Rogers, 2003).

3.2 Teachers, Students and ICT

Teachers have always used technology: traditional technology until recently and a combination of traditional technology with digital technology now (Laurillad, 2012, Bates, 2015). As technology improves and evolves, the same is required from the teachers as it happens to every professional. They have to play new roles and hone new different skills and styles (Jarvis, 2006). With every new technology introduced in the classrooms, the student-teacher-technology relationship changes (ibid, 2006).

Argentin, Gui & Tamanini (2013) point out that the availability and existence of ICT does not affect the students' learning and performance *per se,* but their effects depends on the way they are incorporated and used in the learning and teaching process. ICT has the possibility to improve teaching and consequently have a positive impact on the students' learning by enhancing the traditional ways of teaching or by introducing new and improved ones (ibid., 2013).

Argentin, Gui & Tamanini (2013) classifies this teacher-technology relationship into five dimensions, according to their pedagogical innovation: The first and most common dimension of the ICT use from the teachers is happening in the "background" of their teaching activities. This includes lesson preparation by using the computer (printing, creating slides etc.) in order to make the lesson more attractive, unique and complete for the students and at the same time, they improve their skills by customizing their teaching to be more effective. More than 95% of European teachers state that they prepare their lessons by using digital tools (European Schoolnet, 2013; Balanskat, Blamire & Kefala, 2006). Teachers believe that the lesson's preparation online is affecting positively their teaching's quality (Condie & Munro, 2007). The second dimension of ICT use in the classrooms relates to knowledge sharing. Digital tools can support the transmission of information and concepts effectively and efficiently and teachers plan their lessons with greater accuracy (Higgins et al., 2007; Balanskat, Blamire & Kefala, 2006). Additionally, the lesson becomes more attractive for students (Balanskat, Blamire & Kefala, 2006), having a clear impact on intermediate outcomes like the student's motivation and behaviour (Condie & Munro, 2007). On the same context, interactive boards have positive effects on the student's motivational levels, by being more attractive due to the visualization (Smith, Hardman & Higgins (2006). However, there are doubts about this students' enthusiasm, since it is provoked from the "novelty factor" (the excitement that something new brings) and it will consequently vanish when ICT in schools will not be a

novelty anymore (DiGregorio & Sobel-Lojeski, 2009). The third dimension of ICT use in the classrooms revolves around students and their active involvement with technology. Balanskat, Blamire & Kefala (2006) states that teachers usually do not exploit the creative potential of ICT to its fullest, since they do not engage students actively in the production of learning. The active use of ICT for knowledge production by the students is still under research while a number of studies have even associated negatively the frequency of ICT use by students at schools and the learning outcomes (OECD, 2011; Biagi and Loi, 2013; Gui, 2013). A fourth dimension relates to "media education" practices. The presence itself of ICT in the classrooms can trigger a discussion between students and teachers about digitals opportunities and risks, since children seem to have a particularly low level of awareness about them (Calvani et al., 2012; Gui, 2013). There is evidence among studies that digital supportive teachers have more digitally aware students (Argentin, Gui & Tamanini, 2013), which result in a higher level of critical digital skills and practices amongst students, having a direct positive impact on their learning outcomes (Pagani & Argentin, 2015). The fifth and last dimension of ICT use in schools is related to ICT as a means for communication between teachers and their colleagues, teachers and their students and teachers and their students' families. Only a small proportion of teachers report that they use ICT to increase their collaboration with other teachers, students and parents. Condie and Munro (2007) report that they are positive effects on the quality of teaching when there is communication through ICT. In addition, students and teachers benefit both from established home-school link using ICT.

3.2.1 Teachers and ICT

Studies have researched the role of teachers in contemporary classrooms and their relationship with technology. Teachers have always used technology in one way or another: traditional technologies until a few years ago and digital technologies in correlation with traditional technologies now (Laurillad, 2012; Bates, 2015). The effects of ICT on them are summarized by Gibson (2001) as the ways that digital technologies affect and influence the teachers:

- They expect more from the students, like understanding more difficult concepts
- They can reach out to the needs of every individual student more effectively
- Their teaching is more student-centered

- The material they present is more complex and they are willing to experiment with new material
- They are open to different and multiple perspectives and views on problems
- Their professional level is increased since they assist their students in the learning process rather than transmit knowledge

Traditional versus modern teaching styles have been in the centre of research by educational researchers, presenting results showing that the teaching style matters (Pagani & Argentin, 2015). Tondeur et al. (2008) distinguishes two different beliefs related to teaching: *traditional teaching*, being more teacher-centered, and *constructivist teaching*, based on a student-centered approach. According to the authors, teachers close to traditional teaching tend to have low technology incorporation rates in their teaching practices and use ICT mostly as a learning tool. In comparison, teachers adopting a constructivist belief use digital technologies more frequently and use ICT more as instructional and information tools (Tondeur et al. 2008).

On the same context, the teachers' pedagogical beliefs play a key role in the ICT integration in the classrooms, in whether and how they will use technology in their educational practices (Deng et al., 2014; Inan & Lowther, 2010). According to Ertmer et al. (2015) and Lin, Wang & Lin (2012) teachers select certain ICT that complement their educational methods, but also ICT that align with their beliefs about "proper" education. The role technology plays in the classrooms is closely related to the teachers' conceptions and beliefs on the nature of teaching and learning (Tondeur et al., 2016).

Researchers have also been concerned with the difficulties faced by the teachers when trying to implement ICT in their educational practices. These difficulties are related with the plethora of the existing ICT as well as their various uses (Ward & Parr, 2010). Sipilä's (2014) research points out that teachers with advanced digital skills tend to use more frequently ICT in their teaching, there are differences however related to the different forms of ICT and the use on different subjects/ courses. Bates (2015) argues that in order to take full advantage of the features that ICT has to offer, the appropriate use of technology is critical. Identifying the appropriate technology for the appropriate task is a complex challenge (Griffin, 2003). As Bates argues, ICT are *tools* that can be applied and used variously and serve many purposes. Thus, the way a certain technology could be used or is being used must be considered when judging its value (Bates, 2015).

In terms of students' performance, Falck, Mang & Woessmann (2015) measure student achievements in relation to ICT use in order to explore the rate that ICT contribute in their performance. They found out that ICT is beneficial when used to look up information and ideas, but detrimental when their use is related to skill practice. Thus, teachers are the critical factors when using ICT in the classrooms, since the productive or unproductive use of computers and ICT in general relies on them (Falck, Mang & Woessmann, 2015).

From a study conducted in Cyprus, Vrasidas (2015) reports that the ICT-related challenges that the teachers face frequently include lack of time, technological support, difficulties to match the school curriculum and lack of teachers' training. Additionally, Salavati (2013) also addresses challenges as the lack of time, lack of in-service education and training and highlights the need for new pedagogical models. Similar findings are presented by Wastiau et al. (2013) based on the *Survey of Schools: ICT in Education* commissioned by the EU. Some specific challenges and barriers faced by the teachers are described more extensively in chapter 2.4 *Barriers and Variables in ICT Incorporation*.

3.2.2 Students and ICT

ICT's effects on the students are examined by Majumdar (2015) who states that ICT tend to improve learning, motivation, collaboration between students and create a student-centered learning culture. ICT shifts the learning model from being reproductive into being more independent, an autonomous model which promotes critical thinking and creativity (Majumdar, 2015). ICT can have a positive effect on children with special needs and learning disabilities, both in terms of ease of access to information and overcoming their limitations, as well as an cognitive tool to increase their school performance (Chua et al., 2016; Ting-Feng et al., 2014).

Educational software in the form of educational games have been researched in Lim's (2008) study in a Singapore's Primary School. Lim studied a case of an educational game called Atlantis, where the student was assigned with the mission to save Atlantis, a mythical country facing cultural, social and ecological decay due to its rulers' blind greed. The results show that students got engaged in English, Mathematics and Science problem-solving quests by playing the role of a global citizen and at the same time they honed their social skills by interacting with fellow student-players. Educational games

were also examined by Beavis, Muspratt & Thompson (2015), reporting that students are positive towards the use of such games for learning purposes, noting however that it is important to always take into consideration the students' voice and experiences when designing software like this. The students' involvement in ICT development and use was stressed further by Beckman, Bennett & Lockyer (2014) who support that including students' opinions is a must in order to understand their needs.

ICT used for communication in Primary Schools were researched by Shang (2007), showing that there was an improvement in their writing skills. Regular e-mail users showed better performance in correct writing and independent thinking and e-mails acted as an effective way for students to practice their written thoughts. On the same context of communication, blogging is also examined for the purposes of literacy instruction. Halsey (2007) presents a case where the teachers and students in New Zealand built a blog in order to publish and share their work with other schools. This allowed collaborative interactions in the forms of dialogue between students, teachers and parents. Another important outcome of using ICT such as blogs is that learning also takes place outside of the classroom's walls borders.

The interactive nature of ICT, involving a variety of digital multimedia such as videos, images and audio, is motivating the students to participate actively in the teaching process, since the audiovisual material has the ability to be paused, rewound and fast-forwarded, enabling students to control their learning (Watts & Lloyd, 2004). But even when there is not audiovisual material involved, studies show that text writing in computers is a process more collaborative, social and iterative in comparison to paper-and-pencil environments. The quality of the writing in computers tended to be superior and the written texts longer than the ones using the traditional methods (Goldberg, Russel & Cook, 2003).

ICT can enable new ways in constructivist pedagogy, as web resources and technology can become instructional and educational tools in the students' projects. Yang (2009) describes a case where students got assigned with an oral history project including interviews with the local community's elders. The benefits for the students were multiple: they honed their teamwork, social, problem-solving and critical thinking skills and they also learned history, learned how to design a homepage and how to take interviews.

Vekiri (2010) has studied the way students use ICT during their school hours, examining the relation between student efficacy and their value

beliefs regarding ICT in comparison to teacher expectations. The researcher found that the teachers' expectations are solid regardless of the student's performance or attitude towards ICT.

Students also tend to be really enthusiastic with new technologies in general, however they are more ambivalent when it comes to ICT being integrated into their daily school practices and curriculum (Ben-David Kolikant, 2012). Children come in daily contact with technology at an early age and as a result, in most cases they are already digitally literate when they join the Primary School (Plowman, McPake & Stephen, 2010). Crook (2012) also identified differences, this time on the students' expectations and ambitions on the use of Web 2.0 in education. Gronn et al. (2014) compared the technologies that students use at home and in school, concluding that they are similar and that the "digital divide" between home and school use of ICT is a explanation that has been simplified to answer a more complex question, with socio-economical approaches.

3.3 Opportunities and Risks

Voultsiou, (2007) and Amajuoyi (2012) have researched the beneficial and the negative effects of the incorporation of new technologies in education:

Advantages

- Students usually learn more, better and faster in classrooms when ICT is involved. Computer-based teaching has beneficial effects in students. Students claim that technology does not discriminate, so they are not afraid to give a wrong answer and learn from it, something that rarely happens in the traditional classrooms (Panetsos, 2001).
- Educational use of new technologies produces positive interactions and new dimensions in the relationships between students and teachers.
- Technology in the educational environment renders teaching more student-centered and activity-oriented.
- The use of ICT in schools increases collaborative learning, self-esteem and initiative amongst students.
- High-quality educational software offers the possibility of personalized learning, assisting the teacher to focus on the students' flexible guidance. Additionally, with the proper software it is possible to evaluate the student's progress and skills.

- The highly interactive nature of ICT increases the student's motivation and gives incentives to acquire knowledge. This motivation is also connected with the student's higher focus and subsequently, with learning.
- The use of the communication nature of ICT opens new paths for the teachers to question their point of view on their ways of teaching, by observing and learning from their colleagues and motivates them to innovate (Diamantaki, Davou & Panousis 2001).
- The Internet itself allows the fast acquisition, process, storage and retrieval of knowledge and allows its transmission through communication channels, contributing drastically in shaping the educational process.

Disadvantages

- Computers are based in programmed-teaching and it is likely that they have already initiated a high-degree of uniformity in teaching and evaluation. This uniformity can be against complex knowledge gain and creative learning, since the same practices will be encountered in every school.
- The implementation of ICT in the classrooms largely depends on funding.
- The creating of educational software from experts with one-sided perceptions and beliefs about education has as a result a borderless and vague picture about its purpose. Some of the existing educational software only represents the designer's/ programmer's opinions.
- Society expects immediate results whenever and wherever computers are present, not understanding that education is a lengthy function and that its results require time to prove their worth.
- The computer absorbs the students' focus and a big percentage of their emotional energy, which can lead to their social isolation. Thus, learning transforms from a social activity to a personalized matter, although it is expected and required that the school's environment to incorporate the student into the society and prepare him/ her for the adult life.
- Computers creates a sensation of addiction to the student, knowing that information will always be there, which may decrease the confidence in his/ her own skills and power.

- There are social differences in the distribution, access and use of ICT. For example, private schools have easier access to a more systematic use of computers compared to public schools.
- The student's and teacher's continuous exposure to the computers as well as the immobility for six to eight hours per day has negative effects to their health.

The researcher concludes that the evaluation of the ICT effects in education is a lengthy process with many variables and different factors that requires a multi-dimensional investigation in order to elicit results (Voultsiou, 2007).

3.4 Barriers and Variables in ICT Incorporation

The aforementioned difficulties, addressed as barriers (Schoepp, 2005) have been a subject of research. These barriers can be encountered all around the world and as a result, ICT in education is an area in turmoil (Bingimlas, 2009). Funding problems, the teacher's pedagogical beliefs (Mueller et al., 2008) and their "slow uptake" (Cuban, 2006) towards technology, there are various forces -sometimes competing- that influence the situation, creating inconsistencies that have a direct impact on the students (ibid., 2006).

According to Becta (2004) there are two main groups of barriers: one that relates to the individual (teacher-level barriers) such as lack of confidence, lack of time, being resistant to change and one that relates to the institution (school-level barriers) such as lack of teacher's training on ICT and lack of access to resources. Similarly, Pelgrum (2001) divided the barriers into two states: material and non-material. Material problems may be the insufficient hardware and software while the non-material include the teachers' lack of knowledge and skills regarding the use of ICT, possible difficulties on integrating the ICT in the pedagogical strategy and lack of time.

Ertmer & Ottenbreit-Leftwich (2010) focused on the teachers' reluctance to use technology even if they believe in the its effectiveness. The variables affecting this stance are four according to the authors: knowledge, self-efficacy, pedagogical beliefs and school's culture. Knowledge of their subject, of their teaching methods and knowledge about their classroom management combined, in accordance with knowledge of the appropriate ICT for their need. Self-efficacy involves the teacher's confidence on the use of ICT. Pedagogical beliefs is an uncountable factor that includes the teacher's values, norms and views that can be contradicting and influences if and how the teacher uses ICT. The school's culture is the contexts in which the teacher works and have an influence on the teacher. A school's culture

that promotes the incorporation of technology will affect the teacher's methods accordingly (Ertmer & Ottenbreit-Leftwich, 2010).

On the same context, according to Zhao and Cziko (2001) there are three necessary conditions for teachers to introduce some sort of ICT in their classrooms: they should believe in the effectiveness of technology, they should believe that the use of ICT will not cause any disturbances and they should feel that they have control over technology . This way, through personal use and after experiencing the new technologies themselves, they may alter their beliefs and incorporate a specific ICT in their teaching strategies, or decide that it will not have a positive impact on the students (Mueller et al., 2008).

Another obstacle is the educational reforms. Reformers have a strong belief in the technology's power to transform schools (Cuban, 2006). They expect results fast and when this rarely happens, the blame befalls on the teachers (ibid., 2006). Cuban (2006) that putting the blame on the teachers oversimplifies a complex problem that will remain unsolved as long as the reformers simply provide schools with hardware, without listening to the teachers' voices and needs. The educational reformers aim for concrete and absolute solutions to the classrooms' problems, while teachers' seek to improve the students' learning (Cuban, 2013). Without taking into consideration the teachers' needs, few changes will occur in this sector (ibid., 2013).

3.5 ICT in the Greek Primary Schools

Charalampidou and Vergeti (2010) investigated how new technologies affect teaching and the results show that Greek students nearly doubled their performance on certain subject that require critical thinking after the use of computers. In the same study, students proved to be familiar with computers and the Internet before school and to have a positive attitude towards new technologies and especially the interactive ones that give them the chance to cooperate. Tsami (2016) examines the factors on which depend the successful implementation of ICT in education and identify amongst them the teacher, the infrastructure, programs and books and finally social life, organization, management and operation of schools. The researcher claims that ICT are a valuable *assistant* to the teachers, since no ICT tool can improve all alone the educational process, but only when guided by a teacher. In the same study, the importance of the existence of ICT in the Greek Primary Schools is highlighted, since it is the first stepping stone, the basis for the student to reach higher education. Therefore technology is not

just a tool for accomplishing the educational goals, but also a medium for preparing the future young adults and professionals for the challenges encountered at work and on the society (Tsami, 2016).

A wider view in ICT integration in the Greek Primary Schools is presented in Abbasi et al. (2015) where the researchers highlight the significance of the political and economical environment that affects subtly or directly the Greek education. More specifically, they support their claims that the ICT conditions and policies in education are unstable due to the economical, political and social turmoil in which the country has been for the past seven years. The researcher also highlights that there is no promising future for Greece, since the pre-crisis deployed infrastructures are obsolete and hardware-focused instead of teacher-focused. Therefore, even if the economical situation is to change, it is of urgent importance that the Greek State changes significantly the policy mechanisms and budget distribution and focus its investments on teachers' training and the ways they could use ICT to promote innovative, constructive and creative education in order to secure a stable position in the 21st century's educational map across Europe and globally (Abbasi et al., 2015).

Statistical data can be derived from the European Commission's report of 2015, stating that Greece is one of the countries with the lowest digital skills levels in the EU, ranking 25th out of the 28 member states in terms of internet usage (European Commission, 2015). Within the teachers' workforce in 2012, 55% of the workforce had few or no digital skills, compared to the EU average of 39%. The largest-scale educational reform that takes place in Greece and is relevant to ICT, is the Digital School Project. A project launched in 2010 with the purpose of better integrating ICT into curricula and educational practices. It is currently being implemented and is expected to be completed in different stages. Progress has been made in some fields, for instance the e-books for primary and secondary education. However, there is still a lot of work to be done, starting with installing ICT hardware in all schools and investing on teachers' training. As the report points out, the full and in-time implementation of the Digital School Project is a necessary and crucial step for the future of the teaching sector and education in Greece.

The report from the University of Liege (2012) also provides statistical data. Greece's score in ICT infrastructure, Digital Confidence and the frequency of ICT used in class is below the EU average, in some categories even in the last places. However, during the past five years, there has been a significant and constant attempt to equip classrooms with technology, even in a basic

form and train teachers in the new technologies (ibid., 2012). The change is still ongoing and the results are a subject of further research.

4 Methodology, Research Setting and Methods

This chapter includes an explanation of what interpretivism is, along with the reasoning behind its selection. Additionally, I explain the research design and the inquiry's strategy. The study's participants are also presented and the reasons behind their selections. Then I describe the methods used for data-collection, data-analysis and ensure the results' reliability and validity. I end this section with the ethical considerations of this study.

4.1 Interpretivist Paradigm

Upon deciding on the nature of this research, I had decided that my final objective is to investigate and explore the different mindsets and worldviews of the teachers and present the findings.

Therefore, since this study will focus on human experiences and examine the teachers' different viewpoints on ICT, it naturally befalls under the *interpretivist* paradigm. An IS/IT research can be characterized as interpretive if the knowledge of reality gained comes through social interactions and constructions, such as consciousness, language, experiences etc (Klein & Myers, 1999). This paradigm does not predefine any results or dependent and independent variables, but it focuses on the complexity of sense-making depending on the situation (Kaplan & Maxwell, 1994). Walsham (2006) strengthens this and argues that interpretive research involves subjective experiences and the way social actors sense the world. By examining the policy documents and interpreting the participants' beliefs, views and experiences, I gain knowledge on understanding the context around ICT in the Greek Primary Schools and promote insight on the mental processes that are driving observed patterns in social behavior (Chai, 2005).

4.2 Research Setting

Primary Education in Greece lasts for each child for six years, from the age of 6 to 12 (A to F grade). It is obligatory for all as well as free for all children in all of the State's primary schools. The curriculum stands the same for all students, who have to attend the same classes and courses, regardless of their social, cultural or geographical differences, with small exemptions being made in special occasions, e.g. students believing in different religions.

The ratio of students to teachers in the Greek Primary Schools at the moment is 15 students to 1 teacher for schools with up to 45 students and 25 to 1 teacher for schools with 46 students and more. Each teacher has to deliver almost all of the subjects in the grade he/she is appointed to, from Greek language and history, to mathematics and science. Specialized teachers are appointed for foreign languages, music/ art and physical education, however, these experts are only encountered in schools with more than forty-six students (Ministry of Education and Religious Affairs, 2017).

The field work in this research took place in two Greek Primary Schools in Kallithea (a suburb of Athens) for the focus groups as well as in school offices for the individual interviews. Two schools were visited and thirteen teachers were interviewed in total. The members of the focus groups worked in the same schools, School A and School B that are described below. The individual interviewees all work in different schools.

School A is where Focus Group 1 took place and is led by a School Director and 14 teachers work in it. It has approximately 200 students. The school has a computer lab and it is equipped with 15 computers. In almost all of the classrooms, interactive boards are installed.

School B is where Focus Group 2 was conducted and is led by a School Director and it has 10 teachers employed. It has approximately 160 students. It has a computer lab with 11 computers in it. The school did not have interactive boards installed yet. All of the classrooms had traditional whiteboards and several of them had projectors mounted and monitors on the walls.

4.3 Participants

The selection of the school was based on my contacts and so was the selection of the individual teachers. The pool of interviewees is compiled with teachers and three school directors, a total of thirteen individuals (four participants in each focus group plus five individual interviews). The aim was to cover most aspects in terms of gender, age, years of experience, position in the school and educational background in order to be able to have a representative sample. This has been considered necessary in order to include as many different perspectives as possible. The total number of participants can be considered as adequate for a study of phenomenological nature (Groenewald, 2004). For the focus groups, snowball sampling was used through referrals between teachers in each school, in order to finalize

my list of participants. Snowball sampling is widely used in qualitative research as it provides greater variety in the pool sample (Noy, 2008).

More specifically, Focus Group 1 consisted of four Teachers, while Focus Group 2 consisted of three Teachers and a School Director. Finally, the individual interviews consisted of two School Directors and three Teachers. School Directors also work as teachers, however with less hours on their daily program due to their administrative workload. The following table summarizes the list of participants, stating their position in the schools they work in and their years of experience in teaching. To ensure confidentiality, their names have been replaced with the appropriate code, e.g. Focus Group's first participant is from now on addressed as FG1.

Table 1: Participants

Code name	Profession	Years of experience

Focus Group 1		
FG1	Teacher	22 years
FG2	Teacher	5 years
FG3	Teacher	14 years
FG4	Teacher	17 years

Focus Group 2		
FG5	Teacher	21 years
FG6	Teacher	15 years
FG7	Teacher	11 years
FG8	School Director	28 years

Interviews		
IN1	School Director	30 years
IN2	School Director	31 years
IN3	Teacher	27 years
IN4	Teacher	7 years
IN5	Teacher	3 years

4.4 Data Collection

Qualitative research is supported by a rich pool of relevant data collection methods, such as observation and participant observation, interviews and questionnaires, documents and texts analysis (Myers, 1997). For this

research I have decided to use interviews and focus groups. I have also decided to conduct document analysis to examine the background behind the ICT use in schools, derived from official documents and publications such as policy manuals and guides.

The document analysis consisted of the thorough examination and interpretation of the official documents that could add value (Bowen, 2009). I have accessed government documents and public records, and more specifically the policy manuals published by the Ministry of Education that grant guidelines regarding the ICT use in Primary Schools, as well as the school's reports (accessible to public) which contain information about the ICT use and how they are used.

The focus groups' aim is not to just collect individual statements, but to create a meaningful discussion through debates (Crang & Cook, 2007) and compare different viewpoints on ICT, while discovering the reasons behind these differences. Finally, I -as the moderator- have had the chance to observe the participants' body language and expressions while debating and refine more in-depth data, since according to Krueger & Casey (2015) body language can be interpreted and used to elicit results.

The interviews have all been semi-structured. The questions were all common to all interviewees, however the point of the semi-structured interview is to be able to set some broader parameters to the discussion (Crang & Cook, 2007). The nature of this method ensures that more questions will be produced during the actual interviews, so the participants will be encouraged to talk freely as they will be partially guiding the conversation (ibid, 2007).

4.4.1 Policy Document Analysis

I have decided to use 3 documents for this research, all being officially released from the Greek Government and the Ministry of Education. The reason behind this choice is my attempt to be precise and as close to my subject as possible and because there was a pattern in most documents of repeating the same context (using the exact same sentences), therefore there was no need to analyze more than one document with the same exact contents. The selection of the policy documents was completed after suggestions from a school councilor (responsible for overseeing over fifty primary schools on the Greek islands) and two Primary School directors. All three individuals provided material and guided me on how to search for

more. The documents I have decided to use are cited below, with their translation:

1) Εφημερίς της Κυβερνήσεως της Ελληνικής Δημοκρατίας - (Β΄ 303 13-3-2003).
Official Gazette of the Greek Republic - (Β΄ 303 13-3-2003).

2) Οδηγίες διδασκαλίας και διδακτέα ύλη Δημοτικού Σχολείου 2016-17 για το διδακτικό μαθησιακό αντικείμενο "Τεχνολογίες Πληροφορίας και Επικοινωνιών"
Teaching guidelines and curriculum of the Greek Primary School for the year 2016-17 related to the course "Information and Communications Technology".

3) Κανονισμός λειτουργίας εργαστηρίων πληροφορικής και υποστήριξης των ΤΠΕ των ολοήμερων Δημοτικών Σχολείων που εφαρμόζεται το Ενιαίο Αναμορφωμένο Εκπαιδευτικό Πρόγραμμα.
Working policy, procedures and support of ICT labs in the all-day primary schools, implemented in the revised educational program.

As in most methods in qualitative research, document analysis requires the data to be examined and interpreted, in order to refine meaningful results that lead to knowledge (Corbin & Strauss, 2008). The documents may contain text and images and their form vary, from agendas, manuals and journals, to institutional reports, photos and public records. This analytic procedure yields data that are thereafter processed and organized into major themes, categories and case examples (Labuschagne, 2003). While document analysis can stand its ground as a stand-alone method, the rationale for its use here lies in methodological and data triangulation, as it is used in conjunction with the focus groups and the interviews, for richer findings and comparing purposes (Guion, Diehl & McDonald, (2011).

More specifically, for this study, document analysis was decided to be used and was assigned as the first method for five specific reasons (Bowen, 2009):
1. First, documents provide data on the context within I will operate into and understand the background of my research field. By conducting document analysis before anything else, I was able to draw data that would help me contextualize the data collected during interviews later on.

2. Second, some of the interview and the focus group questions were based on the data refined during the document analysis and this method really complemented the following two.
3. Third, documents are sources of supplementary research data. Knowledge gained from document analysis is a valuable addition to the research, as they contain data that can slip away during the interviews or the focus groups because of the limited time or the direction a semi-constructed interview may go.
4. Fourth, documents provide a way to track change, evolution and development. By using various drafts of a certain document, the researcher is able to identify differences and changes between them.
5. Fifth and most importantly, documents provide a means to verify findings or evaluate evidence from other sources. If the information collected from all sources converge, the overall credibility and trustworthiness of the findings increase, whereas if there is contradiction, it is expected from the researchers to investigate further (ibid, 2009).

In practice, the policy document collection and analysis was conducted before the interviews in order to assist me to become familiar with the setting and update my knowledge on the changes that have happened in the educational sector lately. In addition, my intention was to formulate more precise and concise interview questions for the upcoming interviews, based on the data collected from the documents.

4.4.1.2 Analysis Process

The process of the document analysis I have decided to use involves 6 stages (Altheide, 1996):
1. Setting inclusion criteria for the documents
2. Collecting documents
3. Articulating key areas of analysis
4. Document coding
5. Evaluation/ verification
6. Analysis

The nature of the documents (policy) simplified the first step, since I had to use recent and official documents that were related to Primary Schools only. The key areas of analysis/ themes I have narrowed down are a) the application of ICT in Primary Schools, b) the use of ICT in Primary Schools and c) relevant information on informatics education and the educators. The examination consisted of a first-read document review, during which I

identified relevant content and separated it from the non-pertinent. The second phase in which thorough examination took place involved coding based on their relevance in the areas of analysis, as well as their context and meaning. The coding process is presented on appendix C.

Based on the analysis of the text and its relevance, context and meaning, each document was assessed as "*clear*", "*limited*" and "*unclear*", with clear criteria of the signification of each score:

- Clear is the document that includes consistent and clear references to policies, strategies and practices related to the aforementioned themes, giving sufficient information.
- Limited score is assigned to the document where there is a brief reference to the relevant themes, providing insufficient information though.
- Unclear indicated that there was no information clearly relevant to the themes.

Finally, during the more in-depth read, I was able to spot the defined policies and follow the trends and patterns that appeared. In addition, I have set the background to compare policy versus practice, in conjunction with the results from the other research methods.

4.4.2 Interviews and Focus Groups

Semi-constructed interviews is considered to be one of the most flexible research techniques, since it enables discussion and negotiation (Cohen & Manion, 1994; Hitchcock & Hughes, 1995; Kvale, 1996; Crang and Cook, 2007). In contrast with the constructed interviews which try to elicit the truth through the right questions, semi-constructed interviews are more flexible and may adapt better to the personality and traits of the interviewee, exposing hidden meanings and aspects behind human behavior (Qu & Dumay, 2011). According to Galletta (2013), semi-structured interviews are structured in order to address specific aspects of the research questions, while simultaneously they also allow the participant to bring new meanings to the topic of research. The participants are encouraged to expose their unique views through this personal interaction and in turn, the interviewer is able to perceive these views and refine data.

Considering that individual interviews would not be enough to cover the vast topic of ICT use in the Greek Primary Schools, the group interview data collection method was decided to be utilized, as it has the potential to allow the researcher to examine in-depth the views of all of the participants

(Marshall & Rossman, 1995). Additionally, apart from being more cost-effective compared to individual interviews, they give the reseracher the opportunity to simultaneusly explore the opinions of many people (Marshall & Rossman, 1995; Kvale, 1996; McMillan, 2008), as they provide the necessary flexibility and they are -in fact- a hybrid kind of discussion (Robson, 2010). While personal interviews are popular and usually preffered over focus groups, interviewees in the focus groups act more comfortably as they do not feel under pressure. Interaction is encouraged and at the same time the reluctant ones are motivated to comment and enrich the group's discussion (McMillan, 2008; Robson, 2010; Creswell, 2011).

Focus groups and single-person interviews can complement each other as they revolve around the same concept, covering a topic from a personal and a group perspective (Robson, 2010).

All interviews and focus groups were conducted in March and April, in Kallithea, Athens. Both focus groups were compiled of five people, four participants and the interviewer. The place where the interviews would take place was important, since Crang and Cook (2007) note that people's identities relate closely to the different places of their lives and this can affect the outcome of the research. Upon their request, after booking in advance a classroom at their place of work, the participants agreed to take part in this research voluntarily and consented to be recorded. The first group session lasted fourty-five minutes and the second approximately fifty.

Three of the individual interviews were conducted in person, in the participants' residence, while the other two with the help of Skype. All interviews lasted approximately thirty to fourty minutes.

The interviews started with an explanation and presentation about the aim of this research and the approach decided to be used. After establishing a relaxed atmosphere and gain the participant's trust, the interviewees were asked to present themselves and their background. The interview questions (Appendix 1), were all related to the research questions: *What kind of ICT is used in the Greek Primary Schools* and *what are the teachers' experiences on the use of ICT regarding the educational process.*They were structured into five categories that followed a thread from focusing on the teacher, then to policies, to students and finally going back to teachers to allow them to talk freely and share anything they felt it needed to be said and was not covered by the questions.

4.5 Analysis of Interviews

After conducting the interviews and focus groups, I moved on to the analysis phase. *Thematic analysis* has been decided to be used during this process for its ability to describe and organize data in rich detail while at the same time, it is a flexible method, widely used and suitable for researchers taking their first steps in the scientific world (Braun & Clarke, 2006).

Thematic analysis can be inductive and deductive. In inductive analysis the themes are refined from the data (data-driven), while in deductive the themes are set from already established theories (theory-driven) (Braun & Clarke, 2006, Vaismoradi, Turunen & Bondas, 2013). For this research, the inductive thematic analysis was selected, since the researcher's intent is not to apply the data into an existing coding frame, as it not testing a theory-research. On the contrary, the main focus of the research is to identify themes, patterns, ideas and views of the participants regarding the use of ICT in their classrooms and their relationship with these ICT. Therefore, moving from the specific notions to general ones, defines a data-driven approach.

During the thematic analysis, repeated patterns of meaning emerge through the examination of the collected data. For this study, the method I have decided to use in order to uncover these patterns is the six-phases guide developed by Braun and Clarke (2006). According to the authors, this guide supports a recursive analysis that promotes constant movement across all six phases. More specifically:

Phase 1: Becoming familiar with the data
> During this phase, the researcher transcribe the data and read through them repeatedly, while taking notes and noting thoughts and ideas.

Phase 2: Generation of initial codes
> In this phase the researcher identifies points of interest over the data collected that can prove to be valuable in understanding the phenomena. These parts are grouped based on their relevance, in order to form initial codes.

Phase 3: Evolvement of themes
> During this phase, the analysis is generating themes that derive from the coding of the previous phase.

Phase 4: Review of the potential themes
> In this phase, the themes identified from phase 3 are reviewed and examined for their consistency and their applicability on

the entire dataset. They should also be distinctive and clear, with a meaningful coherence.

Phase 5: Establishment of themes

After reviewing the potential themes and make the necessary distinctions on the aspects that each theme covers, a list of the final themes established is compiled and the analysis of the data can begin within them.

Phase 6: Write-up of the report

In this final phase of the analysis, the researcher has to produce a concise, coherent and non-repetitive report. The desired result here is to relate the findings to the research questions through argumentation and not by just describing the data.

After completing the time-consuming and challenging process of translating and transcribing the data, since the sometimes idiomatic Greek language can prove to be difficult to convey some meanings in English, the process of reading and rereading the transcripts begun in order to capture semantic issues. During this second phase, I wrote down in post-it notes the identified relevant segments of each transcription. I tried as much as possible to remain open-minded and allow meanings to emerge to emerge from the data, no matter their nature. In the end of this phase, the notes were compared and the result was the groups of segments, according to their relevance, that formed the initial codes that lead to phase three.

In phase three, the initial coding provided me with 147 codes. I compared them and removed the ones with the same meaning, the duplicate ones as well as the redundant codes, reducing them to 104. Finally, I grouped these codes into 22 general categories.

The result of this grouping were the potential themes revealed that were later on reviewed and completed the fourth stage. During this phase, I justified the selected themes by supporting them with the codes that revolved around them and concluded on the most relevant ones, relevant to the research questions. Finally, the data analysis begun based on the refined and established themes, entering phase 6.

4.6 Validity and Reliability

An important element in order to ensure the scientific character of a research is its evaluation criteria and most importantly, its reliability and its validity. Reliability is related to the consistency of the research and can be

approached by two sides, as internal and as external. Internal reliability claims that the results of a research will never change as long as the conditions, data collection, analysis and interpretation remain the same (Sanders & Liptrot, 1994). External reliability refers to the degree that a perticular research will provide the same results, regardless of the place, the time and the researchers that will conduct it (Hitchcock & Hughes, 1995).

In addition, considering that social interaction involves complex procedures, the resercher is obliged to ensure the validity of this work. Validity refers to how accurate are the information examined within a certain context (Hitchcock & Hughes, 1995). To ensure validity of the research, Creswell (2014) provides several methods that can be applied, e.g. triangulation, rich descriptions, member checking and peer debriefing.

Taking into consideration all the above, in order to ensure to the highest possible degree the validity and reliability of this research, the following efforts have been made:

Data have been triangulated with the use of two data sources, document analysis and interviews. These two sources have been selected to complement each other and bring together a coherent theme's justification. I have attempted to provide a thick, rich description, in order to convey the findings as detailed as possible, and present the setting to the readers. I have tried to isolate the bias and preconceptions that I could bring to this study from my own experiences. As stated in the limitations, they could affect the interview process or the interpretation of the data. I wrote down my prejudices before the document analysis and the interviews in order to concretize them. I have tried to avoid them during the interviews so that they would not affect the participants' answers.

4.7 Ethical Considerations

The interviewees that were willing to participate voluntarily in this research were thoroughly informed about the scope and aims of this study, the procedures of the research, their rights, the risks and the confidentiality involved. They have all been provided with a form of consent (Appendix 2), which they have read and signed, to ensure that their participation in the research is in accordance with their own consent.

Specifically, all participants were informed about their right to withdraw from their voluntary participation at any time, without any prior notice. Furthermore, it was made clear that they would keep their anonymity and

any data gathered would be strictly confidential, accessible only by my supervisor and myself. They were also reassured that the research findings would be used only for this study's purposes and they would be at their disposal upon their request. Participants were not subjects to any potential risks or harm from this research.

Additionally, I have asked for their consent to record the interviews, in order to save and use the data they would provide for an accurate analysis. After the interviews, the participants were also offered with a two-week period, during which they could still withdraw from the research and have all their recordings erased. The two school directors where the focus groups took place, had given approval and permission for conducting the research in the school's premises.

Finally, regarding the policy documents gathered, all documents were retrieved through the Internet and with legal means. All interviews were transcribed with special attention to accuracy and the translations of all interviews and documents were carefully performed and revised to ensure that the words used preserved the interviewee's and the document's actual meaning.

5 Document analysis

This chapter presents the findings from the policy document analysis conducted, as well as a summary of these findings.

5.1 Findings

The three documents finally selected to be analyzed for this study's purposes involve the relevant legislations on the structure of the Greek Primary Schools. It was imperative to commence the analysis procedure with the policy documents, as they contain the legal framework regarding ICT in the classrooms and it is followed by the teachers and may have an impact on their work. Additionally, these documents serve as background information sources for relevant information that form the bigger picture behind the ICT use in the Greek Primary Schools.

1) The Official Gazette of the Greek Republic - (Β´ 303 13-3-2003) is the primary document used for this analysis, as it comes directly from the Greek Government and signed by the Greek Minister of Education and expands on 336 pages, covering every aspect of teaching in Primary, Junior-High and High School. It is written in formal language and refers to relevant laws, voted by the Greek Government, affecting all stages of education directly. References about the importance of technology in education are disperse throughout the whole document. The part related to the teaching and use of technology in Primary Schools is limited to 4 pages only. In these pages, the Ministry of Education provide guidelines to the teachers in order to follow a standard procedure for the course "Information Management" and divides these guidelines into 3 stages, one for every two (out of the six) Grades of Primary School.

For 1st and 2nd Grade, the course's goal require the student to be able to detect, evaluate and use various information sources, while learning about ways to search for information. For these two Grades, the document does not refer at all to the use of computers and is limited to paper-only sources such as catalogues, indexes, maps etc.

For Grades 3 and 4, the document expands on the previous goal by adding information analysis and synthesis to the course's aims. For the first time here, computers are mentioned along with CD-Rom, stating that the students should become familiar with technology and more specifically with

educational software like digital dictionaries, software with spelling exercises and digital educational games.

For the 5th and 6th Grade, Internet is gradually introduced to the students, always under supervision. In addition, the document insists on more relatively complex tasks in the computer's use, such as writing a text document, saving and editing it and being able to present it with complementary audiovisual material.

The document was compiled in 2003 and it is still active, it has however received some modifications since then. The widespread use of the World Wide Web was still in an embryonic stage in Greece back then, and the limited references about it are justified. However, the document provides little information about the practical use of technology in the classrooms of the Greek Primary Schools, how it should be incorporated and how it should be exploited for the benefit of the students. There are not clear references to the nature of technology applied in the Primary Schools, apart from the obvious use of computers, the Internet and the educational software. On the other side, the guidelines provided for the teachers are short but clear and cannot be misinterpreted.

2) The *Teaching guidelines and curriculum of the Greek Primary School for the year 2016-17 related to the course "Information and Communications Technology"* document is the most recent one out of all and dedicates its 80 pages to keep the Primary Schools teachers informed on the advances on new technologies and instruct them on how to incorporate them in their teaching methods. This policy document is released every year and acts as a patch to the Official Gazzete of the Greek Republic Document examined above, fixing issues and adapting the course (now named Information and Communications Technology) to modern standards.

The term ICT Literacy holds a significant role in this document, treated as equal to the traditional language and scientific literacy notions. More specifically, the incorporation of ICT in education is here divided in 4 categories:

- ICT as a cognitive tool, where ICT run through every aspect of the Primary School's curriculum and are considered supportive tools for contemporary educational approaches, communication tools, collaborative and exploring tools as well as promoters of critical thinking and innovation amongst students.

- ICT as a method for problem-solving, as students engage in quiz/problem-solving activities that involve data processing, modelling and creativity and gain knowledge and skills.
- ICT as a technological tool, which students become familiar with computers and other ICT, learning to use the software, Internet services, acquiring technical capabilities.
- ICT as a modern social phenomenon, where students explore and evaluate the ICT's application in society (management, science, education, entertainment, culture etc). The greater goal here is the students to gain a broader digital literacy and to shape attitudes and values in their attempt to grasp the ever-changing social and cultural environment around them.

The bigger picture behind all 4 interdependent categories is every student having the chance to improve their skills related to ICT and since last year, this course is being teached for 1 hour per week in all six Grades of the Greek Primary School.

Educational guidelines are present in this document as well, this time more detailed and specified for each grade. For example for the 1st Grade, the student should be taught on how to distinguish the most basic parts of a computer and understand their utility, turn on and off the computer, learn how to click/ double-click and use basic applications like "Paint" and "Wordpad". While the students progress through each grade, it is obvious that they will be involved in more complex tasks, such as sending emails, browsing pages (again, under the teacher's supervision) and work with spesific software like Open Office and Google products (Google Maps, Google Drive etc.)

This policy document provides a list of suggested ICT in order to show how an ICT lab should be equipped. The list expands from the most fundamental ICT such as the computer, printer, scanner, projector, digital camera and video camera to interactive boards and specific software like the aforementioned Open Office and simulation aplications, as well as specific webpages with educational content (digital libraries, educational portals, wikis etc.). It is noteworthy that there is no "must-have" equipment according to the document.

This policy dodument is the most recent update to the previous status of the laws and policies regarding the use of technology in Primary Schools. It sets clear guidelines and goals for the teachers, suggests ways to incorporate ICT in their teaching methods and take advantage of them. In addition, it

provides detailed instructions on how to use the ICT to achieve these goals, supported by examples. Finally, it examines the role of the educator and the connections between him/her, technology and the students, allowing him to be an innovative or traditional teacher, insists however on the importance of technology and that it must be used in the classrooms.

3) The "*Working policy, procedures and support of ICT labs in the all-day primary schools, implemented in the revised educational program*" is a policy document published in 2011 that revolves around what should be included in an ICT lab and how it should be managed, by whom and assigns responsibilities according to the law. It is compiled by the Ministry of Education and can be treated as a practical guide that mentions briefly the aim and goals of an ICT lab in a Primary School, focuses extensively though on who should run the lab, who should have access and how it should be organized. It also includes a small list (not as extensive as the previous document) of ICT that should be included in the lab and focuses heavily on the obligations and responsibilities of the teachers in charge of the lab.

More specifically, it states that access to the lab is granted only to educators, students, supervisors (councelors) and visitors (local population that can use the lab for research purposes, always under supervision). The persons who is responsible for the lab is always the Principal of the school and the Informatics teacher, who is in charge of managing the equipment and keeping records on each hardware piece that contain information about it (e.g. when each computer was last serviced) and a book of incidents in case something happens to the equipment. In addition, the document states the safety and hygene requirements that the lab needs to fulfil in order to host children of such a young age. Finally, it provides a list of responsibilities for the teacher in charge of it, from equipment checks and password safekeeping to collaborating with other Informatics teachers from different schools in order to create joint lessons.

5.2 Summary of the Policy Document Analysis Findings

The most important finding that derives from the analysis of these three policy documents is that there is no actual law that enforces the implementation and use of certain ICT, even fundamental ones, in the schools.

In addition, the legal framework (the most recent laws) behind the introduction of ICT in classrooms was created 14 years ago. The Ministry of Education releases every year supplementary guidelines on how to conduct

the course and incorporate new ICT, however the law is still written in a year when the DSL/ fast Internet was hardly present in Greece and was a really expensive service. A lot of changes have occurred since then and an update is required to match today's standards.

Furthermore, the policies and the law is mostly concerned with practical issues, leaving it up to the teachers whether they decide to follow the guidelines strictly, or treat them as helpful suggestions. This is a rather interesting aspect, since each teacher adds his own point of view on technology and adapts (or not) his educational strategy according to the policies.

By comparing policy documents 1 and 2, the progress made in how the Ministry of Education treats ICT and their importance in contrast to 2003, can now be seen. The differences are obvious, since there is now a brand new plan that involves modern technologies and incorporates them in the educational process smoothly. It is showing progress that every year there is a new, revised and updated program concerning the teaching guidelines related to ICT and their role in the classrooms.

6 Empirical Findings

This chapter presents the empirical findings from the interviews and the focus groups, based on the themes that surfaced from the thematic analysis prior held.

6.1 Findings - Interviews and Focus Groups

Following Braun and Clarke's (2006) method, the data collected were examined several times in order to identify patterns of meaning. Through this process, several themes emerged and became the starting point of the data analysis. Five major themes were identified:

1. ICT used
2. Suggested policies and acquisition
3. Effects on teachers
4. Effects on students
5. Teacher's wishes and ideas for improvement

Each theme is presented below:

6.2.1 ICT Used

The theme identified firstly was in conjunction with the first research question, what kind of ICT is used in the Greek Primary Schools. It was imperative to define the most common or popular ICT used and on the other side, the ICT used less frequently or just on special occasions. All of the participants in the focus groups and the interviews claimed that they use some sort of ICT in their courses. The most commonly used were the computers and the Internet. The newly introduced and implemented in the Greek Primary Schools interactive boards were also mentioned in almost all interviews and some more traditional like the cassette player was said to be used in special occasions.

Table 2: ICT used

ICT used	
Frequently used	Rarely used
Computers	Projector
Interactive boards	Educational software
The Internet	Printer
	Digital camera
	Cassette player/ CD player
	Television

The list compiled above is not by any means exhaustive. However, considering the pool sample, it is rather indicative of the situation in the Greek Primary Schools and the plurality of the ICT used, even if some are used in special occasions, in the classrooms.

More specifically, all of the member of Focus Group 1 and 2 as well as all of the interview participants but one, mentioned that they use computers-laptops or desktop computers. Another ICT said to be used by the participants is the interactive board. The majority of the participants stated that they use the interactive board frequently and more specifically Focus Group 1 unanimously concluded that it used in every course. In the same context, the individual interviewees also mentioned the interactive board on the list of their most commonly used ICT. IN5 talked about the interactive board, claiming that "*it can replace the television that is still used to show educational movies to the students, the projector and the PC*".

Another finding is that every participant but one mentioned the Internet as one of their most used ICT. They mention it several times during the interviews and the focus groups and they consider it a non-separable piece of contemporary teaching admitting to recognize its impact on the educational sector.

Apart from the Internet, computers and the interactive board, the participants have mentioned several other ICT that they use in their courses, not on a daily or a frequent basis. IN2, FG4, FG6 and FG7 explained that they use the projector when there is something important to show to the students. FG6 and FG7 concluded that the projector can in a way "*act as a substitute to the interactive board*", since their classrooms were not equipped with the aforementioned boards yet.

In addition, there were several mentions of the educational software, provided as supplements along with the official books from the Ministry of Education. Three of the participants in Focus Group 2, IN2 and IN5 described that they use these additional material occasionally, "*when the nature of the lesson demands it*". Moreover, in the context of supplementary material IN2 and IN5 use the printer "*once per week*" and "*every Friday*" respectively in order to hand out educational material to their students, that is exercises and supplementary work.

In Focus Group 1, two participants, FG2 and FG3 stated that they use the digital camera in some cases, during school excursions and school festivals.

Even if theoretically they are not in the classroom during these occasions, they gather material to present to the students in the following days. As FG3 stated, "*I take photos of trees, flowers and anything interesting that may befall in my attention and use it the next days in the classroom as educational material*".

Finally, it is noteworthy that IN3 is using the cassette player and the CD player. S/he supported the choice of equipment by stating that s/he has gathered audio material all the years he has been teaching and that some pieces are so old that they cannot be found on the Internet.

6.2.2 Suggested Policies and Acquisition

ICT policies suggested by the Ministry of Education and their acquisition in the Greek Primary School's classrooms was another major theme identified, since every participant referred to it. Following the theme also identified during the document analysis, the absence of laws enforcing the implementation of ICT in the Greek Primary Schools as a means to upgrade the educational process, it happened that the teachers interviewed were all aware of the legislations revolving around the subject. All of the interviewed teachers unanimously stated that the assistance provided from the Ministry of Education varies from limited to non-existent. In both focus groups, this claim was one subject that all participants agreed upon and shared the same view. Furthermore, the participants expressed their disappointment on the way the Ministry of Education has handled the legal framework in practice. As IN2 said: "*The Ministry of Education is not in touch with reality, asking for results without providing the technical means to achieve them*".

The participants talked about controversial policies coming from the Ministry that negate each other. One participant stated that there are opposing forces inside the Ministry and each one of them wants to promote its own agenda, while there is no coordination between them. Furthermore, the internal conflicts are caused on purpose to undermine each other's work. The interviewees agreed that the Ministry has no eyes in the classrooms to report the actual situation. The consequence of this is the Ministry asking for results, without providing the technical means to achieve them.

IN1 expresses dissatisfaction regarding the attitude of the Ministry towards the Primary Schools and the teachers respectively, stating that "*even if it's sometimes mandatory to use ICT, the legislation and the Ministry of Education does not provide with the necessary means to cover all the necessities or the learning needs of kids*".

Furthermore, the teachers expressed their opinion that the policies regarding the ICT suggested by the Ministry of Education are not tested in practice. They have stated that they are copied from the educational legal framework of other European counties where they were successfully implemented, however they have not been adjusted in the Greek context.

IN5 specifically mentioned a new trend suggested by the Ministry last year, the educational scenarios. These scenarios are project-like exercises for the students, that are common for all of the Primary Schools in Greece and they involve the use of certain ICT. However, some school's ICT structure cannot support these scenarios, while other are able to do so. The interviewees claim that this is unfair for the students in the first category and creates inequalities in the educational system, widening the digital divide in-between schools. As IN5 concludes, "*this inequality can really hinder the potential of many students, who will not have the same opportunities as their counterparts in other schools*".

6.2.2.1 Acquisition

There was a unanimous agreement amongst the interviewees that there is no legal framework that would enforce the acquisition of certain or any ICT in the Greek Primary Schools. The School Director, the teachers, the students and the students' parents decide and select the ICT that the school should invest into. The majority of the interviewees expressed their dissatisfaction on the way the Ministry of Education distances itself from the schools' ICT provisioning and making the educators rely to sponsors.

The teachers state that there is no specific set of criteria describing what specific ICT to buy or employ. They explained that in most of the cases, schools acquire ICT material according to their financial sponsors or according to their financial needs or in collaboration with the Parent-Teacher Association (PTA). Interviewees in both focus groups said that although there is a board who decides what would be the ICT necessary for the schools, the needs are higher than the availability, so teachers, School Directors and parents have always been relying from outside support, for example sponsors. According to the participants, these 3 actors usually discuss on what ICT is financially viable according to the economic background of the school, and decide what to buy and what to omit, or they will make a plan of what to buy this year and what to leave for following ones.

IN2 also expands on this by saying that it would be more beneficial to search for funding sources than disagree with the superiors on what ICT to select for implementation: "*I can state my opinion and try to persuade the principal or the board, but a much more efficient method would be to persuade sponsors to donate money or ICT or educational material to the school*".

Both Focus Groups share the same opinion, relying on the coordination and communication amongst them to decide on policies regarding the acquisition and use of ICT. FG3 states that "*that causes conflicts all the time because you have to balance things constantly. Given that we don't have a clear set of criteria, there is no, let's say, checklist to use as a sort of guide in terms of what ICT to prioritize over the rest*".

The participants agreed that funding plays the most important role in the ICT acquisition. They described their attempts to secure funds or hardware donations from outside sources, since the school's budget is limited. Three teachers also stated the importance of ICT maintenance in relation to this topic, saying that preserving the already owned by the school ICT, is as important as acquiring new ones.

6.2.3 Effects on Teachers

A major theme that was identified is the effects that ICT have on the teachers themselves. All of the participants mentioned that ICT have some sort of impact on them and their educational methods. The majority of the participants focused on the positive effects while some expressed their skepticism and two participants expressed their concern for the way ICT were introduced and incorporated in their professional lives.

The teachers who described the positive effects, focused on the time-saving features of technology, the personalized teaching and the automation of some processes with its use. They explained how they have implemented ICT in their practices, enriching their existing teaching strategies with audiovisual material and creating new methods because contemporary ICT allowed them to do so. Two teachers mentioned their need to adapt to this new standard, to match the students' increased knowledge on technology and the Ministry's plan. Other participants focused on the fact that ICT allow them to prepare lessons of higher quality to the students, "*enriched with audio and video and supported with solid facts*".

IN4 describes ICT as determining and redefining factors on the educational strategies s/he has developed, focusing on the time-saving features that ICT may provide. "*ICT is a tool that saves a lot of time. For example, when I send the exercise to each individual student simultaneously, I save precious time which can be invested elsewhere in the course*. The same interviewee gives an example of a change that ICT brought in the methods s/he applies: "*ICT automated and personalized many processes. All data gathered in the classroom, I can now visualize them in presentable forms, charts, Venn diagrams etc. and have a picture of the student's development and something to share with their parents*". S/he concludes with a statement illustrating his beliefs: "*Fifteen years ago we had books with some pictures in them, now we have videos with some text in them [...] we had to adapt*".

The teachers provided various examples about how they are enhancing their lesson with audiovisual material, especially in the literature, science and history courses. By showing the students segments from the Odyssey, or science documentaries, they state that they have seen the students' interest, memory and performance to multiply.

Three participants balanced their opinion between ICT and the teacher using it. They stated that ICT is undoubtedly a useful tool for the teacher, however its use is inseparably connected with the individual teacher using it. They focused on the fact that ICT use is optional -a means to an end- so it is up to the teacher to decide about its use, which ICT to use and for what purpose. This freedom and flexibility is according to them, the biggest issue on the ICT incorporation in the classrooms.

These participants explained that even after the mass incorporation of ICT in the classrooms, most of the work is still being done by the teacher. It is up to the individual to perceive technology as an opportunity or as a burden. They all shared the opinion that every teacher is unique, with different preferences and teaching styles, so they should use whatever ICT promotes best their educational practices, if they feel they need it. IN2 gave a relevant example about one of his colleagues: "*<name> is a great teacher. He takes the students to walks and excursions in the countryside. With their help, he has built a small-scale effigy of the Parthenon in our school's backyard. He invites artists, writers and poets to talk to the students. He is respected and hard-working... And he hates computers... He never uses the [interactive] board, he rarely uses the Internet and his students do everything with pencil and paper. Yet no one has anything negative to say about him...*".

Two teachers expressed their concerns about the ICT's effects on them. These concerns revolved around the "*uncharted territory*" related to ICT, because of the fast-paced incorporation of technology in the classrooms. They claim that there is no precedent for an incorporation of technology in the schools in such a large scale, so the majority of the aftereffects is still unknown. FG1 stated: *"...they [the ICT] entered [the classrooms] way too fast, without a trial period, without a warning of what they could achieve, or what we were supposed to do with them"*.

One participant stated that the teachers' training is not-sufficient to cover their needs. The qualified trainers-to-teachers ratio is not enough to cover all the increasing number of applicants each year. This resulted, according to the interviewee, in teachers having to use ICT without knowing how. A participant also claimed that the results from this swift incorporation of ICT in the classrooms can be negative, with the teacher's position being undermined and downgraded while the spotlight is focused on ICT. Another concern they expressed is that their existing practices, "*honed and perfected over the years*", have to be reworked because of the new standards. Expanding on this, they also stated that they would prefer to preserve their existing educational practices instead of formulating new ones based on ICT. One more issue is the ICTs' optional use, which according to two participants, it is not exactly optional. A lot of educational content coming from their colleagues and the Ministry of Education is in digital form or related to ICT, so they feel "*forced*" to use ICT even if they do not want to or think it's necessary.

Most of the teachers admitted that the incorporation of ICT in their classrooms have changed positively their teaching methods and strategies and consider them necessary and important aspects in the educational process. Others find them useful but optional tools in the hands of the individual teacher, who should have the freedom to use them or not, or whether the situation demands it. Lastly, there were teachers who expressed their doubts on the ICT and their application in the classrooms.

6.2.4 Effects on Students

Another major theme identified, which is in close correlation with the previous one, is the ICT's effects on the students. Along with the teachers, students are the second group directly related to the ICT application and use in the Greek Primary Schools.

Interviewees referred to the impact that ICT has on the students. Almost all of the participants mentioned that they have noticed positive differences in the students' collaboration, performance, attitude, focus, confidence, memory and critical thinking abilities when ICT is involved. Also with ICT, the lesson becomes more interactive and fun and the students' attention span is sustained longer. As IN4 states: "*in terms of performance, ICT have a catalytic effect on the students. Students have it in their nature to admire technology, since it's the closest thing they have to magic. It hones their senses, their critical thinking ability and their memorizing skills. ICT is an incentive and motivation for them to study more, participate in the lesson etc*". It is also mentioned that ICT can have a positive impact on students with learning disabilities and Attention Deficit-Hyperactivity Disorder (ADHD), however, this impact is less visible on students who would perform well even if ICTs were not involved.

Most participants described how their students are attracted to the ICT and more specifically to audiovisual material, which is more appealing to them compared to the book's illustrations. According to the interviewees, an effect of this student-ICT relationship is a less boring lesson, more productive and more efficient, as the students' memory and motivation levels are distinctly higher than it is when ICT is not involved. FG6 expresses that by saying: "*ICT enhances the learning process to the point that students learn and remember important history facts just by watching and hearing a video in class [...] the students' level of confidence is multiplied whenever technology is involved*".

Most of the participants also focused on the fact that students' join the Primary School already having adequate knowledge of technology and the classroom's ICT, because of the technology they are exposed to in their homes. They claim that students are familiar with their surrounding technology and so they immerse immediately in the classroom's environment. As a consequence, they get used to their surrounding technology fast. As IN2 explains: "*they already know how to use the computer, how to perform a Google search etc. Their transition from kindergarten to Primary School is smooth because they experiment with technology at their homes*". According to the same interviewee, the students' excitement for the technology is declining the more they come in contact with the classroom's ICT.

Interviewees stated that an additional effect of the students' swift immersion in the classroom's environment is the teacher's increased expectations of them in terms of performance. FG4 focused on the students potential by

saying that "*it has reached new standards, new heights. Every year we raise the standards, we expect more from them [students]. Some years ago the first degree equations were taught in the 2nd Grade of Middle School, now they are in the 6th Grade and the groundwork on equations is being set in the 5th Grade. And ICTs have played a huge part on this. Students now have more access to information [...] they grasp information faster, so we expect more*".

Other participants expressed their concerns on some negative effects that derive from the ICT in their classrooms. Children turning to be anti-social, addicted to the Internet and having lack of imagination are some side-effects mentioned. As IN1 explains: "*I see an increasing number of students addicted to the Internet from as early as the First Grade [...] I can't turn a blind eye on the fact that we add some extra hours on the kids' exposition to the Internet*". Another participant also stated that: "*students sometimes get lost in technology [...] ICT can distract the audience from the cause of teaching and make them focus on the means and not the end*", explaining that students may focus on the technology and get distracted from the purpose of the course.

6.2.5 Teachers' Wishes and Ideas for Improvement

The fifth and last theme identified was derived from the teachers' thoughts and desirable changes regarding ICT and their use. Each individual interviewee focused on a different sector he/ she would like to see improved or had a suggestion on how to improve it.

There was a convergence of suggestions on the need to improve the educational software provided from the Ministry. The teachers asked for better digital supplementary content, with more depth and variety. Additionally, the participants also suggested that the students should be a part of the designing process, since the results would affect them directly. IN2 expresses this by stating: *"It's not hard for the Ministry to create small animated material for example for history class. Especially the Greek history is the best candidate for this [...] all these historical periods can be enhanced with animations, statistical charts and so much more. And we can do it in collaboration with the students, ask them what they want to experience and make them parts of the designing process"*.

New courses related to ICT is another idea suggested by IN5 and FG7 and FG8, who believe that basic programming lessons should be introduced in the Primary Schools. Basic programming should be a necessary course,

especially for the higher grades, the 5th and the 6th. According to IN5, "*Java and HTML for instance, can help the students put their thoughts and priorities in a logical order. It helps them create a mindset that assists them in every other course, as well as in their lives*".

Better resource management is mentioned several times from the interviewees as a way to reduce the schools' constant struggle to secure funds for ICT. Their suggestion is the formulation a large group of experts around Greece, having their own organization, who would supervise the incorporation and ensure the smooth running and maintenance of technology in these schools. IN5 describes that the ICT maintenance costs are high: "*Last year we've spent more than 700 Euros on repairs, because more than once, we were in desperate need of a technician and the one appointed by the municipality was busy*". Additionally, the interviewees suggest that the Informatics teacher in each school could promote ways for better ICT implementation in the courses and be more active, with an upgraded role in the school. FG7 explained that role, it could be ICT maintenance, software issues and a louder opinion when it comes to invest money on ICT.

According to the interviewees, teachers' training on ICT is another sector that can be improved, by increasing the numbers of teachers trained per year. The teachers state that the current trainers-to-teachers ratio is excluding hundreds of applicants who have volunteered to improve themselves and have no means to do so. They suggest having more trainers, in order to increase the number of qualified teachers in each school and reduce the injustices of the current draw system.

In Focus Group 1, the participants discussed about a network of digital collaboration between the Primary Schools of an area, a municipality or a county. Two more teachers of this group supported the idea of the interconnection of schools through a digital platform, instead of the current situation, which is most Primary Schools having their own platform and some of them none at all. FG2 supports this suggestion by stating that this will promote collaboration and the exchange of ideas and material. This platform would be a controlled and supervised environment where teachers can upload grades, post notifications and updates, observe how their colleagues work and derive ideas and patterns while sharing their own. The participants of this focus group stated that they have filed an official file about this suggestion directly to the Ministry, mentioning however that they have no update on the issue for one and a half year.

An upgrade to the school's network that would filter the malicious content and that would be upgraded more frequently was the suggestion from IN1. The teacher explains that the student's exposure to the Internet without supervision can prove to be dangerous. His opinion is that the schools must be provided with a better safety net that filters anything malicious, a safety net that is renewed every day and teachers should be prepared and check their sources prior to presenting them to the students.

7 Discussion

The following chapter will include a discussion of the main findings in correlation to the themes that emerged. Literature and previous research related to the findings will be included and discussed.

7.1 ICTs' Suggested Policies and Acquisition

The policy document analysis showed that the Ministry of Education gives instructions and sets goals for the teachers, suggests ways to incorporate ICT in their teaching methods and take advantage of them. It also provides detailed instructions on how to use the ICT to achieve these goals, supported by examples. In contrast, a convergence of thoughts was noted on the teachers' opinions regarding the legal framework around ICT. They were aware of the official papers and the Ministry's suggestions; their experience however has proved that these suggestions are not always applicable. This is caused by a variety of reasons, from high standards set from the Ministry that cannot be met in action, from lack of coordination and communication between the Ministry and the schools and from lack of ICT hardware, funding sources and lack of teachers' training. These are the main reasons for a dysfunctional ICT implementation in the classrooms. This comes in correlation with Cuban's (2006) research, saying that the reformers expect results fast, without taking into consideration the needs of the teachers. The teachers unanimously agreed that the Ministry has little sense of what is actually happening in the classrooms, rendering its suggestions difficult to follow.

Voultsiou, (2007) states that one of the imbalances concerning the use of ICT in the Greek Primary Schools is the differences on ICT acquisition between public and private schools. The teachers agree that these imbalances, caused by the limited budget and the differentiations in the funding of each school, create a blurry picture in the educational sector across Greece. Abbasi et al. (2015) also states this in his report that the ICT conditions and policies in education are unstable due to the economical, political and social conditions in which the country has been experiencing for the past seven years. This indicates that the ICT situation in each school is deeply connected with its funding, a statement also encountered in the research of Green, Baker & Oluwole (2013), which link funding directly with the ICT's existence in schools. The authors and the participants of the current research agree, saying that schools work with a limited budget that is

not intended to be used on ICT exclusively. The interviewees here explained that they mostly rely on sponsors and fundraising events instead.

The document analysis showed that the Ministry is constantly trying to provide the teachers with new, contemporary strategies for implementing the ICT in their lessons, while giving them space to decide whether they will incorporate them into their teaching methods or not. In addition, a supplementary official policy document is released every year in order to update and improve the framework around ICT in education. The Digital School Project is working towards this goal, to better integrate the ICT into curricula. With a lot of work that still needs to be done, like installing ICT hardware in all schools and investing on teachers' training, the Ministry of Education is trying to improve the situation (European Commission, 2015; Giavrimis, Papanis & Nikolarea, 2009). This cannot be denied and the interviewees agree to this. However, the teachers conceive these Ministry's actions as an attempt that cannot be applied in the Greek context. As Abbasi et al. (2015) points out, it is urgent that the Greek State makes significant changes to the policy mechanisms and budget distribution and invest on teachers' training in order to follow the European standards and promote innovative, constructive and creative education.

While ICT has proved to be present in all the schools and used by the teachers, there were differences in the kind of ICT used. Internet, computers and the interactive board were widely used, while other ICT such as the projector, the printer and the educational software were used occasionally or when the situation demanded. The reason behind this dissimilarity can be traced in the policy documents, which do not dictate which ICT must be present in schools. Findings from the document analysis show that there are suggestions and a small list, however without prioritization. Therefore, by having no common line or a list that would prioritize the ICT, it befalls to the teachers and the school's director, in collaboration with the teachers and the parents to decide upon which ICT they should invest money into, a choice that can be subjective. Cooperation and communication between them are key aspects.

7.2 Effects on Teachers

All participants mentioned that ICT have an effect on them or their teaching methods. However, their statements were diverse on the type of impact ICT have on them. Eight out of the thirteen participants were supportive towards the new technologies, stating that they have incorporated ICT in their teaching methods and that they use them extensively. Most of them

characterized ICT as mandatory tools that enhance and improve the teaching process. Three of the participants were more skeptical about the use of ICT, considering them as useful tools, but insisting on their optional nature, i.e. the fact that the lesson can be conducted with or without ICT. They also highlight their belief that the teacher is still the educator in the class and not the technology. These teachers' approach is more teacher-centered, closer to traditional teaching as Tondeur et al. (2008) distinguish. These interviewees focused on the teacher's role in the classroom, considering ICT as the a useful tool, which cannot replace the teacher. Findings from the document analysis show that the Ministry's optional suggestions and guidelines are aligned with these teachers' beliefs, giving the teacher the freedom and flexibility to decide on the ICT use. Lastly, two teachers were negative about the use of ICT in the classrooms and refrain from using them often, expressing doubts about their necessity and their effects.

The teachers who stated the beneficial effects on ICT on their teaching methods, also being the majority of the sample, agree with Pagani & Argentin (2015) that ICT can change and improve teaching by enhancing the traditional ways of teaching or opening the way for new ones. The teachers highlighted the fact that ICT saves them time that can be invested more productively elsewhere, confirming the results coming from Vrasidas (2015), Becta (2004) and Pelgrum (2001) who report as one of the main problems faced by the teachers the lack of time. In addition, as Condie and Munro (2007) argue, these participants also consider important that ICT supports their lesson preparation in order to present something solid and of improved quality to the students. This group of teachers, consider new technologies as opportunities to change for the best.

Some teachers were ambivalent about the ICT use in their classrooms and focused more on the role of the teacher in this environment, agreeing with Pagani & Argentin (2015), that ICT's effects depends on the way they are incorporated and used in the learning and teaching process. The participants stated that the teacher can not be replaced with something technological, although they admit that ICT is a powerful tool in the hands of the teacher. This group is relatively close to the category of teachers described by Zhao and Cziko (2001), requiring three necessary conditions to accept and introduce ICT in their classrooms: they should believe in the effectiveness of ICT, they should not expect any disturbances caused by ICT on their teaching and they should feel that they have control over this ICT. The participants' stance towards ICT is supported by Tsami (2016), agreeing that no ICT tool can improve all alone the educational process, but only when guided by a teacher. On the same level, Bates (2015) highlights the nature of

ICT as tools, that should be selected carefully by the teacher for the right task. Falck, Mang & Woessmann (2015) also consider the teacher the critical factor of the productive or unproductive use of ICT in the classrooms. The three teachers highlighted the importance of the educator having the freedom to make his own decisions in relation to the pedagogical practices he follows. Thus, they praised the importance of ICT, although at the same time they equated these technologies with traditional ones like the chalk and the blackboard.

Lastly, other participants expressed their scepticism towards the use of ICT in the classrooms. The two teachers focused on the negative effects that they may have on the students, the lack of teachers' training, their feeling that ICT were swiftly forced in their professional lives, and the teacher's downgraded position because of ICT. Vrasidas et al. (2015) present some similar findings on the teachers' lack of training and Voultsiou (2007) mentions several negative effects that were also stated by the participants, the standarization of educational practices and the social isolation and the sort of addiction that ICT may cause to the students. In addition, Abbasi et al. (2015) states that the ICT situation in Greece is hardware focused instead of being teacher-focused. These participants expressed their difficulty to adapt to contemporary technology, being resistant to change and standing firm to their pedagogical beliefs. The importance of the teacher's beliefs in the process of the incorporation of technology is highlighted in the studies of Tondeur et al. (2016), stating that it plays a key role. These stances towards ICT being also encountered in Becta's (2004) and Mueller et al. (2008) studies, who state that among the possible barriers encountered related to teachers and ICT is being hesitant to adapt. This group of teachers has presented its concerns as they have balanced the ICTs' positive and negative effects and the risks worry them more than the potential benefits of ICT use in the classrooms. According to Pelgrum (2001) these are non-material obstacles faced by the teachers in their attempt to integrate ICT in their pedagogical strategy.

7.3 Effects on Students

The ICT's effects on the students were examined and can also be considered positive, based on the empirical findings. Increased motivation, increased focus, better memory, improved critical thinking and knowledge absorption were the main effects that ICT have on the students. Most of the participants stated that ICT makes the lesson more exciting and the students show increased motivation, focus and participation when ICT is involved. This is supported by the researches conducted by i.e. Grabe and Grabe (2007),

Newton and Rogers (2003), Balanskat, Blamire & Kefala (2006). The interviewees in this current study focused on the traits in the students' attitude and in the effects of ICT on the students' achievements in projects and grades. As Charalampidou and Vergeti's (2010) study examined, students nearly doubled their performance on certain subjects that require critical thinking after the use of computers. The students' critical thinking ability is also described as enhanced and come in correlation with Yang's (2009) and Majumdar's (2015) work that present an improved critical thinking sense among students after the use of ICT. Critical thinking enhancement is also one of the goals set by the Greek Ministry of Education, as seen in the second policy document examined. ICT is used as a cognitive tool to promote critical thinking and innovation amongst students. It can be considered a successful step towards achieving ICT literacy. The participants also described this improvement and added that the students also show increased memory and knowledge absorption skills when ICT are involved. Furthermore, as the teachers stated, students with learning disabilities can be assisted from ICT, a statement that is encountered in Chua's et al. (2016) and Ting-Feng's et al. (2014) studies. According to these researchers, ICT assist the students with learning disabilities to overcome them and increase their performance in school.

The students' excitement and motivation mentioned, is not something permanent according to DiGregorio and Sobel-Lojeski (2009), since it will wear out over time, after the new technologies will not be considered *new* anymore. One participant also confirms this aspect, saying that students are becoming less and less impressed from the ICT used in schools nowadays and get used to it fast.

Gibson (2001) describes an effect of ICT on teachers that it directly affects the students, saying that teachers expect more from students. This comes in contrast with the study conducted by Vekiri (2010), finding that the teachers' expectations are the same regardless the student's performance or attitude towards ICT. As the empirical findings here show, teachers admit that new high standards have been set because of the existence of ICT in the classrooms, as students have more access to information and have shown increased learning rates. This effect is described by Gibson (2001) who also mentions that because of ICT, teachers expect more from the students, like understanding more difficult concepts.

On the negative effects, Voultsiou (2007) mentions that technology can cause the sense of addiction to the student. She also states that the computer absorbs a big percentage of the students emotional energy, lowering his self-

confidence and that the students' continuous exposure to radiation in conjunction to immobility for several hours per day may provoke negative effects to their health. Similar negative effects were mentioned in the current study, with teachers expressing their concerns on the hours that the student is exposed to the Internet, assuming that he or she spends some time online at home as well. The participants also mentioned as side-effects of ICT in the classrooms the social isolation and the lack of imagination, caused by the new ways of communication through screens and keyboards, which can be explained from the aforementioned absorption of the students' emotional energy after prolonged exposure to the computer.

7.4 Ideas for Improvement

The participants have expressed some of their wishes and ideas for improvement. Their opinion is highly valued, since their experience in the field is hands-on. Findings show that they have been working on their ideas, some in their minds and some more actively. Everyone explained his opinion on how the ICT context in the Greek Primary Schools can be improved. From small suggestions to large-scale proposals addressing the Ministry of Education directly, the teachers are mostly concerned with collaboration between them and between them and the students. Additionally, there has been noticed a convergence of opinions around the improvement of educational software, in order to explore and exploit the interactive nature of ICT.

Abbasi et al. (2015) suggests changes in the Greek State's policy mechanisms and budget distribution and focus its investments on teachers' training. These are also the suggestions of several participants in this study, expressing their concerns on their school's funding, their training and the mechanisms revolving around the educational system in general. Teachers express their dissatisfaction with the Ministry's reactions to their needs and present their ideas that could improve the current situation. From ICT maintenance teams assigned to a small number of schools each, to better educational software based on animation and statistics, the teachers have ideas and solutions and are willing to discuss them with the Ministry.

The idea presented in Focus Group 1 about a digital platform that would interconnect the Primary Schools of an area, e.g. a municipality, was a suggestion that would promote collaboration between teacher, students and parents in that area. Such a platform would resemble the case presented by Hasley (2007) in New Zealand, where teachers and students built a blog in

order to share their work and collaborate with other schools, with positive results.

The teachers highlighted the importance of educational software and how it can improve their educational practices. Participants express their need for more variety in the digital material provided by the Ministry and one participant expanded on the idea of history-focused interactive comics or animations. A similar attempt is described by Lim (2008) in which, by using an educational game called Atlantis, the student were engaged into English, Mathematics and Science problems/ quests and the results were positive. In addition, the participant's statement that students should be included in the educational software's design process agrees with Beavis, Muspratt & Thompson (2015) and Beckman et al. (2014) who support that taking into consideration the student experiences and opinions when designing ICT is a must in order to understand their needs.

"Media education" practices are needed so that the student may understand the opportunities and risks hidden behind ICT, as Calvani et al. (2012) and Argentin, Gui & Tamanini (2013) suggest, in conjuction with a participant's suggestion about an improved and strong student's safety net designed for the Internet, that would filter the malicious content.

8 Conclusion

The final chapter concludes this research by answering the research questions. This study's contribution to the research community, suggestions for future research and my own personal reflections are included.

8.1 The Research Questions Answered

The rationale of this research was to *explore the relationship between the Greek Primary School teachers and the ICT used in their schools and examine from their point of view and their own experiences, how do they affect each other*. The first research question stated to achieve the aim follows:

- *What kind of ICT is used in the Greek Primary Schools?*

The most popular ICT used is the computers, the interactive boards and the Internet, and less frequently/ occasionally used are the projector, the educational software, DVDs, the printer, the digital camera, the cassette/ DVD player and the television. The reasons behind the selection of these particular ICT are mostly their simplicity and their ease of use, as well as their flexibility and adaptability. The motivation behind their use is mainly their time-saving, personalized teaching and supporting features that opened new paths for these teachers.

The second research question stated follows:
- *What are the teachers' experiences on the use of ICT regarding the educational process?*

The teachers experiences on the use of ICT in their classrooms highlighted positive and negative aspects. The teachers expressed their positive opinion towards ICT, describing the many beneficial effects that ICT has on their teaching practices and on their students. The majority of the participants believe that the ICT have upgraded their practices in terms of time-management and lesson quality. Furthermore, they described that ICT have a beneficial effect on the students. Improved critical thinking, improved memory, better focus and motivation are some of these positive effects they have seen. However, they described their concerns related to the ICT use in the classrooms, proving that despite all the positive effects, there can be negative ones as well. The students may grow anti-social behavior because of ICT and become addicted to the Internet are some of the negative effects

mentioned. Furthermore, the teachers insisted that ICT is a tool in the teacher's hands and not a means by itself. They stated that the teacher is always the authority, the one making the decisions about his/her course and the ICT use should depend on him/ her. Technology is for them an important, but always optional addition.

8.2 Contribution

My aspiration for this research is that it has delved deeper into the topic of what kind of ICT is used in the Greek Primary Schools and how do the teachers perceive this technology. The findings could be useful to teachers and help them identify patterns, problems, ideas and solutions that they could correlate with their own experiences. The educational policy designers could benefit as well from these findings in terms of how teachers experience technology in the Greek Primary Schools and take them into consideration for improvements.

The main contribution of this research in relation to previous literature is that it includes the teachers' perspective on ICT compared to the legal framework on ICT in the Greek education. The findings depict the situation in the papers versus the situation in the classroom. The teachers are looking for ways to incorporate ICT in their educational practices as the Ministry suggests, but at the same time they are in a constant struggle to acquire this ICT. In addition, the teachers in this research describe the effects that ICT have on them but also include their perspective on the effects of ICT on their students. These two aspects combined is an under-researched subject in the Greek context. Finally, another main contribution of this study is that the participants express their own ideas and suggestions to improve the ICT situation in the Greek Primary Schools. Having the experience due to their daily friction with ICT in their classrooms, they know what is working as intended and what needs improvements. I believe these three points are the main strengths of this research.

8.3 Future Research

For a more holistic and comprehensive understanding, a study that would examine the student's perceptions on ICT is an interesting topic for further research. Students could offer different perspectives and it would be interesting to examine their experiences and their needs.

Furthermore, this research unfolds around the Greek Primary Schools only. Its findings can be compared with similar studies from different countries

and start a discussion and a comparison on the ICT context in Primary Schools in different parts of the world. The studies can benefit from one another and present findings on a wider scale.

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Appendix A - Interview Questions

Opening questions:
1. Please introduce yourselves.

2. Could you share some additional information about your proficiency and your background?

Questions:
3. Could you please describe your way of working?

4. Could you please describe what kind of ICT do you use in your course?

5. What is your opinion on the ICT?

6. Do you believe ICT use affects your teaching methods/ patterns?

7. The policies suggested by the Ministry of Education provide ways to incorporate ICT smoothly in the traditional teaching methods. Are you aware of these policies and what is your opinion on the matter?

8. How do you decide on which ICT the school will invest money for/ what are the criteria?

9. If any, how would you describe the ICT effects on the students?

10. How do your students perform in the lessons after the mass incorporation of ICT in the classrooms?

11. Do you believe that contemporary teaching with the use of technology is necessary or optional for the student's benefit?

12. Out of your personal experience, are there any side-effects after the incorporation of ICT in the classrooms?

13. If you had to change something regarding ICT in your school, what would be that?

14. Could you please share an incident regarding ICT in your school, that illustrates the relationship between teachers and ICT, or students and ICT, or the current situation between schools and ICT in general?

Appendix B – Informed Consent Form

Declaration of consent for participating in the interview, part of the research titled: *ICT use in the Greek Primary Schools: the teachers' experiences*.

I am Georgios Agiorgitis, MSc student in Linnaeus University of Sweden in the "Master in Information Systems" programme. The purpose of the research is to explore the Information and Communication's Technology use in the Greek Primary Schools, as seen through the experiences of the teachers. I therefore conduct this interview in order to gather data on the topic, directly from the source, the teachers.

Participation in the interview is voluntarily and all of the participants will remain anonymous and their personal information confidential. The interview will last approximately 45 minutes and it will be recorded (audio only) in order for me to transcribe it and analyze it later.

All data collected during this interview is to be used for my thesis exclusively. The recordings, the transcripts and all collected data will remain in my possession in digital and physical form, while only my supervisor, my examiner and I will have access to it. The transcriptions as well as the analysis of the collected data from each participant will be available to her/him upon request. The participant can withdraw any time he/ she wants from the interview. Additionally, during the next two-weeks period, the participants can still withdraw from the research and have all their recordings erased.

Please read carefully:

I understand the aim of this group interview and I give my persmission to the researcher to use the data gathered during this, for his research purposes. I have received a copy of the Letter of Consent, signed by the researcher.

Date:

Location:

Participant's signature   Researcher's signature

Appendix C – Policy document analysis - Coding

List of Documents	Analysis	Application of ICT in Primary Schools	Use of ICT in Primary Schools	Relevant information on informatics education and the educators
Εφημερίς της Κυβερνήσεως της Ελληνικής Δημοκρατίας (Β΄ 303 13-3-2003) *-Greek Government-*	Focused on the laws and framework, it sets the ground rules, the basis around which the educational system is built. Oldest relevant document found	Limited Limited to personal computers, Internet and educational software.	Limited Little info. about the practical use of technology in the classrooms	Limited Only 4 pages dedicated to the teaching approaches
Κανονισμός λειτουργίας εργαστηρίων πληροφορικής και υποστήριξης των ΤΠΕ των ολοήμερων Δημοτικών Σχολείων που εφαρμόζεται το Ενιαίο Αναμορφωμένο Εκπαιδευτικό Πρόγραμμα *-Greek Government-*	Provides clear guidelines on what is included in an ICT lab and how it should be managed, by whom and assigns responsibilities according to the law	Clear Defines what an ICT lab is and what it should include	Limited Provides formulas and templates for managing ICT, but they cannot be applied in every situation	Clear Defines the obligations for the teachers, concerning the use of ICT
Διαθεματικό Ενιαίο Πλαίσιο Προγράμματος Σπουδών Πληροφορικής *-Greek Government/ Ministry of Education-*	More focused on the course of Informatics and its teaching. Suggests educational strategies so that students can use and take advantage of technology in their schools	Limited Focusing exclusively on computers, it neglects other types of technology in Primary Schools	Unclear Only defines the learning objectives of technology for each one of the 6 years of Primary School	Clear Suggests educational approaches to the teachers
Η Αξιοποίηση των ΤΠΕ στην Πρωτοβάθμια Εκπαίδευση *-Hellenic Union of Informatics' Teachers-*	Provides statistical data about the use of ICT in all counties of Greece and covers the topic from most angles, economical, pedagogical, social etc.	Clear Refers to the application of technology in Primary Schools, what should be considered "proper"/ technology	Clear Detailed instructions about the use of ICT in Primary Schools	Clear Examines the role of the educator and the connections between him/her, technology and the students
Οδηγίες διδασκαλίας και διδακτέα ύλη Δημοτικού Σχολείου 2016-17 για το διδακτικό μαθησιακό αντικείμενο "Τεχνολογίες Πληροφορίας και Επικοινωνιών" *-Greek Government/ Ministry of Education-*	The most recent and updated document, acts as a supplement to the Official Gazette. Clear guidelines, precise and up-to-date	Clear Detailed information on how to incorporate ICT in the classrooms	Clear Suggesting which ICT should be used in each grade and how	Clear Provides the teacher with a lot of different approaches relevant to ICT, defines the obligations and sets aims. There is no must-have ICT in a classroom, teachers to choose their favorite, depending on their teaching style