DIGITAL LITERACY COUNTRY COMPARISON REPORT

MeLDE

MeLDE:

Media Literacy in the Digitalised Era: supporting teachers through a whole-school approach

Author (s): Dr. Bianca Fox, University of Wolverhampton, UK

Contributing Authors:

Chrystalla Thrasyvoulou, Emphasys Centre & Michalis Odysseos, ANT1 Limited, Cyprus

Beata Jaranowska, Daria Jaranowska, Arbeitskreis e.V. in Munster, Germany

Athanaios Drigas, Vasiliki Bravou, Eleftheria Demertzi & Yannis Papagerasimou, N.C.S.R. "Demokritos", Greece

DIGITAL LITERACY COMPARATIVE COUNTRY REPORT

PROJECT INFORMATION

PROJECT ACRONYM: MeLDE

PROJECT TITLE: Media Literacy in the Digitalised Era: supporting teachers through a whole-school approach

PROJECT NUMBER: 2018-1-UK01-KA201-048041

SUB-PROGRAMME OR KA: KA2 COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES

WEBSITE: WWW.MELDEPROJECT.EU

CONSORTIUM:

TABLE OF CONTENTS

1. ABOUT THE MELDE PROJECT

Digital advances act as mediators between us and the rest of the world and have the power to break down boundaries of time and space but have also brought tensions and concerns regarding the effects of excessive use on individuals' wellbeing. An increased digitally active way of life has brought new challenges for Europe's pupils and teachers. In recent years, the information overload and the added dangers of fake news and data privacy have become a concern for parents and educators alike. EU citizens, but above all young people, are exposed to cyberbullying and cyberharassment, predatory behaviour or disturbing content online. Everyday exposure to digital data means constant exposure to new risks and requires, more than ever, an adequate digital preparation that will help individuals live a safe tech-enabled life and engage positively and competently in the digital environment.

The ability to read, understand and critically evaluate a variety of media has become an essential skill in the 21st Century. In a broad sense, media literacy is the ability to access, critically analyse, evaluate, engage with and create media. However, literacy and by extension media literacy is not 'just a way of making meaning, but also a way of relating to other people and showing who we are, a way of doing things in the world, and a way of developing new ideas about and solutions to the problems that face us' (Jones & Hafner, 2012: 12). Media-literate citizens are better equipped to understand the complex messages they receive from television, radio, Internet, newspapers, and all other forms of media they interact with. A good level of media literacy empowers citizens with knowledge, skills and ability to critically access information online, to critically analyse online information and media content and to engage with media and other information providers for social, civic and creative purposes. However, most societies are not prepared to face a tech-enabled future and are struggling to find the best way to educate their citizens and empower them with the right digital skills to work and live in a digital world. In this context, the MeLDE project promotes:

- The development of relevant and high-quality skills and competences (accessing media, analysing media content, understanding and evaluating media messages, and the ability to create media content for communication and self-expression and using media as a tool for life-long learning), which are not often included in formal education.

- Open education and innovative practices in the digital era, by offering open and free access to the tools to be developed both for participation in the MeLDE programme and for online assessment and validation of the skills acquired.

- Support the professional development of teachers by creating an educational pack to support teaching and learning of media literacy for digital citizenship. This will also be achieved through the introduction of evidence-based data, benchmarks and indicators built into our innovative framework to be developed during this project, and constant monitoring procedures to ensure acquisition of competences and skills. In addition, quality youth work will be promoted through the new interactive material, as well as the assessment tools, which will follow students' progress.

MeLDE's main target groups are:

- Direct - SECONDARY SCHOOL TEACHERS whose profiles will be upgraded and strengthened through the professional development programme to be developed to acquire essential media literacy skills to support, protect and educate students in the topics identified above.

- Indirect - SECONDARY SCHOOL STUDENTS who will be the end beneficiaries of media-literate teachers introducing various innovative activities in their teaching.

Based on the effects of digitalisation around the world, it is essential for the project to be implemented transnationally, as such a diverse and multi-level challenge demands sharing and exchanging of good practices, transfer of innovation, and creation of alliances to support students to become responsible citizens of the connected world we are living in. The MeLDE consortium brings together partners from 4 European countries: Germany, Greece, Cyprus and the UK that will contribute to the following 5 key project outputs (4 IOs and a learning and teaching activity):

1. Comparative FRAMEWORK with details of the current situation in the partner countries, students' and teachers' needs, and benchmarks and indicators against which students' learning will be assessed.

2. An EDUCATIONAL PACK which will include (a) MeLDE TOOL BANK - numerous resources and tools to be collected and created to promote specific aspects of the FRAMEWORK to be developed, (b) MeLDE ACADEMY - an UPSKILLING PROGRAMME for TEACHERS for the acquisition of digital and media skills (later to be used at C1 JSST and as a KA1 Learning Mobility).

3. A dynamic and interactive ePLATFORM, which will serve a range of purposes: (a) TOOL BANK with learning modules, resources, materials and good practices, (b) ACADEMY where Teachers' Training Course will be offered online (along with information about relevant offline courses), (c) Forum and downloadable start-up pack for use by MeLDE COMMUNITY groups. The TOOL BANK will include an ASSESSMENT and VALIDATION TOOL for monitoring, recording, evaluating and validating the acquisition of media literacy skills for digital citizenship. Procedures, methods, endorsement, badges selection etc. will be designed and a link into the provider website will be initiated to introduce VISIBILITY, RECOGNITION AND TRANSFERABILITY, as recommended by the EU. This will be based on the Framework.

4. A TOOLKIT to support schools to develop their own 'WHOLE SCHOOL APPROACH' for promoting media literacy for digital citizenship. This will include strategy templates, good practices, guidelines for creating synergies, monitoring tools, implementation tips, exploitation mechanisms to support teachers and schools to integrate media literacy in their practice.

5. The DIGITAL AND MEDIA LITERACY SUMMER SCHOOL FOR TEACHERS which will be pilot-tested to offer blended learning opportunities for the acquisition of media literacy skills for digital citizenship to support students. This professional development course will be valuable for teachers as an in-service training.

2. ABOUT THIS REPORT

This report is part of Intellectual Output 1 and offers an overview of teachers' digital skills and the digital technologies used in teaching based on a detailed examination of research conducted in four countries: Germany, Greece, Cyprus and the UK. The report reveals the state of research in the partner countries, it reviews digital literacy initiatives, sheds light on the current levels of digital literacy and highlights common problems that teachers and students are facing in each of the partner countries. The aim of this comparative report is to outline existing digital cross-generational skills gaps in European secondary schools that will inform a cross-national framework and an educational pack designed to better prepare aspiring teachers, and support and encourage all teachers to use digital technologies in teaching to better communicate and educate new generations of pupils.

The report is structured in 8 sections, followed by a bibliography. The first two sections introduce the MeLDE project and explain the scope of the present report, section 3 provides a snapshot of the European research on digital literacy, section 4 presents an overview of the current state of digital education in the partner countries, section 5 presents a summary of findings, section 6 explains the methodological approach adopted by the consortium, section 7 provides a detailed comparative analysis of the data collected in each of the partner countries and section 8 discusses implications for practice, limitations of the present study and presents our recommendations for further research.

3. EUROPEAN RESEARCH ON DIGITAL LITERACY

Information and communications technologies (ICTs) are a structural component of modern societies and have decisively influenced many aspects of daily life of citizens in a wide range of areas such as administration, economics, culture, entertainment, education etc. The rapid growth and diffusion of ICTs, the huge volume and multiplicity of digital information available today, combined with the rapid production of new knowledge, form a fresh social, cultural and educational environment that requires a revised set of skills. The amount of information available online is often overwhelming and citizens ought to have the ability to select, analyze and evaluate online information. This can easily be achieved if societies embrace digital technologies and encourage citizens to find out more what can be achieved using digital technologies.

In modern educational environments, ICT is seen as a factor of great change in schools that can lead to better educational results. Many argue that if used wisely, ICTs can help students develop the knowledge, skills and attitudes they need in order to succeed in modern societies. The ultimate goal of any education provider is to prepare all students for further life and a successful career, as well as for an active participation in the modern knowledge-based society. The great potential hidden like a treasure behind digital technologies must be discovered and exploited in schools.

In this context, digital literacy is not an option but a fundamental set of life skills (Bawden, 2001; Martin & Madigan, 2006; Markless & Streatfield, 2007). Considering the rapid rate of change of digital technology and the rapid adoption of digital technologies in modern society, digital literacy has become a key factor in enabling participation in education (Martin, 2006). The importance of digital competencies has also been recognized by the European Parliament and the European Council since 2006 as one of eight key competences essential for all individuals in today's knowledge economy and information society. Therefore, digital competence was defined as follows: 'Digital competence involves the confident and critical use of information Society technology (IST) for work, leisure, learning and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, access, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet.' (European Parliament and the Council, 2006).

European research on media and digital literacy is abundant in all EU member states and mostly consists of disparate cross sectional studies. We have identified numerous country reports that vary in length and scope but only a few cross-country reports. Without intending to belittle the results of the national studies that are clearly contributing to setting a national and local research agenda, we must point out that these studies are rarely contributing to the global debates because in the absence of a comparative perspective 'national studies risk two fallacies – that of assuming one's own country is unique when it is not, and that of assuming one's own country is like others when it is not' (Hasebring, Livingstone, Haddon, Kirwil & Ponte, 2007: 5). Our comparative report is informed by a review of the research literature in the field and offers a comparative exploration of digital skills in secondary schools based on a detailed analysis of data collected in four countries: Germany, Greece, Cyprus and the UK (all part of the MeLDE consortium). The report contributes to flagging up common tendencies in the use of digital technologies in the classroom and discusses a series of issues most European countries are facing in the digital era.

Before presenting the results of our research it is important to establish a working definition for the term digital literacy. Media literacy and digital literacy are both relatively new and inter-related concepts as without the former one cannot achieve the latter. Media literacy generally focuses on teaching individuals to be critically engaged consumers of media, while digital literacy is more about enabling individuals to participate in digital media in a wise and safe way. Therefore, digital literacy builds on media literacy skills while incorporating new concepts. According to the European Commission (2003), 'The ability to use ICT and the Internet becomes a new form of literacy – "digital literacy". Digital literacy is fast becoming a prerequisite for creativity, innovation and entrepreneurship and without it citizens can neither participate fully in society nor acquire the skills and knowledge necessary to live in the 21st century' (European Commission, 2003: 3).

Since the 1980s when the term 'digital literacy' started being widely used (Mohammadyari & Singh, 2015), there has been a plethora of definitions put forward by scholars, some very broad, others too narrow. So far definitions have focused on a few key elements that combined together make a person digitally literate, such as: Internet access, the ability to find, edit, create, evaluate and disseminate online information, or the ability to use digital devices. For example, Glister (1997: 290) defines digital literacy as 'a set of skills to access the Internet; find, manage and edit digital information; join in communications; and otherwise engage with an online information and communication network. In simple terms, digital literacy is the ability to properly use and evaluate digital resources, tools and services and apply it to their lifelong learning process'. Littlejohn, Beetham & Gill (2012: 547) offer a broad definition of the term asserting that digital literacy is a set of capabilities designed to help individuals thrive in and beyond education in a digital world. Other scholars like Hall, Nix and Baker (2013) divide digital literacy into: '- Information literacy (IL), defined as the ability to find and make use of information, including searching for, evaluating and referencing information. - Information and communication technology (ICT) skills, defined as the skills needed to organize, present or share information using a computer, by means of e.g. word processing, spreadsheets, email and presentation software' (Hall, Nix & Baker, 2013: 208).

Digital literacy is considered an umbrella concept that is understood and defined in a variety of ways depending on the discipline, context, scholar's experience and background. We believe digital literacy rests upon elements of literacy and expands the concept of media literacy and have therefore formulated our own digital literacy definition based upon the key elements that this broad concept should include. Unlike existing definitions, we have included online safety in our definition. We define digital literacy combines a set of competences (such as: the ability to access, communicate, successfully manipulate, analyse and assess information from a wide array of media sources) and a set of skills to access knowledge, create and share content online (from text to video and audio files) using any digital device, communicate with others in full awareness of digital risks, as well as skills of inquiry and political engagement that will enable individuals to perform a variety of tasks and live safely in a digitalised world. Furthermore, we believe that digital literacy requires critical thinking, builds on a general understanding of the role of digital technologies in the society and enables individuals to foster online collaboration and participation. In an education context, Hall, Atkins and Fraser (2014) propose the following working definition: 'Digital Literacy refers to the skills, attitudes and knowledge required by educators to support learning in a digitally-rich world. To be digitally literate, educators must be able to utilize technology to enhance and transform classroom practices, and to enrich their own professional development and identity. The digitally literate educator will be able to think critically about why, how and when technology supplements learning and teaching.'

4. STATE OF DIGITAL LITERACY EDUCATION IN THE PARTNER COUNTRIES

In the UK, there is a great focus on preparing young people for a digital future. The past decade has brought a number of educational policy changes that aim to make sure that the changes and demands brought by the digital era are reflected in schools. The National Curriculum introduced in 1988 was reformed in 2008 (details of the National Curriculum for England, Wales and Northern Ireland can be found at: curriculum.qca.org.uk) to replace an out of date ITC programme of study and to allow schools to flexibly plan and manage their own curriculum. Through a greater focus on life-long skills that better reflect the needs of the 21st century societies, the aim of this important reform was to support young people gain industry-relevant skills and become confident internet users and active citizens able to shape the digital future of their communities.

The new reformed curriculum is designed to help all young people gain the knowledge and skills to succeed in a very challenging digital world and aims to foster participation in education and to encourage more students to study technology-related qualifications (see more in the UK National Report available at https://meldeproject.eu). Children are beginning to learn valuable basic digital skills from the age of five. Primary school pupils are being taught what algorithms are, how to design and write programs to accomplish specific goals and how to apply logical reasoning to detect and correct errors. Secondary school pupils (11-16 or 18) are taught to use at least two programming languages to solve a variety of computational problems, and to design, use and evaluate computational abstractions of real-world problems and physical systems.

Germany is a federation and consists of 16 Bundesländer (federal states) each having areas of responsibility of their own. Therefore, the German system of education is not centrally organized. The regional ministries of education and culture are responsible for schools, in which the range of subjects, curricula or certificates can be regulated in different ways depending on the state. For many years the increasing importance of media education was highlighted and promoted within and by the curricula. Twenty years ago a written document about media education – Medienkonzept - was put together with the aim to include media learning as a mandatory part of the school curriculum.

In Germany, computer science as a school subject is taught from the age of 10/12 (it depends on the type of secondary school and the Bundesländer aka federal states) and is mandatory in only nine of 16 federal states in Germany. Additionally, in those nine Bundesländer (federal states) IT classes are not offered in all types of schools and quite often they are only part of a broader curriculum. In the remaining federal states such classes are up to the schools or teachers. The students from Rehabilitation Studies of the Technical University Dortmund organise an All Digital Week campaign. It is about inhabitants of Germany acquiring new digital skills and competences and then supporting others in their learning process of digital media. Everyone is invited – senior citizens, refugees, educators and volunteers – to take part in various training sessions for different target groups.

Media education in Cyprus has been established and students take it as a compulsory lesson in the curriculum of Modern Greek in secondary education. In particular, at the first grade of the secondary education, students have a topic "The world through the screen-image". During this topic, students will have the ability to create an electronic album in which they will work in groups to demystify the fake news of many media today. At the second grade, students learn about the topıc 'I am observing, I will be informed and entertained from different sources' (mass media, internet etc.). During this topic, students discuss the information and the entertainment they receive from mass media and the Internet. In addition, students have to choose an important mediated event and to present it through the collection of different material from a variety of sources as well as evaluating the reliability and the validity of this material. The material can be sourced from newspapers, the Internet, television and radio broadcasts. Finally, another topic at the third grade named 'Ahead of the future' aims for students to understand what they have learned about media literacy. They need to present all the advantages and disadvantages about the topic and as a consequence they will improve their critical thinking skills.

Secondary education (ages 12-18) in Greece is divided into Gymnasium and Lyceum, each of which has three grades. Gymnasium is part of Compulsory Education whereas Lyceum is not. In Gymnasium students attend Informatics lessons for one hour per week. Computer Science courses in the Gymnasium follow the same logic and thematic content axis as in elementary school but at a more advanced level. Students build on previous knowledge acquired in elementary school on how to use multimedia applications, how to navigate and interact with computers, how to browse the Internet and how to use appropriate software in their various lessons and in other activities. Furthermore, students approach concepts such as data and information as well as the means and techniques used to process, assess, transmit and download any information that may be presented in digital form. They learn about the general structure of computer systems and approach the concept of security, understand the necessity of having and keeping rules while using computers and especially when going online.

As already mentioned Lyceum is not part of compulsory education in Greece. Nevertheless, the vast majority of students continue their education and attend Lyceum and hence it is important to study its curriculum as well. In Greece, Lyceum has three grades. The purposes of teaching Computer Science in Lyceum include the expansion of general computer literacy of students with emphasis on the development of competences and skills in the use and utilization of computer and network technologies as learning and thinking tools, the rise of awareness of students about computer applications in the modern world, and in particular about the opportunities and perspectives they create in the industry/direction they are going to choose to study. Finally, perhaps the most important purpose is the rise of awareness and the development of students' critical thinking competence about social, moral, cultural, etc. issues raised by the "invasion" of computer and network technologies into all areas of human activity.

In the first grade of Lyceum, Computer Science is not compulsory but it is one of four courses which students can choose. Students that actually choose the course attend lessons for two hours weekly. In the second grade, the Computer Science course is compulsory and students attend lessons for one hour per week. In the third grade of Lyceum students attend a number of core courses and the rest of the courses they attend depend on the orientation they choose. The orientation students choose depends on the studies they want to follow due to the fact that at the end of Lyceum, Greek students take the “Panhellenic Exams” with which they enter higher education. In two of the orientations that mostly concern science and economics, students attend a programming course for two hours weekly. The main aim of the course is to develop students' analytical and synthetic thinking, to help them acquire methodological skills and to teach them how to solve simple problems in a programming environment.

5. SUMMARY OF FINDINGS

New ICT environments radically change the way people access, compile, analyze, represent and present information, communicate and collaborate with each other. They shape and define new types of skills that students need to cultivate in their core curricula so they can use ICT effectively, creatively and ethically. The aim is to enhance the learning outcomes and the continuous and lifelong development of students.

National governments' efforts to improve the level of digital literacy are seamless in all four countries, outlined in a robust digital literacy national strategy (Digital strategy (2017) in the UK; Digital strategy for Cyprus (2012); National Digital Strategy in Greece and Medienkonzept in Germany) and all four countries are implementing a series of digital literacy projects, such as:

- Lloyds Bank UK - Consumer Digital Index (2016); Tinder Foundation / GO ON UK: The economic impact of Basic Digital Skills and inclusion in the UK (2015), eTwinning, EUKidsOnline in the UK,
- DigitalPakt#D, School Cloud, Firewall Line Preventative Project, Gute Schule 2020 in Germany
- CyberSafety, NENTEP, EUKidsOnline, eTwinning, IdentifEYE in Cyprus,
- The New School Project, MedeaNet, Meizon Project, eTwinning, teachers4Europe, School-Lab, Digital Skills for All in Greece.

Regardless of the sustained efforts to improve digital capabilities of individuals in all four countries, results show that much more resources must be put into adult education and teacher education. Despite each Government's efforts to bridge the digital gap and make sure all individuals have Internet access and equal chances to understand and use digital technologies, digital divide is still high in all four countries. One of the most common forms of digital exclusion in all partner countries is the inability to access and use ICTs. Concentrated and focused actions are being implemented but more needs to be done to eliminate this digital gap and provide access to the Internet for all, which is something all the European governments are working on through massive investments in infrastructure.

Compared with previous research, this report shows a slight improvement regarding teachers' levels of digital literacy but there is still a need for a coherent and coordinated action plan to improve teacher's levels of digital literacy to be able to prepare students for the jobs of the future. More investment in educating teachers on how to use digital technologies to support learning and teaching is immediately needed.

Digital technology usage in schools has also improved with more than 80-90% of teachers using digital technology in teaching and all schools encouraging the use of new technologies in the classroom. However, despite encouraging staff to use digital technologies in the classroom, the majority of schools do not provide regular training for their staff. We argue that the lack of regular mandatory training can inhibit education and, long-term, will have a major impact on teachers and students' ability to adapt to an ever-changing digital world. We detected a lack of confidence when it comes to making the most of digital technologies in teaching associated with the lack of relevant regular training.

In all partner-countries media literacy is not identified as an autonomous object of study but mainly as a cross-curricular, interdisciplinary subject and embedded within ad hoc school projects. Moreover, digital literacy education is not part of teachers' education, working with digital technologies in the classroom seems to be of one's own free choice and, as a result, efforts to include digital technologies in teaching are disparate and disproportionate. This does not mean that there are no training opportunities for teachers at all. On the contrary, there are national and local training initiatives (for example, the Greek training programme for all teachers and educators named 'Training of teachers in the use and utilization of ICTs in the educational teaching process'). In addition, each school runs its own staff development scheme. However, because ITC training is not compulsory for teachers, these extremely skimpy attempts to digitally train teachers do not build a solid foundation that will lead to the successful integration of ICTs in teaching in the future. Moreover, there is no formal accredited school training framework for in-service teachers on media education as a core subject.

Current practice in all four countries shows that digital technologies are used in teaching mostly as secondary tools to reinforce knowledge, set up homework/tasks, or disseminate resources. Most teachers are trying to make the most of digital technologies but feel they are not using them to their full potential because they do not have appropriate training and/or access to up to date facilities. However, most schools still have to deal with considerable resistance from teachers who do not see the benefits of ICTs and are not interested in using digital technologies in teaching. That is why we suggest that continuous professional development for teachers is becoming imperative and digital literacy education should be a mandatory element of teachers' training that will open new horizons and contribute to (re)discovering the immense educational potential that the digital world offers.

The challenges that schools face in all partner countries are all congregated in the area of online safety, both target groups indicating that they are not sure what happens with the information they post online, they do not know how to report a fake website or how to spot fake news. E-Safety training should be mandatory for both teachers and students.

In all partner countries the majority of teachers and students have had computer training but this was not mandatory, and it is not a compulsory element of their education. Moreover, they are not benefiting from regular training to keep them up to date with the new technological developments. Training on digital technologies is still seen as being the responsibility of the individual and not the institution, and the decision to have training pertains to the individual and is only at their initiative.

Smartphones have become ubiquitous, all teachers and students own a smartphone and our results show that the extensive use of smartphones has resulted in other digital devices becoming obsolete (e.g. Ipods/MP3/Tablets). The popularity of smartphones has also led to both teachers and students having Internet access everywhere (using either mobile data or free WiFi). There is still a considerable number of individuals who only have Internet access at home or at work, with the exception of Germany and Greece where the percentage of teachers and students who access the Internet in schools is lower, respectively only 12% and 13% of teachers have Internet access at school.

Teachers and students are adamant about their ability to find, use or share online information. Google, email and YouTube are the most used Apps for both target groups. The most used devices in teaching are: laptops, smartphones, tablets and white boards. We believe that knowing how to use various digital devices is not enough, European schools need a new model of education, a new way of designing lectures and an entirely new teaching approach that will not focus as much on the quantity of information passed on to students but more on how that information is useful to them and how can it be applied in real contexts and re-used it in the future.

There is a constant drop in teacher's use of social network sites (SNSs) (a high percentage of teachers are not using SNSs at all) juxtaposed with a generational shift in the use of SNSs, and our research found that teachers tend to use Facebook and Twitter, while the majority of students are using Snapchat and Instagram and have never had a Facebook or Twitter account.

European schools still have to consider investing in their infrastructure and in maintaining the equipment up to date. Our data show that the most common problems teachers face when using new technologies in the classroom are: poor WiFi or Internet access, lack of budget or appropriate facilities or lack of technical support. Teachers' efforts to include digital technologies in teaching are further restrained by the lack of time and lack of training.

6. METHODOLOGY

For the survey that took place as part of Intellectual Output 1, the Consortium decided to create and distribute questionnaires electronically using Google Forms. The questionnaires were distributed to each partner country through available media. In all partner countries the survey was distributed electronically to teachers working in secondary schools. The target groups were:

- Direct target group: Secondary education teachers
- Indirect target group: Secondary education students

The consortium designed two (2) separate questionnaires, one for secondary school teachers and one for secondary schools pupils. Both questionnaires contained closed type questions such as single and multiple choice and open questions, such as 'please give as an example of how you are using digital technologies in teaching'. Data was collected through Google Forms and exported as an Excel file. Descriptive statistics were used in order to analyse the results. The graphs were taken from Google Forms. The two (2) questionnaires can be found in the following links:

Teacher Questionnaire:
https://docs.google.com/forms/d/e/1FAIpQLSftZrqLeZeFaCF9DvDsgqHMqpNM4krAVjbpeh4hr730I2I8ZQ/viewform?usp=sf_link

Student Questionnaire: https://docs.google.com/forms/d/e/1FAIpQLSeUKUawYWKg00OIFH-76OW54h9EL9VmD0FA-lUGUlocK1UTlQ/viewform?usp=sf_link

Giving the relatively limited number of responses, data was processed and analyzed manually. The use of manual methods to code data is seen as equally valid as electronic methods, scholars concluding that 'the choice will be dependent on the size of the project, the funds and time available, and the inclination and expertise of the researcher' (Basit, 2003: 143). In fact, analyzing data manually brought us closer to the data and allowed us to analyze and discuss each individual response and look for, correct and eliminate any errors in the data set. We also used Google Drive to analyze data. As well as Microsoft Excel, Google drive provides a decent software widely used for quantitative data analysis, being capable to run basic descriptive statistics as well as a range of more complex statistical analyses for small samples.

Table 1: A snapshot of the participants

	61 secondary school teachers and 176 students from the UK took part in this research.
	50 secondary school teachers and 25 students from Germany took part in this research.
	50 secondary school teachers and 25 students from Cyprus took part in this research.
	61 secondary school teachers and 34 students from Greece took part in this research.

7. KEY FINDINGS: COMPARATIVE COUNTRY LEVEL ANALYSIS

a. DIGITAL TECHNOLOGIES USAGE

In all four countries the majority of teachers have been using computers for more than 10 years and most of them have had some sort of computer training. However, it is worrying that 20% of teachers from each country have never had any training at all. Despite this, results show that all teachers are active Internet users, spending on average at least 5 hours a day online (see Table 2 for a detailed comparative analysis).

In all countries teachers' access to the Internet is overall very good, most of them having Internet access at home and a growing number of teachers have Internet access everywhere. However, a source of concern is that results show that Internet access in schools seems to be scarce in some partner countries, like Greece for example, where the vast majority of teachers (78, 7%) seem to have access to a computer at home, and only 13, (1%) who have computer access at work. This shows the need of providing computer infrastructure ain Greek schools as only one in five teachers seems to have access to a computer at work.

Comparative analysis shows that 15%-30% of teachers do not use social networking sites (SNS) at all and of those who do, most do not have a Snapchat or Instagram account.

The most popular digital devices used by teachers are: smartphones, laptops, desk computers and the most popular Apps are Google, Email and YouTube (see Table 2 below).

TABLE 2: DIGITAL TECHNOLOGIES USAGE - TEACHERS

				
Computer Usage	• 91.8% of the participants having used computers for more than 10 years. • 8.2% have been using computers for 6-10 years.	• 98% have been using computers for more than 10 years.	• 56% have been using computers for more than 10 years.	• 88.5% have been using computers for more than 10 years. • 8.2% have been using computers for 6-10 years.

				• 3.3% have been using computers for less than 6 years.
Computer Training	• 80% have had computer training. • 20% are self-taught.	• 75% have had computer training.	• 81.6% have had some training.	• 82% have had training. • 18 % are self-taught.
Time spent online every day	• 21.3% are online all the time. • 26.2% spend 6-10 hours online. • 31.1.% spend 0-5 hours. • 21.3% spend more than 10 hours online.	• 43% spend online not more than 5 hours a day. • 39% between 6 and 10 hours. • 6% more than 10 hours. • 12% are always or almost always online.	• 52% spend more than 5 hours a day online	• 60.7% spend at least 5 hours a day online. • 19.7% spend between 6-10 hours a day online. • 4.9% spend more than 10 hours a day online. • 14.8% are always online.
Internet Access	• 72.1% have Internet access at work. • 65.6% have Internet access at home. • 30% have Internet access everywhere.	• 62% have Internet access at home. • 12% at school. • 6% almost everywhere.	• 72% have Internet access at home. • 22% have Internet access at work.	• 78.7% access the internet at home. • 13.1% have internet access at work. • 8.6% go online from other places (public libraries, Internet Cafes, etc.).
Use of Social Networking Sites (e.g. Facebook, Twitter etc.)	• 43.3% have been using social networking sites for 6-8 years. • 31.7% for more than 10 years. • 10% have started	• 44% have been using social networking sites for more than 10 years. • 26% between 6 and 8 years.	• 92% use social networking sites. • 74% have been using social networking sites for at least	• 65.6% have been using social networking sites for more than 3 years. • 24.6% for more

	using social networking sites 3-6 years ago. • 15% do not use social networking sites	• 12% between 3 and 5 years. • 16% of teachers do not use social networking sites.	3 years.	than 10 years. • 31.3% do not use social networking sites.
Finding out about new technologies	• 63.9% find out about new technologies form work colleagues. • 57.4% … from friends. • 54.1% … from family. • 41% …social media. • 37.7% …radio/TV. • 23% …professional networks. • 21.3% …IT colleagues. • 9.8% …newspapers. • 8.2% …books. • 3.3%... librarians.	• 82% … from friends. • 62 % …work colleagues • 52 % … social media • 48% …family • 24% …radio/TV.	• 62% … from work colleagues. • 58% …through social media. • 40% … professional networks. • 32-34% … friends and family.	• 52.5% …social media. • 41% …work colleagues. • 39.3% …friends. • 32.8% …professional networks. • 18% … radio/TV. • 14.8% …IT colleagues. • 11.5% …family. • 9.8% …newspapers. • 4.9% …books.
Popular digital devices	• 100% own a smartphone. • 50% have a desk computer. • 4.8% (3 teachers) do not have a laptop.	• Most popular devices are: computers, laptops and smartphones. • Most teachers do not have notebooks, digital cameras or iPods/MP3 players.	• 100% own a smartphone. • 2% do not have a laptop. • 42% do not have a desktop computer.	• 96.7% own laptops. • 96.7% own a smartphone. • 70.5% own computers. • 45.9% own a tablet. • 37.7% own a digital camera. • 26.2% own a notebook. • 24.6% own an iPod/MP3 Player. • 21.3% own an

				eReader.
Use of APPS	• 100% use Google, email and YouTube. • 74% do not use Snapchat. • 63% do not use Instagram	• Email, google, Dropbox and YouTube are the most commonly used Apps. • Teachers do not use Snapchat, LinkedIn, Twitter or Viber	• Email, Facebook, Google and YouTube were the most answered choices.	• 63.9% use Skype. • 96.7% use Google. • 93.4% use Youtube. • 73.8% use Mobile Apps. • 65.6% use Facebook. • 54.1% use Dropbox. • 47.5% use Wikis. • 41% use LinkedIn. • 31.2% use WhatsApp. • 24.6% use Twitter. • 16.4% use Snapchat.

In all partner-countries students are very confident in using any digital device, almost all of them having used computers for 6-10 years or more than 10 years (see Table 3 for a detailed comparative analysis).

A significant number of students have never had any computer training (68% in Germany, 49% in the UK, 41.7% in Cyprus, 23.5% in Greece). Despite this statistical fact all of them appear to be digitally literate and very confident in using new digital technologies. This can be a result of the fact that they were born in the digital era when computer training is mostly done at home by parents and other members of the family who own and use more than one digital device. Students are fascinated by keeping up with new technological developments but when it comes to finding out more about digital technologies teachers are not the first persons they go to. Results show that the majority of students are informed about digital technologies through social media, friends or family.

The vast majority of students spend at least 5 hours a day online at home, at school or everywhere. Contrary to the popular perception that all students spend considerable time on SNSs, our results show that, in reality, there are students who do not use SNSs at all (see Table 3 below).

Students favour mobile digital devices and value social connectivity and the quality of their online communities. The most frequently used devices by students are smartphones, laptops and Ipads/Tablets that they use to play games, watch programmes, read news, listen to music and study. The most frequently used Apps are Instagram, Snapchat, Google, YouTube, and WhatsApp.

TABLE 3: DIGITAL TECHNOLOGIES USAGE - STUDENTS

				
Computer Usage	• 64.8% have been using computer for 6-10 years. • 24.4% for more than 10 years. • 10.8% for at least 6 years.	• 60% have been using computers not longer than 5 years. • 32% between 6 and 10 years. • 8% for longer than 10 years.	• 76% have been using computers for more than 6 years.	• 55.9% have been using computers for 6-10 years. • 35.3% for 0-5 years. • 8.8% for more than 10 years.
Computer training	• 49% have never had computer training. • 51% have had training.	• 32% have had computer training.	• 58.3% have had training.	• 76.5% have had computer training. • 23.5% have never had training.
Time spent online every day	• 47% spend 6-10 hours a day online. • 25% spend 0-5 hours a day online. • 9% spend more than 10 hours a day online. • 19% are online all the time.	• 36% spend online not more than 5 hours a week. • 32% between 6 and 10 hours. • 16% more than 10 hours. • 16% are always or almost always online.	• 60% spend at least 6 hours a day online.	• 76.4% spend at least 5 hours a day online. • 14.7% spend 6-10 hours a day online. • 5.9% spend more than 10 hours a day online. • 2.9% are always online.

Internet Access	• 96% access the Internet at home. • 58% have access to the Internet at school. • 20% have Internet access everywhere (mobile data or WiFi).	• 84% usually have access to the Internet at home. • 28% access the Internet at school.	• 96% have Internet access at home. • 40% at school & coffee shops.	• 94.1% have Internet access at home. • 14.7% go online at school.
Use of Social Networking Sites (e.g. Facebook, Twitter etc.)	• 54% have been using social networking sites for 3-5 years. • 31% for 6-8 years. • 3.4% do not use social networking sites.	• 46% use social networking sites for no longer than 2 years. • 25% from 3 to 5 years. • 21% do not use social networking sites.	• 48% of respondents use social networking sites between 3-5 years. • 24% 0-2 years. • 20% 6-8 years. • 8% do not use social networking sites.	• 47% have been using SNS for up to 2 years. • 44.1% for 3 to 5 years. • 5.9% do not use social networking sites.
Finding out about new technologies	• 76% find out about the latest technology on social media forums and networks. • 68% …from friends. • 49% … family. • 31.3% … teachers and radio/TV.	• 64% … from friends. • 64% … family. • 28% … social media	• 76%…online forums, books. • 72% …friends. • 48% … family. • 28% …radio/TV. • 20% … teachers/educators.	• 70.6% …through social media. • 64.7%...from friends. • 41.2% … other media (TV and radio).
Popular digital devices	• 98% own a smartphone or/and a laptop. • 85% own an Ipad/Tablet. • 53% do not have an ebook reader. • 50% do not have	• Most popular devices are: smartphones, laptops and computers. • Most students do not have notebooks, eBooks, digital	• 98% own a smartphone using it primarily for contacting friends and entertainment, as well as reading and finding information. • 85% own a laptop	• 97.1% have smartphones (only 1 student does not have a smartphone). • 67.7% also use tablets. • 64.8% own a desktop

	a digital camera. • 42% do not have an Ipod/MP3. • 22.7% have a desk computer.	cameras or iPods/MP3 players.	• 62% own a desktop computer. • 94% do not own an e-Reader/Kindle. • 50% own a tablet.	computer. • 61.8% have laptops. • 94.1% do not use e-Readers.
Use of APPS	• Instagram (95%), Snapchat (91%) and WhatsApp (85%). • 54% have never used Twitter. • 29% have never used Facebook.	• Mobile APPs, Instagram, YouTube, Facebook and Snapchat are the most commonly used. • Students do not use LinkedIn, Viber or Blogs/Vlogs.	• 96% use Facebook. • 88% use YouTube. • 80% use Instagram. • 76% use Google for studying/reading.	• 94.1% use Youtube. • 91.2% use Instagram. • 91.2% use Google. • 79.5% use Viber. • 73.5% use email. • 70.5% use other mobile Apps. • 29.5% use Facebook.

b. DIGITAL TECHNOLOGIES USAGE IN SCHOOLS

Digital technologies usage in schools is high, the majority of teachers using them or having used them in teaching (see Table 4 for a comparative analysis). All schools encourage teachers to use digital technologies in teaching but not all schools provide regular annual training to support teachers in their quest (see Table 4).

The most used digital devices in teaching are laptops, smartphones, desk computers, tablets and interactive white boards that teachers use for visualisation of power point presentations or YouTube videos, surveys and collaborative quizzes, collecting and assessing student work, etc. (see Table 4).

There are several common aspects that teachers identify as main reasons that prevent them from using digital technologies in teaching, as follows: the lack of budget/appropriate facilities, lack of time, WiFi problems, lack of training and the lack of technical support.

TABLE 4: DIGITAL TECHNOLOGIES USAGE IN SCHOOLS

				
Use of digital technologies in teaching	• 94% use digital technologies in teaching. • 6% do not use any digital technologies in teaching.	• 98% of teachers use digital technologies in teaching. • 2% do not use any digital technologies in teaching.	• 90% use of digital technologies in teaching. • 10% do not use any digital technologies in teaching.	• 86.9% use digital technologies in teaching. • 13.1% have never used digital technologies in teaching.
Schools attitude towards the use of digital technologies in teaching	• 100% say that their school encourages the use of digital technologies in teaching.	• 88% say that their school encourages the use of digital technologies in teaching.	• 77% say that their school encourages the use of digital technologies in teaching.	• 60.7% said that their school encourages the use of digital technologies in teaching.
Digital literacy training in Schools	• 59% of schools offer regular training. • 41% of schools do not provide regular training on the use of new technologies.	• 57% of schools/organisations provide regular staff development training on the use of new technologies to better support teaching.	• Only 26% say that their school provides regular staff development training on the use of new technologies.	• 83.6% schools do not offer constant training on new technologies.
Most used digital devices in teaching	• The digital devices most frequently used in teaching are:	• 62% use smartphones in teaching. • 38 % use	• 77% use laptops in teaching.	• Laptops are used to browse online, network (social media),

	laptops (50 teachers declared they use laptops in teaching), smartphones (23 teachers are using smartphones in teaching), desk computers (13 teachers use them in teaching) and tablets (only 10 teachers use tablets in teaching).	Interactive White boards. • 32% use VLEs. • 22% use interactive online platforms. • 20% use Tablets/Ipads. • 8% use laptops in teaching. • 6% use open badges		read news or e-shopping. • Laptops are also the most used digital device in teaching.
Digital technologies usage in teaching	• Power Point presentations. • Surveys, quiz collaboration, mini tests on Kahoot or Socrative.com. • Use of Google Docs to collaborate and share notes. • Show my homework. • Online video clips. • Social media posts and videos. • Research and class activities (mentinetre.com). • Group tasks using tablets	• Showing explanatory videos. • Visualization – PowerPoint presentations. • Learning vocabulary with an Interactive Whiteboard and a dictionary on a smartphone. • Homework via email. • Short quizzes (Kahoot), online tests, creating surveys. • Making videos with smartphones and cameras. • Using audio recorders for practicing – practical tasks for students.	• Educational games. • PowerPoint Presentations. • Blackboard/moodle. • Online Quizes. • Edmodo platform. • Voice recordings. • Kahoot evaluation application.	• Use of Moodle platform. • Use of Interactive Tables. • Use of Power Point presentations. • Use of email and Edmodo / Geogebra / Kahoot / Euclidea / Photomath. • Use of Google Drive. • Use of laptops and tablets in teaching.

	and smartphones. • Using VLE to set students a task in class or homework and audio feedback. • ePortfolios.	• Checking the knowledge of the students via Moodle and/or open badges. • Communicating with students through Apps. • Collecting and evaluating seminar papers.		
Reasons not to use digital technologies in teaching	• 70% lack of time. • 60% lack of budget/appropriate facilities. • 43% WiFi problems. • 43% lack of technical support. • 29% lack of training.	• 63% WiFi problems. • 40% lack of time. • 28% lack of training. • 20% no technical support. • 18% lack of budget/appropriate facilities.	• 50% lack of training. • 29.2% because of lack of time.	• 78.7% lack of budget/appropriate facilities. • 44.3% poor access to Internet. • 44.3% lack of time. • 34.4% lack of technical support.

b. DIGITAL LITERACY SKILLS (teachers and students)

The self-assessed level of digital literacy for both target groups is high, all the participants declaring that they can find information online very easily, and being confident that they know how to use various types of digital devices, or how to search for information or persons online. Although they seem confident in talking about new technologies and do not feel left behind when others talk about digital technologies, all the participants believe that it is important to improve their digital skills and learn more about digital technologies (see Table 5 and 6 below).

Both target groups also consider that they should have regular training on how to use digital technologies.

The biggest skills shortage for both target groups is in the area of online safety. Teachers could also benefit from more training, especially on how to teach safety issues.

TABLE 5: DIGITAL LITERACY SKILLS - TEACHERS

				
Learning about Digital Technologies	• 97% strongly agree or agree that they are willing to learn more about digital technologies. • 82% would like to learn more and use digital technologies more in teaching.	• 78% agree or strongly agree that they would like to use technologies more often in teaching. • 56% agree and 44% strongly agree that they are willing to learn more about digital technologies.	• 90% strongly agree that they are willing to learn more about digital technologies.	• 54.1% do not feel they know how to make the most of digital technologies in teaching.
Digital Skills	• 100% agree that it is important to improve their digital skills.	• 68% agree and 32% strongly agree that it is important for them to improve their digital skills.	• 58% and 50% strongly agree and agree that it is really important for them to improve their digital skills.	• Most believe that it is important to enrich their digital skills.
Finding Information Online	• 54% very easy. • 45% relatively easy.	• 60% consider finding information they need online very easy. • 40% think it is relatively easy.	• 44% very easy. • 40% easy. • 14% difficult. • 2% very difficult.	• 62.2% know how to access, use, create and share information online.
Using digital devices	• 100% know how to use various types of digital devices.	• 86% know how to use various types of digital devices.	• 68% know how to use digital devices and social media platforms. • 32% do not know.	• 16.4% know how to use various types of digital devices.
Keeping up to date with new technology developments	• 95% do not feel left behind when other talk about digital technologies.	• 51% feel left behind. • 31% do not feel left behind when others talk about digital	• 66% do not feel left behind when others talk about digital technologies.	• 70.5% do not feel left behind when other talk about digital

		technologies.		technologies.
Generational skills gap	• 90% disagree with the statement 'do you feel students are better than you at using digital technology'.	• 39% are not sure if their students know how to use technologies better than them. • 31% disagree with the same statement.	• 60% of teachers feel that there is a generational skills gap between them and their students, with their students being more digitally aware.	• 36.1% disagree with the statement 'do you feel students are better than you at using digital technology'.
Online information	• 73% know what happens with the information they post/share online.	• 62% know what happens to the information they post/share online. • 48% are not sure.	• 56% know what happens with information they post/share online. • 20% do not and 24% are not sure.	• 40.9% do not know the use of information they share online.
Finding information or someone online	• 98% of teachers know how to finding someone online (a well-known scholar or teacher).	• 88% know how to find someone online (e.g. a well-known scholar in their field).	• 72% know how to find/track someone online (e.g. author). • 20% they are not sure.	• 86.8% know how to find someone online.
Legally usage of online information	• 66% do not know what online information can legally be re-used.	• 54% know what online information they can legally re-use.	• 58% know how to use online information in a legal context, while the remaining percentage feel uncertain and/or they do not know.	• 47.5% do not know or aren't sure about what online information they can legally re-use.
Accessing online databases	• 82% know how to use an online database to find resources for teaching.	• 74% know how to use an online database to find useful resources for teaching (e.g. the library's online catalogue).	• 64% know how to use an online database and find resources/information about teaching.	• 40.9% don't know or aren't sure how to use an online database to find resources for teaching.
Use of blogs	• 92% do not have a blog.	• 86% do not have a blog.	• 72% do not own or know how to use blogs. • 15% know how to	• 77% do not have a blog.

			use blogs.	
Citation of online sources	• 100% know how to cite an online source in their lectures.	• 90% know how to cite an online reference in their lectures.	• 66% know how to cite an online reference.	• 75.4% know how to cite an online source in their lectures.
Fake news	• 56% do not know how to identify fake news.	• 40% know how to identify fake news and another 40% are not sure how to do it.	• 62% know how to find and report fake news while a noticeable percentage do not know or are uncertain of how to spot and report fake news.	• 52.4% do not know how to recognise fake news.
Fake websites	• 70% do not know how to report a fake website.	• 44% are not sure how to report a fake website. • 30% do not know how to do this.	• 50% are not aware of how to spot and report a fake website.	• 70.4% do not know how to report a fake website.
Creating content	• 56% do not know how to use media capture devices to record 29 redit a podcast or a short video.	• 38% do not know how to use media capture devices to record or edit a podcast or a short video.	• 32% do not know how to use media capture devices to record or edit a podcast or short video.	• 34.4% do not know how to use media capture devices to record or edit a podcast or a short video.
e-Safety training	• 55% have not had training on how to stay safe online in the last year.	• 84% did not have any training on how to stay safe online in the last year.	• 50% have not been trained on how to stay safe online in the last year.	• 72.1% have not had training on how to stay safe online in the past year.
Protecting personal data	• 98% know how to change the privacy settings on Facebook.	• 68% know how to change the privacy settings on Facebook.	• 77% know how to change the privacy settings on Facebook.	• 62.3% know how to change the privacy settings on Facebook.
Cyberbullying	• 50% are not sure they can recognise a	• 40% of teachers are not sure if they can	• 49% do not know or are not sure they can	• 72.1% do not know or are not sure they

	student that is a victim of cyberbullying.	recognize if a student is a victim of cyberbullying.	recognise if their student is or has been a victim of cyberbullying.	can recognise if a student is a victim of cyberbullying.
Recognizing reliable sources	• 45% are not sure or do not know how to identify or report a fake website.	• 46% know how to recognize if an online source or website is reliable. • 32% are not sure.	• 46% are not sure and/or they do not know how to identify fake websites or news.	• 70.5% are not sure or do not know how to identify or report a fake website.
Sharing online files	• 100% know how to legally share files with students and other teachers.	• 84% know how to legally share files with students and other teachers.	• 68% know how to share files online in a legal context, with students and/or other colleagues.	• 44.3% know how to legally share files with students and other teachers.
Online promotion	• 48% do not know how to promote themselves or an event online.	• 72% know how to promote themselves or an event online.	• 56% of the teachers know how to promote themselves online.	• 54.1% know how to promote themselves or an event online.
Using social networking sites	• 70% feel they know how to make the best of SNSs (e.g.Facebook, Twitter, etc.).	• 63% feel they know how to make the best of SNSs (e.g. Facebook, Twitter, etc.). • 37% do not know how to do this.	• 68% feel that they know how to make the best of SNSs (e.g. Facebook, Twitter, etc.). • 32% do not know how to do this.	• 54.1% feel they don't know how to make the best of SNSs (e.g. Facebook, Twitter, etc.).
Training	• 95% of teachers consider that they should have regular training on how to use digital technologies.	• 79% agree or strongly agree that teachers should have regular training on how to use digital technologies.	• 93% agree that they should have regular training on how to use digital technologies.	• 75.4% of teachers consider that they should have regular training on how to use digital technologies.

The majority of students would like their teachers to use digital technologies in teaching because they strongly believe that they learn better and faster with the aid of technology (see Table 6 below for a detailed comparative analysis).

TABLE 6: DIGITAL LITERACY SKILLS – STUDENTS

				
Using digital devices	• 64% enjoy using digital devices.	• 44% agree that they enjoy using digital devices and they like to keep up with the new technological discoveries.	• Over 70% of students feel comfortable and are enjoying the use of digital devices.	• 88.2% enjoy using digital devices.
The use of digital technologies in teaching	• 46% think teachers should use digital technologies more.	• 56% agree that their teachers should use digital technologies more.	• 70% of students agree that their teachers should use digital technologies and tools more often.	• 50% would like their teachers to enrich learning activities by using digital technologies.
Learning with and about digital technologies	• 80% agree or strongly agree that they like learning with digital tools. • 85% would like to learn more about digital technologies.	• 78% agree or strongly agree that they like learning while using digital tools. • 56% strongly agree and 44% agree that they are willing to learn more about digital technologies.	• 81% of respondents agree that they enjoy and like learning more on digital technologies through the use of them.	• 82.4% agree or strongly agree that they like learning while using digital tools. • 97.1% strongly agree and 44% agree that they are willing to learn more about digital technologies.
Confidence in using digital technology	• 60% do not feel left behind. • 40% are not sure.	• 69% disagree or strongly disagree that they feel	• 75% disagree that they feel like being	• 85.2% agree that it is important for

		left behind when others talk about digital technologies. • 25% are not sure.	behind in conversations related to digital technologies.	them to develop digital skills.
Confidence in using digital devices	• 77% feel confident using any digital device.	• 40% agree that they feel comfortable using any digital device.	• 83% feel very comfortable and confident when using digital devices.	• 88.2% feel confident talking about digital technology.
Finding information and people online	• 88% find it relatively easy to find information or people online. • 70% know how to find someone (e.g. a well-known researcher) online.	• 56% consider finding the information they need online easy. • 36% … relatively easy. • 12% find it not easy. • 76% know how to find someone online.	• 88% of students consider finding information online easy.	• 76.5% find it relatively easy to find information or people online.
Sharing information online	• 73% think they know what happens with the information they post/share online.	• 60% know what happens to the information they post/share online.	• 72% think that they know what happens with the information they share online.	• 52.9% are not sure about the use of information they share online.
Re-using online information	• 35% do not know what online information can legally be re-used.	• 50% do not know what online information can be legally re-used.	• 58% do not know or are uncertain which online information can be legally re-used.	• 55.8% do not know or aren't sure about what online information can be legally re-used.
Using online resources for learning	• 53% do not know how to use the library's online catalogue to find useful resources to support their studies.	• 48% do not know how to use the library's online catalogue to find useful resources to support their studies.	• 52% do not know or are uncertain on using online resources for learning.	• 50% don't know or are not sure they know how to use the library's online catalogue.

Blogs	• 82% do not have a blog.	• 76% do not have a blog.	• 88% do not have a personal blog.	• 85.3% do not have a blog.
Citation of online sources	• 54% do not know how to cite an online source in an essay.	• 60% do not know how to cite an online source in their essays.	• 60% know how to cite online sources in their assignments.	• 74.2% do not know how to reference online sources in their essays.
Fake news	• 42% do not know how to identify fake news.	• 44% do not know how to identify fake news.	• 34% do now know or are not sure of how to identify fake news.	• 52.9% do not know how to identify fake news.
Fake websites	• 50% know how to report a fake website.	• 64% do not know how to report a fake website.	• 51% know how to report a fake website.	• 73.5% do not know how to report a fake website.
Creating content	• 40% do not know or are not sure of how to use media capture devices to record or edit a podcast or a short video.	• 80% know how to use media capture devices to record or edit a podcast or a short video.	• 74% know how to use media capture devices to record/edit or create a podcast/short video.	• 61.8% do not know or are not sure how to use media capture devices to record or edit a podcast or a short video.
e-Safety training	• 70% have had training on how to stay safe online.	• 68% have had training on how to stay safe online.	• 80% have had training on how to stay safe online.	• 64.7% have had training on how to stay safe online.
Protecting personal data	• 81% know how to change privacy settings on Facebook.	• 68% know how to change privacy settings on Facebook.	• 84% know how to change their privacy settings on Facebook.	• 67.4% do not know how to change privacy settings on Facebook.
Digital citizenship	• 68% strongly agree and 32% are not sure or disagree with the statement 'I understand what it means to be a	• 39% strongly agree and 35% strongly disagree with the statement 'I understand what it means to be a	• 36% strongly agree and 52% agree with the meaning of digital citizenship and	• 75.3% understand what it means to be a responsible digital citizen.

	responsible digital citizen'.	responsible digital citizen'.	what is means to be a digital citizen.	

c. **SKILLS GAP**

Our report brings forward a series of challenges that must be addressed by secondary schools. Skills gap for each target group is listed in the table below.

Table 7 – Skills Gap Teachers and Students

TEACHERS	STUDENTS
Identifying and reporting fake news	
Reporting a fake website or recognizing if an online source or a website is reliable	
Recognising victims of cyberbullying	
Legally re-using online information	
Staying safe online and knowing what happens to the information posted/shared online	
Innovative ways of using digital technologies in teaching	
Online self-promotion and event promotion	
Creating audio and video content using digital devices	
	Understanding the idea of being a responsible digital citizen
	Using the library's online catalogue to find useful resources to support studies
	Citing an online reference in essays

8. CONCLUSION, IMPLICATIONS FOR PRACTICE & SUGGESTIONS FOR FURTHER RESEARCH

Technology has run way ahead of society. The speed of innovation is now much faster than the speed at which scholars, educators and governments can (re) act, which means that new technology is often in widespread use long before we all come to think about its impact, the changes we need to make and how to better adapt to the new business and economic models. We urge European governments to act with expediency and make training on digital technologies a mandatory part of teachers' training to enable them to cope with the rapid change of technology. Training should be mandatory and continuous to help teachers update their knowledge and keep up with the new technological developments. The consortium understands that not all pupils have an appetite for technology but believes that only by training our teachers will we be able to make sure that all pupils have basic digital skills that will enable them to lead a normal life in a digitalised world. Broadening teachers' digital horizons will help rejuvenate education and will lead to new ways of including digital technologies in the curriculum.

A prerequisite for building a digital literacy mind-set in schools is the investment in infrastructure and technological equipment. European schools have to re-evaluate their priorities and understand that investing in digital infrastructure, maintenance and technical support is vital. We recommend allocating extra budget to schools to invest in infrastructure, technical support, new technology and training for staff and students. Moreover, as far as digital literacy in schools is concerned, it is crucial to bear in mind the skills mismatch that is observed between education and the labour market. Stronger links between schools and the industry must be cultivated and students should be educated from an early age to cope with tomorrows' demands in their professional life.

In all the European countries there are fragmented digital strategies and actions that have been implemented so far, with mixed results. The need for continuity of a digital strategy and a specific structured action plan for digital actions is of great importance. Online safety campaigns are also a priority, and police and schools should work together to prepare students for a life online and to tackle online crime. More attention should be given to preparing both teachers and students to protect their data and recognise and combat the digital threats that they encounter online.

The consortium is not advocating for a full digital education model because it is undeniable that students must be exposed and encouraged to learn by exploiting both traditional and modern technologies that shape the world in which they live. The National Curriculum must be geared towards the cultivation of skills such as collaboration, experimentation, development of critical and computational thinking, abstract thinking, and structured problem solving. The computer as a tool should complement and not completely replace other teaching methods or tools that are proven to help students' intellectual development. Teachers must be able to keep a balance between traditional and modern educational approaches to produce multilaterally developed students.

Implications for practice

A key implication of our research is the importance of a new digital mind-set in schools. Creating and nurturing an organisational culture of good practices exchange in schools, and constantly making sure that teachers have access to up to date training should be a priority for all European countries. For those sceptical or agnostic about using digital technologies extra support should be in place to broaden their horizons and through training give them time to understand that the advantages of using digital technologies in teaching outweigh the disadvantages. We believe that the reluctance of some teachers to use digital technologies in the classroom derives fundamentally from their lack of knowledge.

Further research

Our report identified a number of gaps in the knowledge around digital literacy that would benefit from further research. Future studies should focus on:

- In-depth exploration of how digital technologies enrich teaching and transform students' learning experience. Have digital technologies really reinvigorated teaching?
- More longitudinal studies are needed to test the long-term effect of using digital technologies in teaching,
- Research on cost-benefit analysis of training teachers to identify what is the best way of training teaches in the use of digital technologies,
- More research is needed to capture teachers' and students' experiences with digital technologies in the classroom.
- Research on more efficient and educative usage of social media is also needed.

The main limitation of our report is that it is based on the participants' self-report of the use of digital technologies. We asked secondary school teachers and students to reflect on and self-assess their use of digital technologies in the classroom and in personal life and we are aware that their self-assessment may be biased. Future research should also test teachers and students digital skills and compare their perceived assessment to their actual level of digital literacy.

9. BIBLIOGRAPHY

Basit T. N. (2003). Manual or electronic? The role of coding in qualitative data analysis. *Educational Research,* 45 (2), 143-154.

Bawden, D. (2001). Information and digital literacies: a review of concepts. *Journal of Documentation*, 57 (2), 218-259.

Buckingham, D. (2007). Digital media literacies: Rethinking media education in the age of the internet. *Research in Comparative and International Education*, 2 (1), 43–55. doi https://doi.org/10.2304/rcie.2007.2.1.43

European Commission (2003). *E-Learning: Better e-learning for Europe*. Brussels: Directorate-General for Education and Culture. Retrieved from https://www.lu.lv/materiali/biblioteka/es/pilnieteksti/izglitiba/eLearning%20-%20Better%20eLearning%20for%20Europe.pdf

European Commission (2010). *A Digital Agenda for Europe*. Brussels, Retrieved from https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF

European Parliament and the Council (2006). *Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning*. Official Journal of the European Union, L394/310. Retrieved from https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:en:PDF

Gilster, P. (1997). *Digital Literacy*. New York: Wiley.

Hall, R., Atkins, L., & Fraser, J., (2014). Defining a self-evaluation digital literacy framework for secondary educators: the DigiLit Leicester project. *Research in Learning Technology*, 22. doi https://doi.org/10.3402/rlt.v22.21440

Hall, M., Nix, I., & Baker, K., (2013). Student experiences and perceptions of digital literacy skills development: engaging learners by design?. *The Electronic Journal of e-Learning*, 11 (3), 207-225, available online at www.ejel.org

Hasebrink, U., Livingstone, S., Haddon, L., Kirwil, L., & Ponte, C. (2007). *Comparing Children's Online Activities and Risks across Europe. A Preliminary Report Comparing Findings for Poland, Portugal and UK. European Research on Cultural, Contextual and Risk Issues in Children's Safe Use of the Internet and New Media (2006-2009)*. Available at http://eprints.lse.ac.uk/2855/

Hinduja, S., & Patchin, J. W. (2010). Bullying, cyberbullying and suicide. *Archives of Suicide Research*, 14, 206-221.

Hobbs, R., & Coiro, J., (2018). Design Features of a Professional Development Program in Digital Literacy. *Journal of Adolescent & Adult Literacy*, 0 (0), 1-9.

Hobbs, R. (2010). *Digital and media literacy: A plan of action*. Washington, DC: Aspen Institute.

Jones, R. H., & Hafner, C. A. (2012). *Understanding Digital Literacies: A Practical Introduction*. Oxon: Routlegde.

Leu, D.J., Jr., Kinzer, C.K., Coiro, J.L., & Cammack, D.W. (2004). Toward a theory of new literacies emerging from the internet and other information and communication technologies. In R.B. Ruddell & N.J. Unrau (Eds.), *Theoretical models and processes of reading* (5th ed.) (pp. 1570-1613). Newark, DE: International Reading Association. doi: 10.1598/0872075028.54

Littlejohn, A., Beetham, H., & McGill, L. (2012). Learning at the digital frontier: a review of digital literacies in theory and practice. *Journal of Computer Assisted Learning*, 28, 547-556.

Markless, S., & Streatfield, D. (2007). Three decades of information literacy: redefining the parameters. In S. Andretta (Ed.), *Change and challenge: information literacy for the 21st century* (pp. 15-36). Adelaide: Auslb Press.

Martin, A., & Madigan, D. (Eds.). (2006). *Digital literacies for learning*. London: Facet Publishing.

Martin, A. (2006). A European framework for digital literacy. *Nordic Journal of Digital literacy*, 1 (02), available at https://www.idunn.no/dk/2006/02/a_european_framework_for_digital_literacy

Mohammadyari, S., & Singh,H. (2015). Understanding the Effect of E-Learning on Individual Performance: The Role of Digital Literacy. *Computers & Education*, 82 (C), 11-25.

National Curriculum for England, Wales and Northern Ireland, available online at: https://www.qca.org.uk

National Curriculum, Key Stages 3 and 4, Functional Skills, available online at http://archive.teachfind.com/qcda/curriculum.qcda.gov.uk/key-stages-3-and-4/skills/index.html

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N., (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry*, 49, 376–385.

UK Digital Strategy (2017), available at https://www.gov.uk/government/publications/uk-digital-strategy

Wang, J., Nasel, T. R., & Iannotti, R. J. (2011). Cyberbullying and traditional bullying: Differential association with depression. *Journal of Adolescent Health*, 48, 415-417.

ACADEMIC ADVISORS

Name: **Professor Ross Prior**

Institution: University of Wolverhampton

Position: Professor of Learning and Teaching in the Arts in Higher Education

Name: **Dr. Frances Pheasant- Kelly**

Institution: University of Wolverhampton

Position: Director of the Research Centre for Film, Media, Discourse and Culture