Study Guide

Utilising new technologies on education: possible benefits and effects on privacy rights

Table of Contents

Study Guide: ***Utilising new technologies on education: possible benefits and effects on privacy rights*** **to be discussed at the Committee of Ministers for the Ministerial Summit of the Council of Europe for its High School simulation during the 7th Rhodes Model Regional Co-operation to be held in Rhodes, October 12-16, 2016.**

Version 1.0 – Pages 28 – Last update: 21/08/2016

Written by: Despina Ziana, Georgios Karanikas

Edited by: Anastasios Kalergis, Magdalene Tsourdiou, Christophoros-Dimitrios Zafeiris, Emmanouil Kalaintzis

1. Introductory Letter

Dear delegates,

We are more than happy and delighted to welcome you all to the Council of Europe-High School Edition (2) of Rhodes MRC 2016!

Initially, we would like to personally congratulate each and every one of you for your decision to participate in Rhodes MRC 2016 and promise that we will do our best to facilitate your effort and have a good time throughout the Conference.

As Chairpersons of our Committee, we are convinced that this year's topic will challenge your skills and broaden your horizons. Our Ministerial Council will try to explore the issue of Utilizing new technologies on education, and of course its possible benefits and effects on privacy rights. It is thus obvious that such a demanding task requires a certain set of skills of yours, but above all, your will and innovative thoughts in order to approach all sides and aspects of the matter! Nonetheless, you are not alone in this task; we are here to assist you by all necessary means!

The present study guide has been conducted in order to give you a hand in delving deeper into the topic of our Committee, constituting an initial point for your research. After that, your next step to be taken is to conduct a thorough examination of the policy and position of the country you will be representing upon the matter.

Apart from our expectations for a fruitful and productive debate, we strongly believe that an exceptional level of academic dialogue will be achieved, with solid and clear argumentation as well

as respect to diplomatic courtesy. We call upon your speaking and diplomatic skills, for a remarkable outcome to be granted.

So, may your preparation start and be sure that in a few months you will be ready to shine! Get informed, have faith in your powers and feel ready to face your fellow colleagues in real debate! Remember: a perfectly perfect experience awaits you! Feel free to enjoy it!

We thank you in advance for your cooperation and we are looking forward to meeting you all in October, where-else, in the breath-taking island of the Knights, Rhodes! Should any inquiry or problem of yours arise, don't hesitate to contact us! We will be glad to help you!

Finest regards,
Despina Ziana, Chairperson-in-Office
Georgios Karanikas, Secretary General

2. Presentation of the Committee

Founded in 1949, the Council of Europe constitutes a regional intergovernmental organization, with its headquarters located in Strasbourg, France. The Council of Europe includes 47 member states, 28 of which are members of the European Union, which is an entirely distinct international body[1]. All Council of Europe member states have signed and ratified the European Convention on Human Rights[2] (ECHR), a treaty dedicated to the protection of Human rights and fundamental freedoms, as well as democracy and the rule of law. Supervision of the implementation of the aforementioned Convention by member states is exercised by the European Court of Human Rights (ECtHR).

The Committee you are going to attend will be the Committee of Ministers of the Council of Europe (widely known by the abbreviation CoE), which is the main decision-making body of the Council of Europe, in which every state is represented by its Minister of Foreign Affairs[3].

[1] http://www.coe.int/en/web/about-us/do-not-get-confused
[2] The European Convention on Human Rights and Fundamental Freedoms available at: http://www.echr.coe.int/Documents/Convention_ENG.pdf
[3] http://www.coe.int/en/web/cm/home

Additionally, according to article 15 of the Statute of the CoE[4], the Committee of Ministers "shall consider the action required to further the aim of the Council of Europe, including the conclusion of conventions and agreements".

The Committee also holds the discretion to proceed to non-binding recommendations referring to member states regarding matters that can be included in the field of an agreed "common policy" among them. In addition, the Committee reserves the responsibility to "implement cooperation and assistance programmes", while it is entitled to supervise whether the verdicts reached by the European Court of Human Rights are executed appropriately or not (article 46 para 2 of the European Convention of Human Rights).

The majority of the Committee's of Ministers decisions require a two-third majority of votes, while a simple majority is necessary for procedural questions.

3. Introduction

The utilization of new technologies in the educational process had always been a crucial subject that has risen a lot of controversy amongst teachers, professors and experts in view of the large variety of aspects and approaches that have taken place when it comes to the role of technology within and outside the classroom. Although there is still a long way to go, in light of the twenty-first century, in the field of education in order to understand the clear objective and presence of new technologies in the learning and teaching procedure the focal point that arises is the following: the formation of the appropriate educational system, that would guarantee the compatibility between the technologically innovative new methods and the traditional ways of teaching, eliminating all possible threats and dangers when it comes to their privacy rights and freedom.

[4] The Statute of the Council of Europe available at: https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=0900001680306052

4. The Role of Technology in the Modern Era of Teaching[5]

Although it can be stated in many ways, apart from the utilization of technological apps, the fundamental direction of dealing with the new “technological era” in Education is towards abandoning the "old" pedagogy "of teachers who talk" (or the “pedagogy of narration” in the lesson, in order to go towards a “new modus operandi[6] in which students are teaching themselves with the guidance of their teachers/professors and the teacher becomes the assistant of the instructive process, not the leader of it.

Certain notions have been used in order to describe the pioneering approach of using technological gadgets in education, such as the “student-centred learning" “teaching for problem” or the “case-based learning ", which exactly describe this interactive sense of the new method of acquisition that is contingent on the means of new technology.

Under the vision of the aforementioned goal, of expanding and proliferating the use of technologies in the field of education (to which there really exists a lot of contradiction and objections, although it can be said that there is a certain degree of general acceptance) it is vital that the clear role of new technologies in education be defined.

The role of technologies in our classrooms is mostly to support a new model of learning, in which technology is designed to support students who teach themselves, with the guidance, of course, of their teachers. This means, that technology does not support, and may not support the old pedagogy of teaching via “narration”, except for small aids, such as for example, the use of photos or videos. Nevertheless, in fact, when it comes to teaching via new technologies, most teachers are using the old way of "narrating" adding some supplementary technological apps, in order to facilitate the procedure, or simply attract the interest of children.

[5] http://ijcrsee.com/index.php/ijcrsee/article/view/166/316
[6] a method of procedure

5. The Benefits of the Use of Technology in Education

The Problematic of the Self-Instructor [7]

One of the reasons why the education of students that teach themselves did not prevail but even miss to find ground -even if as a notion was supported by many, dating back to the years of Socrates - is that the tools available for use by students were not good enough.

Until recently, the sources that students of all educational ranks had in their disposal in order to teach themselves, were the textbooks, encyclopaedias, libraries (if they were easily accessible) and some questions to a teacher with a general overview in a certain variety of subjects. This has definitely worked for some bright students, but not for the large majority of them.

Today's technology, however, offers students all kinds of new and highly effective tools they can use to in order to gain knowledge, which means that there would be no exaggeration in talking about a form of “democratization of the education and its resources”, that gives the chance to people from all over the world to have access to information and knowledge, at a lowest level of financial charges and time consumption.

Such sources of information are granted not only from the Internet, in which almost all kinds of information may be searched, but also from other search tools that children have access to distinguish what is valid and trustworthy, or several certain analysis tools to help them search and cross-examine the sense of the information, tools for the creation and presentation of their findings via a huge variety of media. At this point, we couldn’t miss to refer to their access to social media in which they can work in network and collaborate with their classmates or even other students from all over the world. And notwithstanding the fact that the teacher could and should serve as a guide, most of these tools are used by more and more students, but not by teachers, who most of the times prove to be incapable of managing them.

[7] “The Self-Instructor Method in Correspondence Courses”-B. H. Fleenor-*Transactions of the Kansas Academy of Science (1903-)*

5.1. Early childhood education (ECE also referred to as "nursery education")[8]

Digital and web applications constitute an important aspect regarding the early childhood (preschool) education, granted that by definition are a source that attracts the interest and attention of young children activating many of their skills and competences. Technological applications include interesting activities for young children, introducing a playful atmosphere in the classroom, which positively contributes to the maintenance of concentration. Although there are several counterarguments regarding the intensity of their use, accentuating that there is no reliable data to prove the educational value of digital and website applications in preschool education, also describing several harmful effects on health and children's intelligence, the scientific society has rather encouraged the use of technology in pre-school education.

The majority of modern researchers argue that kindergarten plays a crucial role in the mental development and academic performance of children, since the activities that involves for this age help children develop the necessary cognitive and intellectual abilities and competences cultivating positive attitude for the school in general. For this reason, the technological tools that are used are very important for the acquisition of knowledge by young children provided that:

- they manage to attract children's attention making education more interesting as if it were a game,
- they increase children's efficiency,
- they constitute an inexhaustible source of knowledge, easy to use,
- they activate the senses and cognitive abilities of the child, combining the use of sound, touch and image.

[8] See more:http://www.earlychildhoodnews.com/earlychildhood/article_view.aspx?ArticleID=302

5.2. Primary[9] and Secondary[10] Education

When it comes to primary and secondary education, technology is not dedicated to replace either the book or the teachers. Nonetheless, the latter are essential for the successful outcome of this new teaching mode. In fact, the utilization of computers or other relevant apps in classrooms may trigger many upheavals in the field of instruction. A very first consequence would be the removal or evolution of some teaching methods, something for which many are suspicious or even frightened. All in all, the main clue of technology's utilization is that it can be compatible with an instruction of high quality standards, but not necessarily "accompanied" by the presence of the teacher. Students have via their personal computer, at any time access to any library, to rare books, to exhibitions, to bibliographies, to real museums all over the world etc. Consequently, given as a fact that thanks to new technologies students can acquire the fundamental knowledge or skills on their own, in front of their PC at home or anywhere else, teachers (or university professors in tertiary education) will no longer be forced to organize and prepare the lesson for the next day, to go imperatively by the material book, to prepare test or score students. Their task now on will be to raise critical questions and instigate critical thinking and the cognitive senses. In other words, this is the dawn of the new way of teaching which will provide teachers with more time to deal with each student and his special needs, devoting more attention to its weaknesses and capabilities. Moreover, teachers can optionally organize seminars, discussions, lectures, and even assignments to groups of students. This will enhance and expand the field of education, having no longer to deal with either material or time restrictions. Students thus benefit from that large variety of topics and are free to delve into the issues that attract their interest.

The contribution of computers is also mentionable when it comes to distance learning since through it, everybody may receive answers about the range of school courses or the syllabus of the university (in tertiary education), ask for guidance on a specific course, resolve questions etc. Therefore, it wouldn't be an exaggeration to talk about a "democratization" of technology, thanks to which distances have been completely annihilated and education has become more comfortable and

[9] Analytical survey of the UNESCO Institute for Information **Technologies** in Education: http://iite.unesco.org/pics/publications/en/files/3214707.pdf
[10] Information and Communication Technologies in Secondary Education-Position paper (UNESCO Institute for Information **Technologies** in Education)
http://iite.unesco.org/pics/publications/en/files/3214616.pdf

interesting. Besides, a new notion has developed alongside with the increasing demands of science and technology that necessitate the perpetual acquisition of knowledge and technical skills. The reference regards the notion of lifelong learning, which describes the "ongoing, voluntary, and self-motivated" pursuit of knowledge that has no time and space limits.

5.3. The era of "Distance learning", especially in the field of Academic Education (Tertiary Education) [11]

Distance learning or e-learning is a pioneering way of learning, not by the traditional way of being in regular face-to-face contact with a teacher or professor in the classroom, but remotely, via an electronic platform or a specially designed network. Distance learning is thus a new way of teaching, that has acquired huge dimensions over the last decade in many European countries, especially in the field of post-graduate studies. Although this new method is totally contingent on new technologies, meaning that it appeals only to people who are skilled enough to use it, distance learning has been applauded for the democratization of Education that has triggered by its appearance. [12]

With reference to the large number of advantages that distance learning features for its users, the target group to which it appeals, are mostly: students-habitants of remote areas, working adults who want to continue their education or start it from the beginning, and generally people who may not afford moving to another city or country in order to complete or enrich their studies. Let's now see some of those advantages and conveniences.

Perhaps the most relevant benefit is inextricably interwoven with the luxury of remaining in your home place while studying, thus, avoiding the inconvenience of moving to another place to study, or find time in your weekly schedule and itinerary to sacrifice for your classes. Further advantages are: [13]

- Accessibility for all people, notwithstanding their age, financial situation, obligations or even place of residence (e.g. remote areas etc.)

[11] http://www.edtechmagazine.com/higher/article/2012/07/50-striking-statistics-about-distance-learning-higher-education
[12] http://www.otan.us/content/pdf/dl/WhatIsDL.pdf
[13] https://scholar.vt.edu/access/content/group/5deb92b5-10f3-49db-adeb-7294847f1ebc/e-Learning%20Scott%20Midkiff.pdf

- Saving of time or other resources in transportation, and relevant expenses
- Flexibility to study or attend a classroom in any convenient location at any convenient time with an Internet connection, or also have the lesson repeated as many times as the student wishes.
- Self-paced acquisition of knowledge: Via Distance Learning the student has the chance of utilizing the materials that are dedicated to each discipline, course or subject with a totally free discretion regarding the way, the pace, the rhythm of studying or the intensity, without having to wait for slower pace of the average classroom or do their utmost to follow the others.
- Flexibility to communicate with teachers and other colleagues for resolving problems, questions or even making comments and discussions upon the material of the subject.
- Flexibility of time especially for adults with irregular work schedules or increased responsibilities such as several employed parents that do everything in their power to have some spare time for their education.
- Accessibility for people with restricted mobility (e.g., handicapped, injured, elderly people, or habitants of non-developed areas)
- Low cost education: except for the necessary equipment distance learning requires in order to feature and the necessary fees (if required), it relieves students from the expenses that "traditional learning" includes, such as transportation, placement, etc.
- Self-time management: the most significant factor of success for distance learners is the competence of planning well and managing their time. They thus have the chance to become independent and good organizers, which is a skill highly required in their future lives as scientists or employees.

5.5. New technologies in Foreign Language Teaching

New technologies are also widespread known for their utilization in the process of learning foreign languages. With a bottomless list of applications and gadgets, from the traditional tape recorder or CD player, to interactive whiteboards, ICT, mobile technologies 3D virtual environments and tools,

new technologies have nowadays a worth-mentioning presence in almost all European countries when it comes to learning, teaching and certificating foreign language proficiency.[14]

With the assistance of the new technological means, learners are given the chance to either find or meet native speakers utilizing them as communication partners in the foreign language, or have an easy daily access to the news and media in the target language, with the minimum financial expense.

Within classrooms, teachers have their job facilitated by providing authentic contexts in which the foreign language is used familiarize learners with the large variety of accents and pronunciations, giving students chances for a strong performance in listening practice. The aforementioned advantages of using technology in a foreign language class are much more visible when it comes to less widespread languages, rather than English which has already become a global language. Thus, by utilizing NT students are given access to the specific language they wish to learn and communicate appropriately. What makes it challenging for teachers though, is that they have to achieve the compatibility between the transmission of knowledge in the foreign language and the necessary technological skills, which they often lack either completely or partially. [15]

Nevertheless, it is indisputable and common ground that, with the assistance of technology, the lesson acquires interactive dimensions offering learners a large variety of communicative activities which in their vast majority are representative of specific professional or academic aspects of real life. They also boost the proximity of students with several socio-cultural aspects of the language as practiced in various fields and professions, being thus to communicate with native natural speakers of the foreign language at a sufficient degree, always in comparison to their mother tongue. Additionally, students are provided a comprehensible field-specific input that instigates their productivity and capacity (modelling, bridging to students' background experiences, contextualizing, metacognitive activities, task-based and inquiry-based strategies reflective of tasks in discipline specific settings and situations etc.) The introduction of technology in education has also contributed to the promotion of new instructive methods using authentic materials from specific disciplines and

[14]Technology in the service of foreign language learning: the case of the language Laboratory-Warren B. Roby- John Brown University http://www.aect.org/edtech/19.pdf

[15]Second Language Teaching and Learning with Technology: Views of Emergent Researchers Edited by Sylvie Thouësny and Linda Bradley https://research-publishing.net/publication/978-1-908416-00-1.pdf

occupations, supporting the development of cognitive abilities and critical thinking skills required in the disciplines, by also promoting collaborative learning. Last but not least, it furthermore addresses the specific needs of students when it comes to their learning abilities by using multiple modalities to support different learning styles and providing appropriate feedback and assessment of the language skills acquired.

5.6. Utilization of Assistive Technology[16] for Students with Disabilities

Assistive technology (AT) is by definition dedicated to assist individuals who are facing whichever type of disability, either cognitive problems or a physical impairment, to be incorporated in their educational environment, especially when it comes to learning disabilities (LD).

Initially, the utilization of technology to ameliorate learning skills is an effective attempt for many cases of students, that manage to make a lot of progress thanks to technological assistance. Additionally, students with LD often achieve greater success when they are triggered to use their competences (strengths) to overpower their disabilities (challenges). AT tools are targeting towards the compatibility of both of these practices.

5.6.1 What is assistive technology for LD?

Assistive Technology (AT) for kids with Learning Disabilities (LD) is defined “as any device, piece of equipment or system that helps bypass, work around or compensate for an individual's specific learning deficits”. It is already a decade since a series of studies have demonstrated the efficiency of AT for individuals with Learning Disabilities. Even in the case it doesn’t cure or eliminate learning deficiencies, it can be helpful for students to reach their potential, allowing them to rely on their powers, and avoid areas of difficulty. A traditional example of the aforementioned practice, is a student who has a reading disability but has an average or good listening skill, and thus might benefit from listening to audio books.

[16] http://www.pbs.org/parents/education/learning-disabilities/strategies-for-learning-disabilities/assistive-technology/

All facts considered, AT is designed to make up for a student's skill deficiency of disability field. Nevertheless, the utilization of AT does not exclude that a student receives "remedial instruction", meaning instruction focused on disburdening learning deficits and deficiencies (e.g. software programs for the improvement of poor phonic skills, use of remedial reading software, audio books etc.). Besides, research has shown that AT can also contribute to the facilitation of the improvement of certain skill deficits such as reading or spelling.

Moreover, Assistive Technology's main target is to increase a child's sense of self-reliance and independence. Students who do their utmost in school are usually overly contingent on their parents, siblings, friends and teachers during all their way to acquire knowledge. Thus, AT aims to help children learn by depending on their own powers.

5.6.2 What types of learning problems does assistive technology address? [17]

AT are capable enough respond to many types of learning deficiencies and difficulties. A child with writing difficulties can conduct a school report by dictating it and then have a special software convert it to text. Meanwhile, a student who doesn't excel in math can use a hand-held calculator to keep score while playing a game with a friend. As it is obvious, there are several fields in which AT can prove to be useful to help students keep up, such as:

a. Language

Specially designed assistive technology (AT) tools are utilized by many modern schools in order to help people who face grave problems in processing and remembering a spoken language, either a foreign one or even their mother tongue. Assistive devices are often used in large variety of settings such as a class lecture with lots of participants in the audience, or a conference or a seminar with multiple spokespersons.

b. Mathematics

Various examples of Assistive Technology (AT) do really come from math, which is a discipline that requires one of the highest levels of skills in order for somebody to deal with it. Tools are

[17]Assistive Technology for Kids with Learning Disabilities: An Overview-Kristin Stanberry, Marshall H. Raskind
http://www.readingrockets.org/article/assistive-technology-kids-learning-disabilities-overview

manufactured in order to help people that face difficulties in computing, organizing, or aligning exercises and math problems. Thanks to the assistance of audio-visual support, there is a lot of room for improvement for students that by using them can set up and calculate better certain types of math tasks.

c. Memory and organizing skills

Planning, organizing duties and keeping in touch with their obligations are some activities that can be facilitated by the use of technology (AT), not only for people with learning disabilities but also for the totality of students. New technologies can really prove to be helpful in making a weekly schedule, organizing a task list, taking notes from the lesson or keeping in touch with other classmates. Students are allowed to administrate, save, and conjure such information with the assistance of special software programs or hand-held electronic devices

d. Reading & Writing Skills

Assistive technology for individuals with regards to reading and writing abilities consists of a wide range of tools that present the written text as an oral speech. These tools contribute in the facilitation of decoding, reading fluency and comprehension of written texts or help students dodge the actual physical task of writing, while others help ameliorate proper spelling, vocabulary, punctuation, word usage, and grammar skills.

5.6.3 What kinds of assistive technology tools are available?

Notwithstanding the fact that "assistive technology" has usually been used for computer hardware and software and electronic devices. However, many AT tools are now available on the Internet. AT tools that support kids with LD include:

a. Abbreviation expanders

They are software programs that expand the abbreviations that students type into longer words and phrases. Thus, they give students the possibility to create and save for further use abbreviations for frequently-used vocabulary, and words or phrases of the daily language, ensuring the proper spelling of those words and phrases coded as abbreviations.

b. Alternative keyboards

Programmable keyboards that have special overlays which customize the appearance and function of a standard keyboard. Students who have LD or have trouble typing may benefit from customization that reduces input choices, groups keys by color/location, and adds graphics to aid comprehension.

c. Audio books and publications

Recorded books allow users to listen to text and are available in a variety of formats, such as audiocassettes, CDs, and MP3 downloads. Special playback units allow users to and search and bookmark pages and chapters. Subscription services offer extensive electronic library collections.

d. Electronic math work sheets

Electronic math worksheets are software programs that can help a user organize, align, and work through math problems on a computer screen. Numbers that appear onscreen can also be read aloud via a speech synthesizer. This may be helpful to people who have trouble aligning math problems with pencil and paper.

e. Freeform database software

Used in conjunction with word processing or other software, this tool allows the user to create and store electronic notes by "jotting down" relevant information of any length and on any subject. He can later retrieve the information by typing any fragment of the original note.

f. Graphic organizers and outlining

Graphic organizers and outlining programs help users who have trouble organizing and outlining information as they begin a writing project. This type of program lets a user "dump" information in an unstructured manner and later helps him organize the information into appropriate categories and order.

g. Information/data managers

This type of tool helps a person plan, organize, store, and retrieve his calendar, task list, contact data, and other information in electronic form. Personal data managers may be portable, hand-held devices, computer software, or a combination of those tools working together by "sharing" data.

h. Optical character recognition

This technology allows a user to scan printed material into a computer or handheld unit. The scanned text is then read aloud via a speech synthesis/screen reading system. Optical Character

Recognition (OCR) is available as stand-alone units, computer software, and as portable, pocket-sized devices.

i. Personal FM listening systems

A personal FM listening system transmits a speaker's voice directly to the user's ear. This may help the listener focus on what the speaker is saying. The unit consists of a wireless transmitter (with microphone) worn by the speaker and a receiver (with earphone) worn by the listener.

j. Portable word processors

A portable word processor is lightweight device that is easy to transport (e.g., from classroom to home). It can be helpful to kids who may have trouble writing by hand and prefer to use a keyboard. Word processing allows the user to edit and correct his written work more efficiently than doing so by hand.

k. Proofreading programs

Students who struggle with writing (e.g., spelling, grammar, punctuation, word usage, and sentence structure) may benefit from software programs (included in many word processing systems) that scan word processing documents and alert the user to possible errors.

l. Speech-recognition programs

A speech recognition program works in conjunction with a word processor. The user "dictates" into a microphone, and his spoken words appear on the computer screen as text. This can help a user whose oral language ability is better than his writing skills.

m. Speech synthesizers/screen readers

These systems can display and read aloud text on a computer screen, including text that has been typed by the user, scanned in from printed pages (e.g., books, letters), or text appearing on the Internet.

n. Talking calculators

A talking calculator has a built-in speech synthesizer that reads aloud each number, symbol, or operation key a user presses; it also vocalizes the answer to the problem. This auditory feedback may help him check the accuracy of the keys he presses and verify the answer before he transfers it to paper.

o. Talking spell checkers and electronic dictionaries

Talking spell checkers and electronic dictionaries can help a poor speller select or identify appropriate words and correct spelling errors during the process of writing and proofreading. Talking devices "read aloud" and display the selected words onscreen, so the user can see and hear the words.

p. Variable-speed tape recorders

Tape recorders/players allow a user to listen to pre-recorded text or to capture spoken information (e.g., a classroom lecture) and play it back later. Variable speed control (VSC) tape recorders speed up or slow down the playback rate without distorting the "speaker's" voice.

q. Word-prediction programs

Word prediction software can help a user during word processing by "predicting" a word the user intends to type. Predictions are based on spelling, syntax, and frequent/recent use. This prompts kids who struggle with writing to use proper spelling, grammar, and word choices, with fewer keystrokes.

5.7 Other Forms of Technology Appealing to all Students

Instructional software is used to teach specific academic skills (like reading and writing) or subject matter content (such as history and science). It differs from AT in that it provides instruction rather than bypassing areas of difficulty.

Universal Design for Learning (UDL) is a philosophy that encompasses learning models, methods and products to enhance the educational experience of diverse learners (whether or not they have learning disabilities). In this approach, AT is often built into educational materials and can be customized to help students with disabilities be successful with the general curriculum.

6. Possible Effects on Privacy Rights

6.1 Description of the problem

Whilst new technologies support daily innovative and effective teaching methods for all, their use does not come without a cost. Many of the new tools teaching personnel and students have in their hands requires the disclosure of personal data in order to bring out their results. Already existing applications and online programs that provide learning tools available to all, unique platforms created for a specific educational unit, online fora that allow communication outside the classroom etc. may require sensitive information that make each person using them able to be identified such as their, name, date of birth, gender etc.

6.2 The right to privacy

6.2.1 The right to privacy in general

The right to privacy refers to the protection of all the information data concerning a person's life and activities. According to Convention 108 for the Protection of Individuals with regard to Automatic Processing of Personal Data (hereinafter referred to as "Convention 108"), personal data can be defined as "information relating to an identified or identifiable individual"[18]. Throughout the years the ECtHR has recognized that the right to privacy and the protection of data falls under the scope of article 8 of the ECHR[19] as a prerequisite for ensuring the protection of private life. It can include the protection of one's name, elements of their identity, image etc. that shall not be collected, retained, processed and disseminated through an unlawful process and without the consent of the person.
The right to privacy is also protected at an international level under article 17 of the International Covenant on Civil and Political Rights. [20]

[18] Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data, available at: https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/108
[19] The European Convention on Human Rights and Fundamental Freedoms available at: http://www.echr.coe.int/Documents/Convention_ENG.pdf
[20] International Covenant on Civil and Political Rights, available at: http://www.ohchr.org/en/professionalinterest/pages/ccpr.aspx

Additionally, at the level of the EU the data protection directive[21] regulates in detail the protection of the rights to privacy as far as the processing of personal data is concerned This regulation enhances the aforementioned definition of personal data by adding some elements to the characterization of a person as identifiable.

6.2.2 The right to privacy for children

Children constitute a group with heightened vulnerability to exposing unintentionally personal information. They are not familiar neither with the importance of some information for their identification nor with the possible further use of these data. As every individual child of course enjoy the protection provided by Convention 108 and under the light of article 8 of the ECHR.

As far as the children in specific are concerned their right to privacy is ensured in Article 16 of the Convention on the Rights of the child which reads as follows:

> *Article 16*
>
> *1. No child shall be subjected to arbitrary or unlawful interference with his or her privacy, family, or correspondence, nor to unlawful attacks on his or her honour and reputation.*
>
> *2. The child has the right to the protection of the law against such interference or attacks.* [22]

6.3 Complications with personal data due to the use of technology in education

6.3.1 Problems for children in primary and secondary education

6.3.1.1 The use of online platforms and applications

Danger for personal data can occur during the use of many technologically advanced educational tools especially the ones requiring the use and exchange of information via the Internet.

[21] Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:en:HTML

[22] Convention on the Rights of the Child available at: http://www.ohchr.org/en/professionalinterest/pages/crc.aspx

One of the easiest ways for new technologies to be utilized in school units is using already existing applications, websites and programs of all kind in order to meet the needs of a classroom. The options in this field are countless and not all of them contain risks for students' privacy.

For example, many websites provide with tests, exercises or explanatory material (videos, tutorial, charts etc.) aiming to enhance the understanding of children on various fields. The use of this material either within the classroom as a supplement to the rest of the teaching process or at home, after this is recommended by teachers, does not lead to the exposure of any personal information on the condition that the aforementioned is accessible to all without the prerequisite of creating an account.

However, this is not the case for many other options available on the internet. One example can be the use of a social media platform for the creation of special forums enabling immediate and constant communication among teachers and students. Another example is the use of cloud computing, meaning the use of the cloud services of a supplier (such as an email supplier) by all members of a classroom in order for all the important material to be stored in the cloud and therefore be accessible from any device to all people participating.

The access to these platforms has as a prerequisite creating an account and logging in before any action. Thus, every move made through them can be connected with a specific person. Due to their status as students and the purpose of using these programs, which lays on the operation of the classroom, children will eventually have to provide their personal information including name, surname, gender and possibly other information such as age or date of birth, address and phone number. Moreover, when these platforms are used not only for the distribution of material on behalf of the teaching personnel or for answering to students' questions but also for the work of the students to be presented other issues arise as well. More specifically, during this process students may share images of their projects or even themselves and their personal thoughts.

In this case of already existing programs the terms of their use is pre-decided by their provider and there is no room for negotiation between both parties. The users can either accept the provided terms or decide not to use a specific application or webpage. Therefore, there cannot be any special regulation on the ground that the services are used by children. While of course there are rules ensuring that the privacy rights of the users are not violated, children are susceptible to accidentally

disclosing personal information by making an error to the privacy settings. It is interesting that well-known providers of web-based applications such as Google[23] and Apple[24] have proceeded in adopting a separate privacy policy when they provide applications and services to students. Finally, since these platforms are commonly known, the methods to overcome the security measures and hack them are more widespread.

6.3.1.2 Creation of Special Programs/Platforms for the School Unit

The advance of technology has allowed the use of custom-made programs and systems specially created for any school unit. They can serve as a mean of communication, distribution of teaching material, information sharing on the program of the classroom storing of students work and evaluation of their progress. The advantage of these programs is that they are provided on a bases of a contract between the educational unit and a provider. Thus, the school unit has the chance to proceed with a thorough regulation of the terms of the contract under the light of the sensitivity of the information that will be stored.

6.3.1.3 The use of biometric data

Another use of new technologies within educational environments can be the use of biometric data for the identification of students during their activities within the school facilities. Biometric data can be described as physical characteristics of an individual able to assist their identification. One common example is tacking fingerprint measurements of students by using a fingerprints scanner for access in the school cafeteria.

The use and storage of biometric data creates various threats for students' privacy.

The Council of Europe has expressed its concerns on the impact that new biometric-related technologies may have on the human rights protected under the light of the ECHR and first and foremost on human integrity. The first report connecting biometric data to the scope and the

[23] https://www.google.com/edu/trust/ and more specifically: https://www.google.com/work/apps/terms/education_privacy.html
[24] http://www.apple.com/legal/education/apple-school-manager/ https://www.apple.com/uk/education/docs/Education_Privacy_Schools_May16.pdf

principles of Convention 108 has already been conducted back on 2005 [25] but no further steps were taken to address its findings for many years. It was in 2012 that the Committee of Ministers replying to Parliamentary Assembly Recommendation 1960 (2011) highlighted the importance of reconsidering the automatic processing of biometric data. [26]

6.3.2 Problems for adult students

All the issues mentioned above should be considered as existent in all educational units and systems where technologically advanced methods requiring the disclosure of personal data are used. In the cases of tertiary education, life-long learning programs or just adult students that are finishing secondary education individuals' privacy is to be protected despite the fact that in these cases the students are adults.

6.4 Possible Consequences of the leak of personal data used for educational purposes

The danger for one's privacy lays on the use of their data for another reason than the one for which these were stored. As far as personal data stored during an educational process are concerned the threats are the following.

6.4.1 Use of the data for marketing purposes - Targeted advertising

Advertising is the main profit resource for the internet-based services a company provides, especially when these services are provided for free or in low price. Therefore, the appearance of ads during the use of such services in education shall not be considered inappropriate. On the other hand, problems arise when users and in this case students are personally addressed with

[25] Progress report on the application of the principles of Convention 108 to the collection and processing of biometric data (2005), available at: https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016806840ba#search=biometrics
[26] "The need for a global consideration of the human rights implications of biometrics", Parliamentary Assembly Recommendation 1960 (2011), (Reply adopted by the Committee of Ministers on 18 January 2012 at the 1131st meeting of the Ministers' Deputies), available at: https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016805cb3f5

advertisements that are focused on their special interests as these can be deducted through the information they disclosed during the educational process.

6.4.2 Criminal Activity

The personal information that are provided by students in order for certain programs and platforms to be utilized in the educational process may also be the target of criminal aiming to identify possible victims of their activities. Therefore, the protection of the data stored from hacks is of the utmost importance. The protection of privacy and children's data is referred to as one of the "General measures of protection" in article 31 of the Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse[27].

6.5 Solutions

6.5.1 The Government

In order to enable the proper use of new technologies in education and help avoid any breaches of the right to privacy Governments should come up with a comprehensive legal framework on the protection of privacy in education ensuring students' rights. Moreover, it could be useful for general guidelines referring to all educational units to be drafted.

6.5.2 Educational Units

Educational units are the ones responsible for choosing and utilizing the technological means that are appropriate for achieving their educational goals.

Therefore, they should proceed with a thorough review of the terms under which the programs they choose operate.
In the case of existing applications and programs available to all, educational units shall be aware of the terms they have to accept in order to use them and opt for those programs that are compatible with the sensitivity of the information provided. As far as the creation of special platforms is

[27] Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse

concerned, ensuring that the data will be available only to the personnel of the school unit and for its educational purposes should be the first priority in any deal. Additionally, the parties shall agree that the information will be deleted from the provider's server after the end of the contract period
All the above also apply when biometric systems are used. In this case, the security of the databases where these biometric date are stored is another important aspect of good practice.

6.5.3 The informed consent

In order for the collection, storage and processing of any data to be considered lawful, prior consent is needed. This consent can be considered valid only after the individual has been thoroughly informed about the process that will be followed and the purpose of the collection of their data. In the case of underage students this consent should be provided by the child's parents or legal guardian.
Furthermore, it is crucial that when parents have not provided their consent or children deny themselves to provide their data, especially in the case of biometric ones, school units must provide alternatives for the equal participation of these children in the activities where the aforementioned data are required in order for them to freely decide to not be included without any pressure.

6.6 The actions on the field of privacy. The need for further actions concerning privacy in education.

The Council of Europe has taken multiple steps to ensure human dignity and the protection of individuals' privacy during the process of their data. Convention 108 has been the first crucial step and it was followed by a series of Recommendations covering specific aspects of privacy such as processing of data in the context of profiling (Recommendation CM/Rec (2010)13[28]), during using search engines (Recommendation CM/Rec (2012)3[29]) or with regards to social networking

[28] available at: https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016805cdd00
[29] Recommendation CM/Rec (2012)3 of the Committee of Ministers to member States on the protection of human rights with regard to search engines, available at: https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016805caa87

(Recommendation CM/Rec (2012)4[30]). However, the issue of privacy while using new technologies in education has not been a subject of separate regulation despite of the uniqueness of the educational field. Thus, there is much room for proceeding with a comprehensive approach focused on the operation of educational units.

7. Conclusion

In our times everything around us is changing and so do we. There is no wonder though that this has to do with the increasing pace at which technology is advancing, with new technological inventions entering our lives, changing the way that we live and understand the world. Consequently, all aspects of our life are influenced by that spirit of change, and so does education which has an incontestable role in the formation of our modern societies.

We day by day take notice of the great influence of New Technologies in education and its pioneering approaches. PCs, the Internet (World Wide Web) and its penetrability, can't leave unaffected the educational sector. It is thus more than a challenge for the teacher to be aware about of these unique pedagogical and educational advantages offered by new technologies before deciding to make use of them, rather than utilize simply because it is obligatory due to their proliferation.

In fact, in this field, technology has much to offer for the benefit not only of the students, but also of the teachers and the whole educational and academic society. Average students could really reap many benefits, while the ones who can excel will no more be limited only to a specific curriculum, nor will they need to follow the slower pace of other students. A new era of chances is also opened for students with disabilities, while illiteracy in some remote areas will find an incontestable enemy, in light of the introduction of distance learning in secondary and tertiary education.

However, the limitless opportunities leave students and educators vulnerable to a great amount of new threats for their privacy. Therefore, all factors involved in the educational process shall remain alert to face the challenges that arise due to the utilization of new technologies in education.

[30] Recommendation CM/Rec (2012)4 of the Committee of Ministers to member States on the protection of human rights with regard to social networking services, available at: https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016805caa9b

8. Points to be addressed:

- How can states ensure a common policy for educational units towards the direction of protecting privacy rights while using new technologies?
- Which can be considered the prerequisites for the collection and process of data to be lawful?
- Which alternatives can be provided when students or their legal guardians do not allow the use of the students' data?
- Which are the characteristics of the programs educational units should chose in order for the privacy rights of students to be adequately protected?
- How can the protection of biometric data be ensured and reinforced? Which data will fall under the scope of that protection?
- How can examples of good practice become more widespread?

10. Further Reading List

- Diane H. Sonnenwald,Heli Kokkinen, Collaborative Learning Using Colaboration Technology: Report from the field
- S.Retalis, H.Haugen, D.McConnell, What educational challenges are we now able to meet, given that new technologies are available to students and the average citizen?
- Marie Escarabajal, Christophe Kolski. Multimedia systems used during computer-aide lectures: a design and approach
- DeanSutphin, Dam-Mieras, Collaborative learning,sustainability and information and communication technology
- Recommendation CM/Rec(2014)6 of the Committee of Ministers to member States on a guide to human rights for Internet users – Explanatory Memorandum, available at: http://www.coe.int/en/web/freedom-expression/privacy-and-data-protection-explanatory-memo
- The OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data, available at:http://www.oecd.org/sti/ieconomy/oecdguidelinesontheprotectionofprivacyandtransborderflow

sofpersonaldata.htm , and their update, available at: https://www.oecd.org/sti/ieconomy/privacy-guidelines.htm

For examining the example of the practice followed in the USA see:

- The Family, Education and Privacy Rights Act (FERPA): Presentation of the basic context and points of FERPA by the U.S Department of Education, available at: http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html

11. List of Abbreviations

AT: Assistive Technology

CoE: Council of Europe

ECHR: European Convention on Human Rights

ECtHR: European Court of Human RIghts

ICT: Information and COmmunications Technology

LD: Learning Disabilities

NT: New Technologies

OCR: Optical Character Recognition

UDL: Universal Desing for Learning

VSC: Variable Speed Recorders