
ICT INTEGRATION MODELS AND WEB 2.0 TOOLS FOR GREEK LANGUAGE LEARNERS

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ABSTRACT

This paper presents information and communication technologies and their use in educational practice. Their integration in the field of education created new conditions in teaching. The benefits gained by the student are related both to the form and quality of learning and to the development of their skills and abilities. The clarification of the term ICT is necessary in order to make clear the means introduced in the didactics of the cognitive subjects. However, depending on the time period, the technology used differs, as does the way and the purpose of their application. In the Greek language course, textbooks have been created with the philosophy of interdisciplinary. Also, theory and exercises enable the use of applications for their presentation and solution. The presentation of the Word wall application was chosen as an example, which provides a variety of options. Specifically, for the analysis of the concept "Human Rights", a Game show was created with multiple choice questions, to practice and consolidate the taught object.

Key Words: ICT, education, Greek Language, STEM, Wordwall.

1. INTRODUCTION

According to UNESCO, the term information and communication technology refers to "... the tools and the process followed in order to have access, retrieval, storage, organization, handling, production, presence and exchange of information between electronic and automated means. These include hardware, software and telecommunications in the form of computers, scanners, digital cameras, telephones, fax machines, decoders, CDs, DVD players, recorders, digitized videos, radio and television programs, database programs and multimedia programs" (Chris, 2015). In other words, there is a combination of IT technology with the associated Communication Technologies. The user makes use of technology with the ultimate goal of communication and information (Vathrakogianni, Pitsadioti & Halioti, 2020).

Information and Communication Technologies can be defined as the methods, applications and products of modern science and technology, which are related to the collection and electronic coding, processing, classification, selective and combined retrieval, distribution. and the dissemination, disclosure and study of any information in any form and medium. It can be text, numbers, graph, sound, image, film (Papastamatiou 2010).

According to Ratheeswari (2018) the term Information and Communication Technologies refers to any technology through which it becomes possible to disseminate information using

telecommunications, such as the internet, wireless networks, mobile phones, etc. The information that can be displayed is various formats, image, sound, video, animation.

Nollan & Tatnall define Information and Communication Technologies in educational organization and administration as the use of information applications and systems to ensure the best conditions for teaching and learning processes. Therefore, it is a means to achieve a specific goal and not an end in itself (Makri & Vlachopoulos, 2015).

2. ICT IN EDUCATION

Education must promote and cultivate skills in students that are essential to the citizen of the 21st century. The use of ICT in education is self-evident in our time, but its integration went through four phases.

1st period (1960-1970): the first period is considered essentially introductory, as it focused mainly on the use of audiovisual media and technologies, such as the telescope, radio and television. At this time, IT is developing, but the high cost of equipment and software is a deterrent for educational institutions.

2nd period (1970-1980): in the second period computers are introduced in Secondary schools and universities. Although initially the goal was to integrate them into the whole spectrum of the educational process, eventually computer learning was promoted and not learning through them. Any educational software that existed was based on the behavioral principles of learning and was of practice and practical application, while some simulation was also used. In addition, the Logo programming language was created in schools at this time, which was created to acquire basic programming knowledge.

3rd period (1980-1990): in the third period the personal computers are used in all levels of education, as the cost was significantly reduced. Now IT has been integrated as an element of general culture. The computer is a tool for learning programming and differentiated teaching of cognitive subjects as well as entertainment and communication.

4th period (1990-2021): in the last period the evolution of technology and the creation of the internet, changed the ICT data in education. Teachers have the ability to use multi-media, educational simulation software, which is based on constructive learning principles, and even virtual reality applications. The educational material is enriched with interactive educational applications, which, however, should be carefully evaluated by teachers for their quality.

2.1. ICT integration models in education

The models of ICT integration in education differ in purpose, as each time period had its own requirements.

Technocratic or Isolated Technical or Vertical Model: This model was introduced in the 1970s mainly in the upper echelons. This approach is characterized by technocratic determinism and has as its center the teaching on the operation of computers and the introduction to programming, gives absolute value to the system used and its learning, considering that its use will be necessarily, deterministically, excellent. In Greece, the introduction of Informatics courses, without at the same time emphasizing the use of technology in the teaching subjects, created in students and teachers the perception that it is just another additional course (Koutsogiannis, 2011).

Integrated or Holistic Model: The second model of ICT integration is chronologically relatively recent. According to the integrated or holistic model, Information and Communication Technologies are not a separate school subject but are utilized in all subjects. Through them, a new mentality is promoted in terms of methods and ways of teaching. Cognitive objects are enriched by interactive material and students use technology to search for information and expand their spiritual horizons. In Greece, due to the prevalence of traditional forms of learning, the lack of training of teachers in new technologies and the lack of technological infrastructure, the implementation of this model is not particularly easy and is in its early stages (Koutsogiannis, 2014).

Factual or Transitional Model: The latest model of ICT integration combines the technocratic with the holistic model. In other words, the teaching of Informatics is an autonomous course, but there is a simultaneous utilization of technologies in all teaching subjects. Special emphasis is given to the development of technological literacy but also to exploratory learning through New Technologies (Koutsogiannis, 2014).

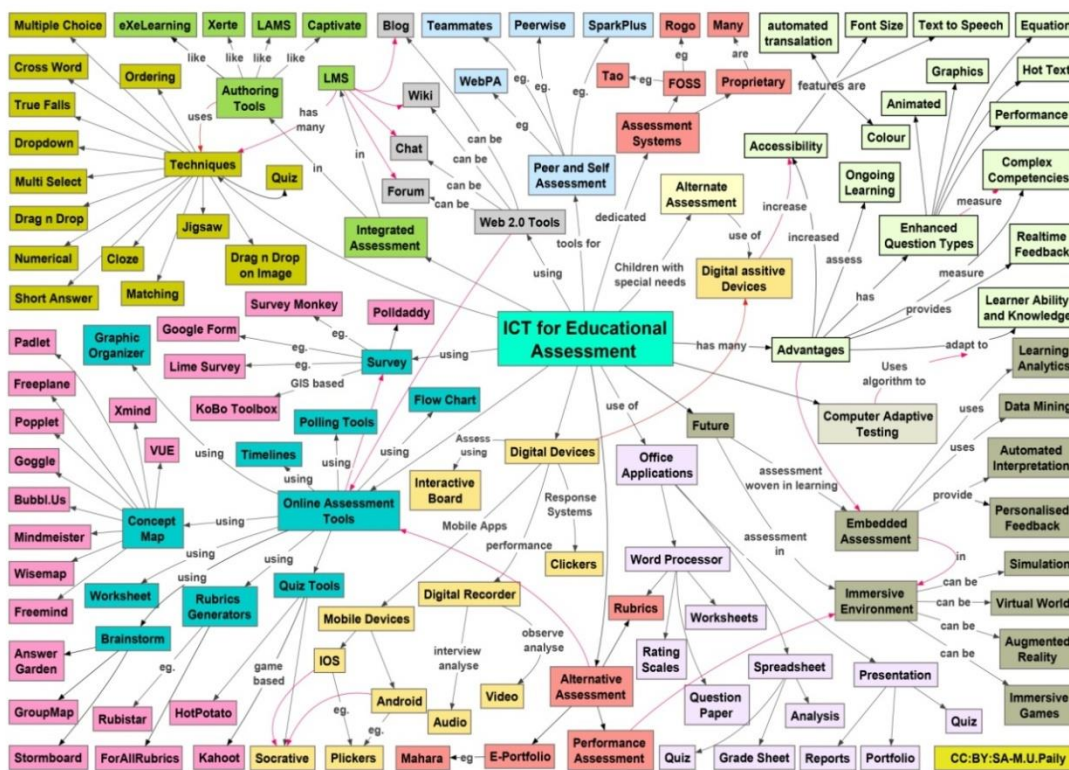


Figure 1. ICT for Educational Assessment (source: https://www.wikiwand.com/en/Information_and_communications_technology)

2.2.

Benefits in education from the integration of ICT

The preparation of the new generation for the evolving technological age that is going through, is carried out through education with the use of New Technologies (Mitkas, Tsoulis & Pothos, 2014). ICT play a key role in teaching, as teachers, parents and students now understand the benefits they offer.

- Technology can contribute with its own dynamics to the construction of ideal learning environments, in order to produce knowledge as effortlessly as possible (Acquosti, 2014).
- Information technology helps to enhance teaching skills and learning ability, as learning resources are diverse and numerous. In addition, the learner can access the knowledge at any time. (Negi & Negi & Pandey, 2011).
- Through multimedia it is possible for teachers to create multimodal educational material, which attracts the attention and interest of students but also which is usable and the only thing that is necessary is to be informed.
- The collaborative method of collaboration is strengthened, because students have the opportunity to work in groups to find information and write a paper. Thus, the traditional teacher-centered form of education ceases to exist.
- The financial cost in education is reduced, since the teaching objectives of the course can be achieved through ICT, limiting the use of many textbooks (Lafatzi, 2005).
- People with special needs are given the opportunity to access the educational process.
- Students develop new skills that will serve them as adults in modern society and cultivate creativity, responsibility, critical thinking and ingenuity (Nikolaou & Barbaroussi, 2017).
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2.3. Multimedia in education

The term multimedia refers to the collection and presentation, in a single medium of many different forms of information in order to better communicate them. Therefore, the concept of multimedia concerns the ability of the computer to manage many channels of aesthetic communication with the user, such as text, sound, image, graphics, video (Komis, 2004). Multimedia, however, is not necessarily interactive. If in an exercise the student simply goes to the next screen in a linear way by pressing "enter" then there is no talk of inter-activity. Only if the student with his answer influences the development there is interactivity (Vaughan, 2011).

With multimedia students attempt a relatively free navigation in multimedia databases (usually accompanied by activities where the use of other software can be integrated), search for and evaluate information, relate concepts, develop personal and collective experiences, try correlation strategies concepts, build personal cognitive maps, discuss ideas, develop collective work. This facilitates the teaching aimed at pragmatic engagement, authentic and playful experiential-cognitive activity, intuitive, heuristic and collaborative learning, where many elements of non-formal and non-autonomous education are utilized (Raptis & Rapti, 2004).

2.4 STEAM

Computer Science includes fundamental principles (such as computational theory), incorporates techniques and methods to solve problems and promote knowledge (eg abstract logic and reasoning) and also contains a specific way of thinking called "computational". way of thinking "(computational thinking). The basic points of this science regarding design, theoretical analysis

and experimentation, are based on the so-called STEM (Science, Technology, Engineering and Mathematics- Science, Technology, Engineering, Mathematics) in Education but at the same time have a binary relationship with STEM since they also feed the STEM cognitive objects. The field Art - Art was added to the STEM standard and evolved into the STEAM standard (Science, Technology, Engineering, Art and Mathematics - Science, Technology, Engineering, Art, Mathematics). In this way, the Arts are now included in the promotion of innovation, critical thinking, design and creative solutions (Plageras, et al., 2020).

3. METHODOLOGY

In our intervention we followed the exploratory teaching method and the goals set were:

- Students to understand the value of human rights today
- Be able to use technology to explain values and language both today and in other times.

The intervention was made to high school students in the regions of Magnesia and Attica. The teachers who conducted the research were trained by the authors to better understand and implement the plan. The students were randomly selected. The research involved 145 students from both regions, of whom 60 were boys (47%) and 85 girls (53%). The intervention took place in the course of Technology with the participation of the teachers of the specialties PE 02 and PE 83. The students initially answered a questionnaire about their relationship with the theoretical courses and more specifically with the course of Modern Greek Language. 85% of the girls answered that they have a good and very good relationship with this course. On the contrary, the boys answered a smaller percentage of 40% to the same question. After the intervention, the percentage of boys who had a positive view of the course increased dramatically to 86%. Also, the girls showed a change approaching the absolute in acceptance (96%). The most important finding of the present study was that the students in their discussions after the intervention, considered very positive that they interacted with technology. They entered the process of solving the problem (value of human rights in the present era) and at the same time gathered information regarding the functioning of a modern society. Thus, by utilizing the STEAM methodology, they understood a theoretical subject.

3.1 Teaching course

The scenario follows the exploratory approach with the following steps:

1. Involvement - Orientation: Students are given examples of the concept of Human Rights with their practical application in situations they encounter in their daily lives. They are asked to answer questions such as how they are respected today. The duration of this stage is 10'.
2. Conceptualization and recognition of prior knowledge: At this stage the students' prior knowledge is recalled, as a continuation of the orientation phase and then the teacher asks the following research questions: a) what is the role of the Human Rights Treaty in the organization of a modern society, b) how the Greek language has contributed to the formation of the perception of respect for human rights. The duration of this stage is 10'.
3. Research - Experimentation: At this stage the students with the help of the following Worksheet - which the teacher considers as a tool to guide the exploration - study the research questions that have been asked in the previous stage. In the first activity, students are asked to design, on a computer application that has been explained to them a conceptual map of Human

Rights and to print it. In the second activity they are asked to answer an electronic questionnaire given to them by the link. The duration of the first activity is 25'.

4. Interpretation of results: It is the most important stage of the exploratory approach and includes the individual stages of clarifying and exchanging ideas between students, building new knowledge and drawing conclusions related to the research question. In more detail, the students at this stage find out after the motivation of the teacher in their group if the research questions are verified.

5. Discussion: The findings and results of each group of students in the plenary are presented after the implementation of the Worksheet. In addition, students are asked to reflect on how their original ideas have changed (metacognition), with questions asked by the teacher.

4. TEXTBOOKS IN THE GREEK LANGUAGE COURSE

The textbooks for Greek language of the Lyceum were established in the school year 1989-1990. They were considered pioneers as they followed a new approach to how it is possible to teach a language lesson. However, the interest is focused after 2000 on the revised edition of the textbooks, because at that time the Panhellenic Examinations began to take place. Although the books are a series of three issues that correspond to the corresponding class, their content is uniform. Most of the changes are observed in the third issue, which is addressed to the last class of the Lyceum. In particular, some texts, sections and exercises were removed, while new texts were added, a new chapter and the theory was enriched with the views of more sciences.

The books of Modern Greek focus both on the essential knowledge of theory, which is why there is a plethora of exercises, even in collaborative work, as well as on the development of students' written communication. An important element is the occasion for discussion given at the end of each section through the presentation of issues that concern society. The student critically reads the accompanying texts and after a dialogue with the teacher and his classmates, is asked to express his own views and thoughts, cultivating the ability of argumentation, style and language depending on the communication situation.

The textbooks of Greek language are supplemented by the Thematic Circles, a book which with its texts offers additional material on the topics for discussion but also with the book Language Exercises for the Unified Lyceum, so that the students can enrich their vocabulary and upgrade their style.

Although they are formulated in a way that promotes interdisciplinarity, their connection to entrance exams in higher education has "trapped" the teacher in a logic of grading. The immediate result is the non-utilization of the multimodal material, such as the pictures and sketches but also the supporting material of the supplementary books.

We believe, however, that the teacher should keep up with the times and take into account the needs of his students. Although the limited teaching time and the pressure of the exams are inhibiting factors for a multifaceted teaching, which combines theory with practice and knowledge with the use of technology, the undoubtedly positive result that will be obtained by students and teachers, both in terms of performance and in terms of psychology, is enough to turn the education system in a new direction.

4.1. ICT in Greek language

In the course Greek language the teacher is invited to analyze and discuss with students concepts that with their dimensions and importance occupy society, but also to instill in young people the principles, values and ideals of a integrated citizen.

Indicatively, the section “Human Rights” will be presented with the contribution of ICT. Initially, in order to explore the students' knowledge of the topic to be discussed, the teacher will distribute worksheets which will contain relevant words and pictures and the students will have to record their thoughts and feelings. On the occasion of their answers, there will be a debate on human rights, where the consequences of their circumvention will be mainly emphasized.

There are also human rights films on the Internet, excerpts of which could be screened for constructive dialogue. Students will choose to present a category of human rights on the occasion of the information they will collect from the discussion but also from the screening. The presentation can use text, images, power point, and even create an interactive book.

Closing the section on human rights and after the student groups have already been created, the teacher through the creation of a video game can summarize the most useful information, but also create a pleasant atmosphere arousing the interest of students. The Wordwall application (<https://wordwall.net/>) is very easy to use and -apart from the advantage of the user-friendly environment- it also has a variety of exercise forms.

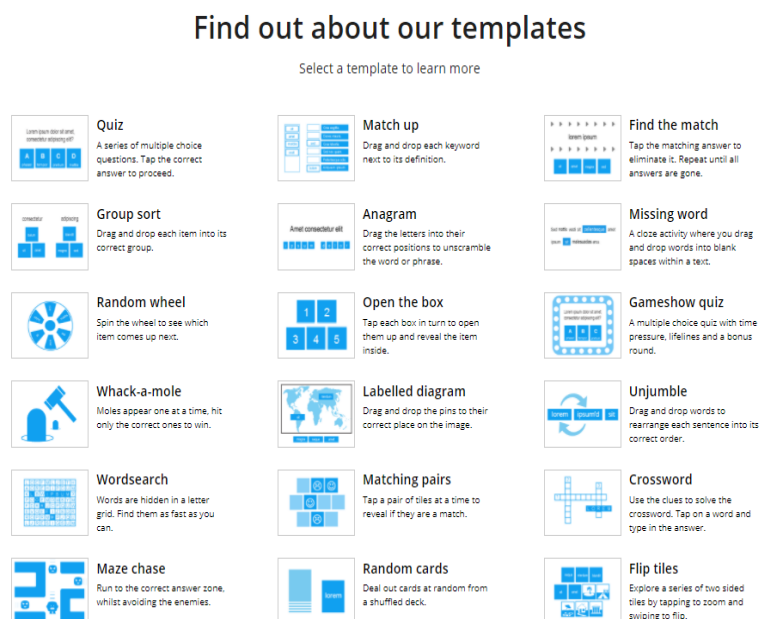


Figure 2. Forms of exercises in Wordwall

As it was said, for the section “Human Rights” we have chosen the format Gameshow quiz.

Human Rights

Qu.1 The Universal Declaration of Human Rights is the Declaration adopted by the General Assembly of the United Nations in:

a	<input checked="" type="checkbox"/>	1935	d	<input type="checkbox"/>
b	<input checked="" type="checkbox"/>	1948	e	<input type="checkbox"/>
c	<input checked="" type="checkbox"/>	1952	f	<input type="checkbox"/>

Qu.2 When was the Council of Europe Commissioner for Human Rights created:

a	<input checked="" type="checkbox"/>	1999	d	<input type="checkbox"/>
b	<input checked="" type="checkbox"/>	1980	e	<input type="checkbox"/>
c	<input checked="" type="checkbox"/>	2000	f	<input type="checkbox"/>

Qu.3 Which of the following categories do not belong to Human Rights:

a	<input checked="" type="checkbox"/>	Civil rights	d	<input type="checkbox"/>
b	<input checked="" type="checkbox"/>	Economic and social rights	e	<input type="checkbox"/>
c	<input checked="" type="checkbox"/>	Technological rights	f	<input type="checkbox"/>

Qu.4 Which organization aims to defend Human Rights:

a	<input checked="" type="checkbox"/>	Smiling child	d	<input type="checkbox"/>
b	<input checked="" type="checkbox"/>	Ark of the world	e	<input type="checkbox"/>
c	<input checked="" type="checkbox"/>	Amnesty international	f	<input type="checkbox"/>

Qu.5 The death penalty:

a	<input checked="" type="checkbox"/>	It is banned all over the world	d	<input type="checkbox"/>
b	<input checked="" type="checkbox"/>	It has been abolished by law or in practice in more than !	e	<input type="checkbox"/>
c	<input checked="" type="checkbox"/>	Not allowed for people over 50 years	f	<input type="checkbox"/>

Figure 3 creating a questionnaire

Creating a Gameshow is simple. We choose a title that represents the teaching unit. Next, we write the questions we want giving up to six alternative answers, while making sure to choose which is the correct answer. The Gameshow is ready for viewing!

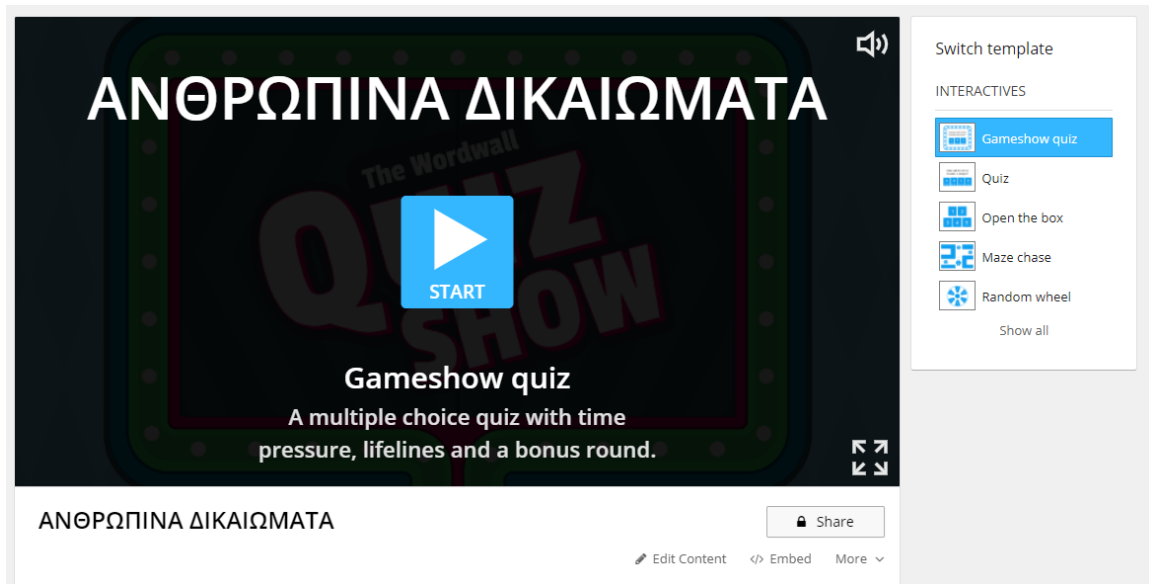


Figure 4 Game show

As shown in Figure 2, although we initially chose to create a Gameshow, it is possible to change the format of the exercise. Finally, by selecting the “share” button, the teacher has the opportunity to schedule the exercise for a specific date and forward it to students or share it with his colleagues, but after first choosing to make his exercise public.

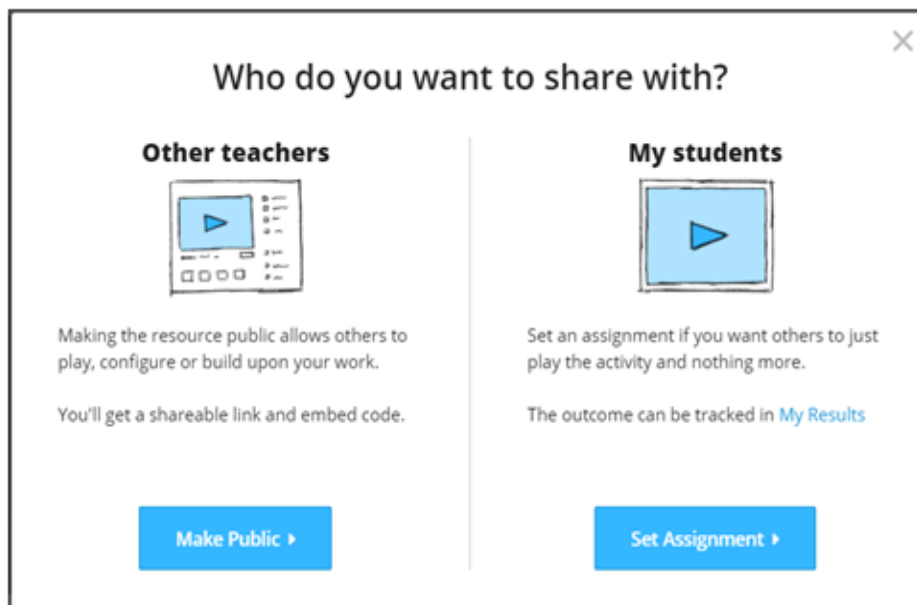


Figure 5 Share option

5. CONCLUSIONS

The evolution of technology has affected the field of education. The integration of information and communication technologies has shaped a new form of learning. However, until they became in Greece an integral part of the educational process in all subjects, but also to be taught as an autonomous course, several decades passed. The benefits gained by the student are related both to the form and quality of learning and to the development of their skills and abilities. The books used to teach the Greek language since 2000 promote the use of ICT, but for several years teachers had not introduced technology in this subject, as the country's education system did not turn to it. It is clear that the training of teachers in the use of technologies in education is necessary, in order to improve the teaching practice but also to keep up with the new generation of students. Using the Wordwall application creates interactive exercises promoting playful and collaborative learning (Plageras, et al., 2020).

They promote collaborative learning and make the lesson more engaging. In this way the teaching of theoretical courses becomes more modern and students have greater motivation for their participation both in the theoretical part of the course and in the implementation of activities. In order to be able to create schools that will meet the needs of the future, new teaching methods must be developed, while innovation and technology must be based on the sciences of learning. The learning sciences show us how to design environments that promote the authentic knowledge and adaptive perception required in an age of innovation. The societies that will be able to effectively restructure their schools in the learning sciences will be the leaders in the 21st century (NAE & NRC, 2014). The issues facing the learning sciences have been identified as critical in all 28 of the countries studied by ISTE (Kozma, 2003). Therefore, an important issue that arises is the description of an increasingly specific framework for the future of learning. The STEAM approach, as evidenced by the above, combines innovation with teaching and gives students the opportunity to create and apply new ideas and practices as well as to deal with problem solving in the Greek Language course (Plageras, et al., 2020).

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