

Digital learning: Differentiated teaching models using ICTS in Greek context – good practices: “I learn Europe through its cultural tradition: Traditional gastronomy products and traditional games Alanas”

Lykou Paraskevi ^{2,*}, Pergantis Pantelis ^{2,3} and Chaidi Irene ^{1,2,3}

¹ Department of Special Education, University of Thessaly, Volos, Greece

² Net Media Lab IIT, N.C.S.R 'Demokritos', Athens, Greece

³ Department of Greek Philology, Democritus University of Thrace, Greece.

World Journal of Advanced Research and Reviews, 2024, 22(01), 1712–1726

Publication history: Received on 11 March 2024; revised on 20 April 2024; accepted on 23 April 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.22.1.1205>

Abstract

It is supported by modern pedagogy for individuals with special needs to be included in regular classroom settings. A free public school is accessible to everyone. A nation's cultural traditions evolve and are largely preserved through intergenerational learning, or the transfer of information from one generation to the next. The use of new technologies in education can help achieve this goal by converting traditional instruction into differentiated instruction that adjusts to the unique needs, skills, interests, and experiences of each student. This creates learning environments where students can approach the material at their own pace and convenience. This project offers an example of customized instruction within a cultural heritage project.

Keywords: New Technologies; Differentiated teaching; Students with special needs; Intergenerational learning; Tradition

1. Introduction

The purpose of this work was for the students to acquire a European consciousness, to feel active European citizens, to get to know the European family through traditions, sights, music, tasting, and games, to define themselves spatially in Europe, to discover similarities and differences, and to identify themselves.

The project is entitled "Traditional Learning of Europe Through Cultural Tradition: Traditional Food Products and Traditional Games of Alana". The project was implemented in the framework of the "Intergenerational Learning of Tradition" program that is already implemented in our schools with the cooperation of the Schools with the K.A.P.I (Open Centers for the Protection of the Elderly) of Nikaia-Piraeus. The project was carried out by students of the 4th grade of General 11th District. Amarousi Primary Education North Suburbs Area of Athens was prepared in the context of the European program TEACHER 4 EUROPE. School, students of the Special Dim. Sgt. Amarousiou and elderly people of K.A.P.I in Nikaia-Piraeus. The students of the General School, the students of the Special School, and the residents of KAPI Nikaias through the activities of the program collaborated and through work program and activities got to know countries of the European Union through a journey of traditional tastes, music, attractions, virtual ride and of course a traditional game of alana (open play area).

The duration of the program was 5 months, and it took place during the flexible Zone and was implemented both in the area of school units and in the area of KAPI in Nikaia. It was interdisciplinary and the cognitive areas involved were: Geography (Grade 4), Art, Theater Education, Information Technology, Music, Gymnastics, Language, and Mathematics.

* Corresponding author: Lykou Paraskevi

The selection of the countries that participated in the specific project was based on their spatial identification in

terms of points on the horizon: A) South: Greece – Italy, B) North: Denmark, C) East: Poland, D) Western: Germany, France. The activities for the European acquaintance trip were traditional tastes and products, traditional music, characteristic sights, traditional dress, traditional Alana games, and virtual walks.

The presence of the people of KAPI or somehow their engagement with the above countries was a positive experience as many of them were immigrants from Germany and Russia and others of them traveled to most of the countries of Europe: Italy, Denmark, and France to visit their children who were permanently working in those countries or grandchildren who were studying abroad.

2. Differentiated Teaching and Special Education

2.1. Definition of Differentiated Teaching.

Differentiated Teaching is defined as "teaching that treats the student as an integral entity inside and outside the school structure [1] with the aim of understanding concepts, acquiring fundamental skills, as well as the active participation of the student in the learning process by approaching knowledge". The goal was achieved by differentiating/modifying/shaping the content of the educational material, through differentiating tasks, teaching methods, and strategies of pleasure and creation [2]. Differentiated teaching as a method of inclusive education teaches students to: "learn how to learn" according to the peculiarities, abilities, interests, and needs of each one, participating equally in an accessible collaborative and high-quality learning environment [3] through three key components: the student's readiness, their interests, and their particular learning style.

Tomlinson argues that the four main areas that govern differentiated instruction and that educators should focus on the following: a) Content: Information and useful resources known to learners. b) Method: selection of appropriate exercises for quick understanding and consolidation of the new teaching content by the students. c) The projects: an appropriate way of approaching the acquired knowledge of the students. d) Learning environment: creation of a learning environment as a guarantee of the smooth cooperation of the students in the class.

Constituent elements of a successful differentiated education are the use of materials of graded difficulty, the team-collaborative method, individualized-personalized intervention, traditional teaching in the plenary session of the class as well as the design and creation of exercises based on Gardner's multiple intelligences.

Goals are set according to the learning profile of each student creating learning environments so that everyone can approach knowledge [4], while through formative assessment [5], [6] students' progress is assessed, their learning style is investigated and shaped according to a more effective teaching. Regarding the final exam, the development and effort of the students [4] are examined to develop/improve/stimulate their confidence and self-esteem and not their performance [7].

In certain courses, students dwell with individuals around their age chronologically but have significantly different degrees of language proficiency, abilities, motivations, and requirements. Differentiated teaching aims to offer each student effective education and learning. Next, it employs ways on how to construct and structure lessons around a key topic that will emphasize educating the students rather than the course material, as well as the most important strategies for differentiating instruction: Think - Pair - Share, Cubing, Jigsaws, RAFT, KUD, TPRS, Graphic Organizers, Frayer Model, KWL, Graded Courses, ThinkTac Toe, and Learning Centers [8], [9].

In summary the Differentiated Teaching [10] in Figure 1.

DIFFERENTIATED TEACHING				
The advanced design of instruction meets the different learning needs of children.				
A) GUIDED BY GENERAL PRINCIPLES OF DIFFERENTIATION				
ACCEPTANCE OF STUDENT DIVERSITY	COLLABORATIVE LEARNING PROCESSES	LINKING NEW KNOWLEDGE TO STUDENTS' EXPERIENCES	MULTIPLE APPROACHES TO LEARNING	CLASSROOM MANAGEMENT WITH FLEXIBLE ROUTINES
The ability for students to choose what and how of their learning	Communication and interaction in the target	I'm learning how to learn	Openness/ Investigation Collectivity	Variety of evaluation methods
B) TEACHERS MAY DIFFER				
THE CONTENT	THE PROCEDURE	PRODUCTS	LEARNING ENVIRONMENT	
The information and ideas are provided to students to achieve the learning objectives.	The activities student participates in to understand or master in which the information.	Tasks of graded difficulty in which the student demonstrates what he knows have understood and can do.	Classroom climate and organization.	
C) ACCORDING TO THE STUDENTS				
READINESS	INTERESTS		THE LEARNING PROFILE	
The student's knowledge and ability to meet specific learning objectives.	A student's attraction, curiosity, passion, preferences for a particular subject, or fluency in a skill motivates them to learn.		The way a student learns can be shaped by intelligence type, gender, learning style, cultural environment, etc.	
D) THROUGH A VARIETY OF TEACHING STRATEGIES				
<ul style="list-style-type: none"> • Cubing • Jigsaws • RAFT • KUD • TPRS • Graphic Organizers • Frayer Model • Think – Pair – Share • Find Someone Who • KWL • Graded Courses • Think Tac Toe • Learning Centers 				

Figure 1 Differentiated Teaching [10] (in summary)

2.2. Digital Differentiated Teaching

Educators can leverage information and communication technologies (ICTs) to customize learning materials, activities, and procedures. This allows for the creation of an optimal learning environment and motivates students to approach knowledge in the most effective manner [11]. ICTs are instruments that help adapt education to the interests, readiness, and learning style of the student. For this reason, they are thought to be the most effective means of differentiating instruction. Students with special needs can stay up to date with their peers with the use of assistive technologies.

According to [12], ICTs contribute to the following six attributes that support individualized education:

- Confidentiality
- Teamwork and communication abilities
- Arrangement
- Accommodating diverse learning preferences and sensory experiences
- Offering options
- Realistic education.

Overview of ICT strategies and tools for differentiating instruction.

Dimensions in Differentiated Teaching	Strategies for differentiating teaching	ICT tools/applications
Content	<u>Program Condensation.</u> <u>Learning contracts.</u> <u>Using a variety of sources.</u> <u>Graded activities.</u> <u>Conceptual teaching.</u> <u>Differentiated questions.</u> <u>Complex teaching.</u>	<u>Cognitive objects.</u> <u>screen reading.</u> <u>concept mapping.</u> <u>general purpose.</u> <u>visualization software</u> <u>Websites.</u> <u>Video.</u> <u>Audio and video files.</u> <u>Digital books.</u> <u>E-Books.</u> <u>Audiobooks.</u> <u>Virtual manipulations.</u> <u>Simulations.</u> <u>Web explorations.</u>
Procedure	<u>Flexible grouping.</u> <u>Learning & Interest Centers.</u> <u>Graded Activities</u> <u>Choice Tables.</u> <u>Daily arrangements.</u> <u>Journals of learning records.</u> <u>Group investigations.</u> <u>Independent studies.</u> <u>Using graphic organizers</u>	<u>Interactive Sites and Software.</u> <u>Podcasts.</u> <u>Ebooks.</u> <u>Blogs.</u> <u>Wiki and LMS.</u> <u>Social Networks.</u> <u>Forums.</u> <u>YouTube.</u> <u>and other Web2.0 tools.</u> <u>Web explorations.</u> <u>Simulations.</u> <u>General purpose.</u> <u>creation.</u> <u>and</u> <u>expression.</u> <u>concept mapping</u> <u>software.</u> <u>Screen recording programs.</u>
Product/result	<u>End product options.</u> <u>Task presentation options.</u> <u>Original creations.</u> <u>Initial, Formative, and Final</u> <u>assessment.</u> ✓ <u>Rubrics</u> ✓ <u>Alternative assessment</u> (self-assessment, peer assessment, portfolios)	<u>Digital collaborative tools for</u> <u>creating and sharing information</u> <u>(Publisher, Google docs, Paint,</u> <u>Powerpoint, Slideshare, Prezi,</u> <u>Wikis, Blogs, Sroorybird,</u> <u>Voicethread, e-book applications,</u> <u>Movie Maker, WebComics,</u> <u>Podcasts, Vodcasts, YouTube).</u> <u>Social networks (Twitter,</u> <u>Facebook).</u> <u>Online social</u> <u>bookmarking services (eg</u> <u>Delicious).</u> <u>General purpose</u> <u>software.</u> <u>Rubric creation tools.</u> <u>Hot Potatoes.</u> <u>Digital Storytelling</u> <u>Applications</u>

Figure 2 Overview of ICT strategies and tools for differentiating instruction. [14]

ICTs in the context of differentiated teaching are the tools that help to adapt specific teaching and learning strategies to the learning profile, interest, and/or level of readiness of a student [11] using the TPACK (Technological Pedagogical Content Knowledge) approach, of the three components: content (material), pedagogy, and technology. This approach is based on the fundamental tenet of ICT integration in the achievement of the goals set by the teachers based on the learning profiles of their students. [13]

2.2.1. Special education and differentiated instruction

The inclusive education methodology, currently a concept in formal education institutions, incorporates the application of diversity in the following categories: A) students with disabilities and particular requirements for children belonging to national minorities; B) individuals learning Greek as a second language. C) kids whose parents come from low-income families [15] [16].

3. Intergenerational learning and ICTs

It is often said that younger people "learn - are taught" by older people. Also, the contribution of the elderly (grandparents) in the upbringing of the grandchildren actively helps in their psycho-emotional development. A kind of intergenerational communication and learning takes place between the elderly and their grandchildren.

New Technologies are a means that show more and more development at all ages and are an integral tool for learning and communication at every age depending on the interests and needs of each one of them.

The primary idea, referred to the investigation of the two-way relationship between the elderly and society through the use of new communication technologies and in particular the Internet; not only as a space for communication or simply providing information but more as a reservoir of memory and experience that potentially would be available to all.

The "partnership" of young people with older people has three characteristics: a) benefits, b) reciprocity, and c) empowerment, as older people help younger people approach the attitudes and values of adults, and as the generations work together to acquire skills, values, and knowledge (benefits), mutual learning relationships between different age generations are cultivated (reciprocity), social capital is developed and cohesion in our society is supported (empowerment)[17].

As intergenerational learning and communication are key components for the evolution of human culture, it follows that the reduction of the sharing of accumulated knowledge occurs when the elderly and the new generations become isolated from each other, and the main causes of this isolation are considered to be the family structure and the geographical mobility of citizens [18].

Learning is a continuous and evolving process that involves the assimilation of knowledge, ideas, and values, continuous creation and renewal of knowledge, and abilities that turn into skills and takes place at all ages of human life everywhere and always, while intergenerational learning is learning that is carried out, it takes place between generations reciprocally for one generation to learn from the other with the recognition that the learning process never ends, lifelong learning [19].

It is a form of social knowledge that is passed from generation to generation, from the old to the young, through various means [20] informally usually and without planning, it is experiential and transmitted through discussions and shared activities [21].

As argued by [22], this mutual exchange of knowledge leads to the interaction of generations and the exchange of knowledge, attitudes, and opinions on issues of environment, culture, education, entertainment, and New Technologies. Intergenerational learning in its organized form aims to bridge the gap between generations by involving the people of the generations in common activities that promote interaction, understanding, respect and acquiring knowledge, skills, knowing new values and attitudes, acceptance from all available sources and all the influences of their own life [23].

The interaction of different generations has been since ancient times the best and most effective way of learning as well as the transfer of knowledge and experiences. Educational research proves that seniors still have a lot to offer in the field of knowledge, specifically education.

A major challenge of European and in general all modern societies is the progressive aging of the population, including the risk of increasing the gap between generations. At the same time, the rapid development and spread of Information and Communication Technologies (ICT) in all aspects of modern society creates new data and increases the distance between the younger and older generations.

The acquisition of digital skills is an important element in the inclusion of citizens in the Knowledge, Information, and Communication Society, but also an important element in supporting active aging, opening up new avenues of learning, formal or informal, and providing opportunities for older people to contribute to society.

Therefore, the use of ICT is a new privileged means of learning, and it also creates benefits for different generations, bringing young and old together and helps to deal with the "digital divide" and perhaps even to bridge it because lifelong learning, learning at all stages of people's lives encourages active aging, provides adults with the skills they need to remain active citizens in society and empowers their contribution to the learning of younger generations [24] to give young people the opportunity to share digital knowledge them, and the elderly the opportunity to explore the new digital world.

As far as people with special needs are concerned, technology can replace to a large extent elements of disadvantage or disability and bring the student closer to the cognitive good and social reality since it enables him to communicate with his environment and interact with this [25].

Computers give students with special needs what they need: step-by-step work. This strategy of breaking it down into small steps has proven to be a successful way of teaching.

4. Project Description

In the context of the good practices of differentiated teaching, a scenario, and a lesson plan with the use of ICTs are presented. "I Learn Europe Through Its Cultural Tradition: Traditional Gastronomy Products and Traditional Games Alanas"

4.1. Cognitive areas involved

The teaching scenario-program was carried out by, 20 12th-grade students in kindergarten. 60 second-grade students, 67 fourth-grade students, 65 fifth-grade students, and 58 6th grade students, of Generals Schools 3rd and 11th Dim. School of Amarousiou, where students with ADHD (attention deficit hyperactivity disorder), ASD (Autistic Spectrum

Disorders - Asperger's), and students with learning difficulties (Dyslexia 5 students of Special Dim. Amarousiou St with moderate Mental disability and autism and the elderly of K.A.P.I Nikaia participants.

The students of the Kindergarten, the General School, and the seniors of the K.A.P.I Nikaia through the activities of the program they worked together and through the work plan and activities they got to know European Union countries through a traditional trip of tastes, music, attractions, a virtual walk, and of course traditional play "alanas". The students at the Special School and the students of the General School through the activities of the scenario would cooperate, become aware, and get to know the diversity of individuals, but also through a work plan and activities for Greece, they will understand the position of Greece in Europe.

Also, in the program in addition to the teachers of the departments, the directors participated in two schools, and the teachers of English, French, German, IT, visual arts, Theater Education, and the teacher's Physics lawsuit.

The purpose of the work was for the students to acquire a European consciousness, to feel like active European citizens, to get to know their European family inside from traditions, sights, music, tasting, and games, to be determined spatially in Europe, to discover similarities and differences, yet identify themselves.

The duration of the program was 5 months, it was carried out during flextime and was implemented both in the area of school units and in the area of K.A.P.I. The transport of students and elderly people came true with leased vehicles.

Scenario program: The project was implemented within the framework of the "Intergenerational Learning the Tradition" which was already implemented in our school units with the cooperation of the Schools with the K.A.P.I of Nikaia. It was interdisciplinary and the cognitive areas involved were: Environmental Studies (Second Class), Geography (4th Grade), Visual Arts, Theater Education, Informatics, Music, Gymnastics, Language, and Mathematics.

The present study scenario of learning addressed students: a) of General School of age 8 and 10 years old: It was an interdisciplinary program and was connected to the thematic cognitive areas: Language, Study of Environment, Visual Arts, Informatics, Music, Foreign Languages, and Physics Education. b) and of Special Education and Education, at the higher level.

The scenario is compatible with the A.P.S and DEPPS of the students Second class and Dclass of the General School in modules that concern the education of students in the Sectors: of Social Adaptation (Environmental Studies, Foreign Languages), Creative Activities (Art, Music, IT), of Basic Academic Skills (Language,) and the Apprenticeship Readiness (Physics Education) and students with Mental Retardation and autism of the Higher Level of Special Education, in sections concerning the education of students in the Areas of: Social Adaptation (Study of the Environment, Foreign Languages), Creative Activities (Art, Music, IT), of Basic Academic Skills (Language,) and Learning Readiness (Physical Education).

ICTs employed to carry out the scenario since, as stated in the EDPS of the primary school, they can be used for communication, research, and information search.

4.2. Students' knowledge and prior ideas or perceptions

The students: - Know the existence of the E.U, the sights of the E.U, the flags of some of the EU countries

- Have acquired skills in using the YouTube software, relevant skills in using the Google Earth software, the Google Maps software, and how to navigate the world wide web.

4.3. Objectives of the teaching scenario

The didactic unit " *Getting to know Greece in Europe* " was a thematic part of a Program that aimed to introduce students to Greece as a member of the European Union. To place Greece on the Map of Europe and to get to know its traditions from the traditional tastes, the music, the sights, the traditional games, but also its symbol: its flag. (Table 1)

Specifically: The objectives of the scenario are:

The main objective is for the students to recognize their national identity in its European dimension, to inform this family about Greece, and finally to master elements of their homeland: music, tradition, representative sights, flavors, and games.

Table 1 The objectives of the scenario

A) Cognitive objectives:	B) Regarding the use of ICTs	C) Regarding the learning process
<p>The goal is to acquire.</p> <p>a) knowledge:</p> <ul style="list-style-type: none"> - To get to know Greece on the EU Map - To describe the habits. - To understand elements of tradition. <p>b) abilities:</p> <ul style="list-style-type: none"> -To discover Greece as a European country -To propose its association with the EU <p>c) stances:</p> <ul style="list-style-type: none"> -To acquire a European consciousness. -To adopt European attitudes as a part - as citizens of the EU 	<p>ICT enables students to develop new skills, to acquire a new kind, of more comprehensive knowledge, as well as ICTs can be new learning environments, that is, environments in which learning can take place in a much more efficient way.</p> <p>Specifically:</p> <ul style="list-style-type: none"> -To practice using computing tools (surfing the internet) -To acquire a positive attitude towards the use of ICT in the learning process -To become addicted to the active search and processing of information - To make the students competent <ol style="list-style-type: none"> 1) to seek, 2) to identify, 3) analyze, and 4) process information online 	<p>Students are expected to:</p> <p>C) Regarding the learning process</p> <ul style="list-style-type: none"> - Cooperate and interact to achieve the proposed goals -Activating their innate propensity for exploratory and collaborative learning.

4.4. Class organization – required hardware infrastructure

- The school classroom had a PC, Laptop, Interactive Whiteboard, video projector, and printer.

PC and Laptop can be connected to the internet for the duration of the course and install the Google Earth software. The means used are Google Earth & Google Maps software, browser, YouTube, Tux Paint, and Worksheet in .doc format.

The students of each class composed 3 sections of students of 2nd-grade, 4th-grade, 5th-grade, and 6th-grade classes of the General School (3rd & 11th) and 5 students of Specialist Dec. Fig. Amarousiou. So, with the participation of teachers, each Department worked per teams, such as designated by the teachers in charge, in the classroom for the tasks that concerned: Language, Mathematics, Painting, Geography, Foreign Languages (when involved), Theatrical Education, Music

- The traditional game involving the elderly of K.A.P.I and of Gymnasts conducted to the courtyard space of the school, while
- The cooking and tasting of traditional dishes took place in the dining room of the school.

4.5. Teaching Materials - Software Category - Combination of Software and Application Categories

For the implemented scenario of the script, the following materials were used:

- Internet: The Internet was used with suggested websites to watch videos. *Guided exploration-discovery*.
- Microsoft Office software and Word application used Smart Art for the creation of a concept map (Word>Insert> Smart Art), to detect the pre-existing views of the students about Europe and the position of Greece. With the technique: Brainstorms were recorded concepts, and the relationships of the concepts were allowed to be explored among themselves thus transforming declarative knowledge into procedural, students are active subjects, emancipatory-critical school => transformation of ideas, critical thinking. (Software suitable for Language scripts). Also, Word was used for the creation sheet work addressing the evaluation of students.
- Software Visualization: software open environment of learning where the activities of investigation and discovery of learning took place. Google Earth & Google Maps: The software Google Earth combined with the software Google Maps, to connect satellite images with various types of *interactive maps*. (Software suitable for scenarios study)

- Finally, a painting program was used: Tux Paint painting software, which gives possibilities for creative writing, the composition of prototype stories, and the production of moving designs, from activities individual and group with the mediation of the teacher. The children cultivate skills of synthesis, comparison, organization, and generalization. Through the analysis and creation of images, static and moving, but also through the addition of text, *creativity is awakened and maintained*, and children's *expression is cultivated, in the form of complex representations*. (Software suitable for Visual and all Cognitive Objects scenarios)

4.6. Estimated Duration

The duration of the interdisciplinary project lasted one school year, while the temporal duration of one didactic scenario was 3 teaching hours.

Table 2 Conclusion Table of Actions In The Activities: "Learning Intergenerational Europe" Country Greece

N/a	Activity	Estimated Activity time	Cognitive areas involved	Activity Space	Persons Involved	products - Deliveries
1	<i>Trigger with the flag position of Greece in Europe</i>	10 minutes	Geography Environmental studies	<i>computer Room</i>	Teacher. Students	Exclusion
2	<i>Class discussion</i>	10 minutes	Language (speaking) Mathematics	<i>Computer room.</i>	Teacher Students	I know the country Where represented the symbol: flag
3	<i>Watching Video</i>	20 minutes	Information	<i>Computer Room</i>	Teacher Students	National anthem
4	<i>Navigation on the internet</i>	10 minutes	information	<i>Computer Room</i>	teacher. Students	I know history Representative Monuments of The country
5	<i>Google earth5</i>	10 minutes	Environmental Studies Geography	<i>Computer room</i>	teacher. Students	The position of the Country in Europe
6	<i>Menu- traditional food</i>	10 minutes	Language, Foreign languages	<i>Computer Room</i>	teacher. Student s	Images: getting To know The culture: Gastronomy
7	<i>Listening traditional music</i>	10 minutes	Music	<i>Computer Room</i>	Teacher. Students	Getting to know Culture: Music
8	<i>Yard activities</i>	10 minutes	Gymnastics, Art	<i>Schoolyard.</i>	teacher. Students	Traditional game
9	<i>Cooking in the classroom</i>	30 minutes	Math, Language, Theatre education	<i>Dining room/ Classroom</i>	School employed Teacher Students	Culinary creation
10	<i>Conversation with grandparents</i>	10 minutes	Oral speech, Social Education	<i>K.A.P. I</i>	Teacher. Students Grandmother grandfather	Creation of Traditionally Products
	Time: 130'plus.					

4.7. Content Analysis

The goal of the scenario is of particular interest and importance, since beyond its cognitive content it is related to the acquisition of the European consciousness of the students, to feel active European citizens, to get to know the European family through traditions, sights, music, tasting, games, to identify themselves spatially in Europe, to discover similarities and differences, to identify themselves.

The estimated time for developing this script (three teaching hours) is understandably not enough to cover this important topic. However, the activities may push teachers and students to develop a work plan where there will be the possibility to elaborate the subject more thoroughly and to take advantage of the many possibilities that the internet provides in the retrieval of information. There are many websites with interesting topics that touch on many different aspects of the subject.

As far as the issue of inclusive education is concerned, it is a concept that responds to the idea of diversity. Thanks to her, children learn how to live through the particularities and different needs. It helps all students learn, by doing, the concept of equal value and equal rights. Guided by inclusive education, students without special needs learn to respect diversity and become aware of special education issues. They also understand that all people have abilities and that they must all work together to survive and be happy.

The script was developed in the context that all children learn best when they are all together. Simultaneously with the creation of favorable learning conditions for students with disabilities, the conditions for improving the learning conditions of all students are created. Low-achieving students benefit from inclusive education practices. Special techniques such as repetition, experiential teaching and learning methods provided in the classroom also help students who are not doing so well.

5. Methods-Tools

5.1. Organization of the Department

The classroom was the main setting for the lesson. Four kids were seated facing each other because the desks were set up in pairs. Four student groups were formed, with one student from the special school sitting in each group. This arrangement of the desks and students facilitated simple access to the interactive whiteboard and allowed both the teacher and pupils to move around the room comfortably. Additionally, each group's desk has a laptop.

The use of ICT in education has allowed teachers to differentiate their instruction across the board. Students completed the group composition that the teacher had carefully selected in pairs. All pupils were expected to engage in group activities within the framework of collaboration and acceptance of differences.

The instructor served as the group's facilitator, animator, and mentor when required, stepping in to help the teams when asked, and assisting by quietly directing the process. He had taken the time to research the websites that were visited, created the group worksheets, and planned for any unanticipated or unexpected developments during the lesson (e.g., the kids having trouble using the software, arguments in the groups, etc.).

A secondary education teacher who had the same emotional and empathetic characteristics was also present in this scenario. The following is a record of his role:

- Works with the teacher to actualize the scenario, discussing his highlights and going above and beyond.
- It concentrates on the areas that present challenges for the students in both institutions as well as how to enhance current knowledge and abilities while gaining new ones.
- Applies rigorous standards to philological criticism. Her goal is to enhance teacher practices and, as a result, student learning outcomes through collaborative professional development, and to modify instruction as needed.

5.2. Teaching Approaches and Strategies

5.2.1. Theoretical approach

The New pedagogy wants student-centered teaching, with the student being an active member of learning and the teacher a companion, guide, supporter, and animator of the student, in the discovery, investigation, conquest, and

construction of knowledge. The use of ICTs in the classroom is considered an important tool in collaboration with the conventional way of learning.

According to the above, we were guided to the possibilities given to students by the use of ICTs in the learning process and their familiarity with ICTs, their use as tools and sources of learning as well as tools for acquiring cooperative and exploratory learning skills.

The scenario is theoretically based on:

- The constructivist approach of Piaget, Bruner, and Vygotsky (building knowledge step by step, through creative activities of the students themselves, of its discovery and cooperative learning (Teamwork)
- Guided Inquiry (students follow commands and questions and engage in investigative and collaborative activities).
- Experiential - discovery learning using ICT (with appropriate tours, videos, pictures, and songs, for students to get a kind of experiential learning).
- The worksheet is given to each student individually, worked with the whole group of 2 people, and presented to the whole class.

5.3. Evaluation

The given worksheet (for student evaluation), the procedure scenario evaluation, and the leaf work had a double meaning:

-functioned as a formative assessment tool because students in the wider groups and with the help of the teacher, evaluated the evidence they collected and their usefulness, allowing them to complete or modify the final worksheet.

- it worked as a final evaluation tool because the control of completed sheets work and the results led to the creation of perception for their achievement goals.

6. Discussion

In summary, we underline the importance of digital technologies in education, especially in the field of differentiated education, which is very productive and effective. It also makes assessment, intervention, and training processes easier and better. Technologies include mobile devices, which enable educational activities to be conducted anywhere, a variety of ICT applications, which serve as the main means of supporting education through mobile phones [26-28], various ICT applications [29-46], AI & STEM ROBOTICS and games [47-53]. In addition, the combination of ICT with theories and models of metacognition, mindfulness, meditation, and the cultivation of emotional intelligence [54-61], accelerates and further improves educational practices and outcomes, especially for gifted students with ADHD and other neurodevelopmental disorders such as ASD and DCD.

7. Conclusions

7.1. Evaluation - Feedback

The evaluation of the students' work was a) exploratory throughout the course of the program, where the existing knowledge of the students, the interest they showed in the subject, but also the use of the tools, and any difficulties that arose, were evaluated, b) formative for feedback and goal reformulation and c) evaluated by the students and the teacher.

Thus, mainly through dialogue and observation, as well as from the results of the activities presented in the groups' worksheets, we conclude that:

- The students' interest in the specific subject was intense, while along the way it was strengthened by the use of technological tools that expanded their knowledge and skills.
- All students were actively involved, while those with some familiarity with computers helped integrate the rest. The downside was that there was only one computer in the classroom, so it took more hours to complete the children's work. However, the use of the projector excited the students, so everyone participated, even from a distance.

- The teams worked well, more flexibly with less conflict and quick problem solving, were the teams with a small number of people, but more productive, with impressive and fast results, were the large teams.
- The students as a whole enjoyed the activities, despite all the difficulties faced by some children in using the tools, and, they were satisfied with the group result.
- They presented their activities to the school community, receiving very positive feedback.

7.1.1. Additional information

The proposed scenario has been expanded with other activities that would include:

- Traditional yard games from European countries which were studied in this specific project
- Cooking with traditional foods from every country.
- Traditional dances from each country with traditional costumes.
- Comparison of the quality of life of individuals
- Use of maps for kilometer distances, measurements, (by analogy), etc.
- The posting of the final results of the students' work on the school's Website or Blog.
- The expansion of the scenario and its differentiation depends on the cognitive level of the class, the dynamics of the participating groups, as well as the logistical infrastructure available at the school.

7.1.2. Limitations

- Was the scenario implemented according to its design and objectives?

We consider that the scenario that was implemented in May 2019 was in line with the original design and its objectives as the particularities that would be presented were considered as there was a large number of people involved (students from general school classes with typical development, students with special needs, members of KAPI).

- Did it arouse the interest of the learners?

The students showed interest in the topic of the scenario and exchanged opinions and experiences, as the teaching referred to topics that interested them but also to topics that had a playful form, especially traditional alana games, and cooking. This interest was expressed by the questions and comments during and at the end of the process as well as by their dynamic participation in the activities.

- Did the learners actively participate in the teaching process?

The students did not remain mere listeners, but actively participated in the activities assigned to them. They expressed their willingness to apply what they learned in doing various tasks such as using the internet to gather information as well as educational software. Participation in cooking, dancing, and playing activities was especially effective.

- What difficulties were encountered?

In the co-education of two schools with children of formal and non-formal education, was that, with students who were not at the same level. So, some completed the activities without effort, while others needed a lot of time and help to complete them. The teacher should create an educational framework based on universal planning, given that in the project there were not only students with special educational needs or the opposite and this requires time and specialized knowledge. Also, the number of students was large enough that the lesson was turned into a celebration.

- If you were to design the script again, would you change all or some of its elements, and which ones? Justify and write them in detail.

In a possible redesign of the script, we would put more emphasis on the activities we would assign to the students.

In particular, we would have more time for children to experiment with the possibilities of the tools and carry out more activities. In addition, due to differences presented by the section, we would spend more time discussing each phase of the scenario so that it is more understandable by all students. We hope that the specific teaching will be the motivation for further engagement of the children with the specific tools.

- How did planning, implementing, and reflecting on the script benefit you as an educator?

The whole process was a motivation, as we were asked to construct and implement a scenario that was addressed to students who needed differentiated teaching, i.e. to standard students but also students with special educational needs. In an inclusive framework, the teacher must consider during planning, the educational needs of all students, but also modify the educational environment and methodology, so that all students can participate.

Finally, through the second teacher with the role of observer, who took notes during the teaching, it was easier to identify some elements that may need to be changed.

Compliance with ethical standards

Acknowledgments

The Authors would like to thank Mr. Constantinos Arvanitakis, Supervising Ambassador of TEACHER 4 EUROPE as well as the SPECIALIZATION IN ICTs AND SPECIAL EDUCATION: PSYCHOPEDAGOGY OF INCLUSION Postgraduate Studies Team, for their support.

Disclosure of conflict of interest

The Authors proclaim no conflict of interest.

References

- [1] Tomlinson, CA (2001). *How to differentiate instruction in mixed-ability classrooms*. Upper Saddle River, NJ: Pearson Education.
- [2] Tomlinson, CA, & Imbeau, MB (2010). *Leading and managing a diverse classroom*. Alexandria, VA: ASCD.
- [3] Argyropoulos, B. (2013). Differentiation and differentiated teaching: theoretical background and basic principles in Panteliadou, S. & Filippatou D. (editors) *Collaborative work (2013). Differentiated Teaching: theoretical approaches & educational practices*. Athens: Pedio Publications.
- [4] Karageorgou, X. (2013). Differentiation of the learning environment and the teaching of Language in the first grades of Primary School. In S. Panteliadou & D. Filippatou (Eds.), *Differentiated Teaching Theoretical Approaches & Educational Practices* (pp. 185-224). Athens: Pedio.
- [5] Moon, TR (2005). The role of assessment in differentiation. *Theory Into Practice*, 4(3), 226-233.
- [6] Tomlinson, C. (2005). *How to differentiate instruction in mixed-ability classrooms (2nd ed.)*. NJ: Pearson, Merrill Prentice Hall
- [7] Paraskevi, L., Chaidi, I., Stathopoulou, A., & Karabatzaki, Z. (2022). Differentiated Digital Teaching Models using ICTs in Greek Context. *Good Practices: "Caretta-Carreta". Eximia*, 5(1), 497–523. Retrieved from <https://eximijournal.com/index.php/eximia/article/view/175>
- [8] INSTITUTE OF EDUCATIONAL POLICY (IEP): Website: O.P.S. Epimorfs-Institute of Educational Policy, Action: Teacher training in the new FP of Foreign Languages, Book: Introductory concepts in Differentiated Teaching. <https://elearning.iep.edu.gr/study/mod/book/tool/print/index.php?id=1214>
- [9] Paraskevi, L., Chaidi, I., & Driga, A. M. (2023). Digital Learning: Differentiated Teaching Models using ICTs in Greek Context - Good Practices: "And familial holds up well. The Gods of Olympus". *TechHub Journal*, 5, 68–81. Retrieved from <https://www.techhubresearch.com/index.php/journal/article/view/92>
- [10] Chaidi, I., & Drigas, A. (2022). Digital Learning: Differentiated Teaching Models using e-Twinning - I Communicate with My Neighbor through Culture and Tradition: e - Twinning Project. *Technium Education and Humanities*, 2 (3), 59–77. <https://doi.org/10.47577/teh.v2i3.7392>
- [11] Hobgood, B. & Ormsby, L. (n.d.). Inclusion in the 21st-century classroom: Differentiating with technology. In "Learn NC: Reaching every learner: Differentiating "Use of Information and Communication Technologies in teaching practice" [64] instruction in theory and practice". Retrieved January 2, 2014, from: <http://www.learnnc.org/lp/editions/every-learner/6776>
- [12] Benjamin, A. (2005). *Differentiated Instruction Using Technology: A Guide for Middle and high-school Teachers*, NY: Routledge

- [13] Mishra, P. & Koehler, M. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge, *Teachers College Record* 108(6), pp. 1017–1054
- [14] Koutsouraki, St., Berkoutis, A., (2014) Differentiation of teaching with the support of Information and Communication Technologies 3rd Panhellenic Educational Conference Imathia, Conference Proceedings 2014
- [15] Johnson, PM (1998b) Children's understanding of state involving the gas state, Part 2. Evaporation and condensation below boiling point. *International Journal of Science Education*, 20, 695-709
- [16] Paraskevi, L., Chaidi, I., Stathopoulou, A., & Karabatzaki, Z. (2022). Digital Learning: Differentiated Teaching Models using ICTs In Greek Context - Good Practices: "How Do I Wash My Hands". *Eximia*, 5(1), 665–687. Retrieved from <https://eximiajournal.com/index.php/eximia/article/view/198>
- [17] Hatton-Yeo, A. (2007) *Intergenerational Practice: Active Participation Across the generations*. Stoke on Trent: Beth Johnson Foundation.
- [18] Lowenstein, A. (1999) Intergenerational family relations and social support. *Zeitschrift für Gerontologie und Geriatrie*, Volume 32, Number 6, pp.398-406.
- [19] Loewen, J. (1996). Intergenerational learning: what if schools were places where adults and children learned together?. Ανακτήθηκε από <http://eric.ed.gov/?id=ED404014>
- [20] Chabert Ramon, A. and Turrini, M. (2008) Grandparents and Grandsons: poetics of an intergenerational learning experience. *eLearning Papers*, Number 8, April 2008. Available online <http://www.elearningeuropa.info/files/media/media15532.pdf> last visit 04/06/2016.)
- [21] Patrício, M. R., & Osório, A. (2012). How can intergenerational learning with ICT help to strengthen intergenerational solidarity? Ανακτήθηκε από <http://bibliotecadigital.ipb.pt/handle/10198/8107>
- [22] Dantzer, F., Keogh, H., Sloan, F., & Szekely, R. (2012). *Intergenerational Learning and Active Ageing*. European Network for Intergenerational Learning. Ανακτήθηκε από <http://www.enilnet.eu>
- [23] Fischer, T. (2008). *Intergenerational learning in Europe- policies, programmes & practical guidance*. Nuremberg: Institute for Innovation in Learning (FIM-NewLearning) University of Erlangen. Ανακτήθηκε από <http://www.menon.org/wp-content/uploads/2012/11/final-report.pdf>
- [24] European Commission. (2012). *Ict for seniors' and intergenerational learning*. Projects funded through the Lifelong Learning Programme from 2008 to 2011. Brussels: Education, Audiovisual & Culture Executive Agency LLP - Leonardo Da Vinci, Grundtvig & Dissemination. Ανακτήθηκε από http://eacea.ec.europa.eu/llp/results_projects/documents/publi/ict_intergenerational_learning.pdf
- [25] Φύτρος, Κ., (2005). Η Πληροφορική στην Ειδική Αγωγή. Ανακτημένο Ιούνιος , 3, 2016, από: http://www.specialeducation.gr/files/fytros_cor1.pdf
- [26] Stathopoulou A, Karabatzaki Z, Tsiros D, Katsantoni S, Drigas A, 2019 Mobile apps the educational solution for autistic students in secondary education , *Journal of Interactive Mobile Technologies (IJIM)* 13 (2), 89-101 <https://doi.org/10.3991/ijim.v13i02.9896>
- [27] Drigas A, DE Dede, S Dedes 2020 Mobile and other applications for mental imagery to improve learning disabilities and mental health *International , Journal of Computer Science Issues (IJCSI)* 17 (4), 18-23 DOI:10.5281/zenodo.3987533
- [28] S Politi-Georgousi, A Drigas 2020 Mobile Applications, an Emerging Powerful Tool for Dyslexia Screening and Intervention: A Systematic Literature Review , *International Association of Online Engineering*
- [29] Drigas A, Petrova A 2014 ICTs in speech and language therapy , *International Journal of Engineering Pedagogy (ijEP)* 4 (1), 49-54 <https://doi.org/10.3991/ijep.v4i1.3280>
- [30] Bravou V, Drigas A, 2019 A contemporary view on online and web tools for students with sensory & learning disabilities , *ijOE* 15(12) 97 <https://doi.org/10.3991/ijoe.v15i12.10833>
- [31] Xanthopoulou M, Kokalia G, Drigas A, 2019, Applications for Children with Autism in Preschool and Primary Education. *Int. J. Recent Contributions Eng. Sci. IT (IJES)* 7 (2), 4-16 <https://doi.org/10.3991/ijes.v7i2.10335>
- [32] A Drigas, P Theodorou, 2016 ICTs and music in special learning disabilities , *International Journal of Recent Contributions from Engineering, Science & IT ...*
- [33] Stathopoulou A, Spinou D, Driga AM, 2023, Burnout Prevalence in Special Education Teachers, and the Positive Role of ICTs, *ijOE* 19 (08), 19-37

- [34] Stathopoulou A, Spinou D, Driga AM, 2023, Working with Students with Special Educational Needs and Predictors of Burnout. The Role of ICTs. *ijOE* 19 (7), 39-51
- [35] Loukeri PI, Stathopoulou A, Driga AM, 2023 Special Education Teachers' Gifted Guidance and the role of Digital Technologies, *TECH HUB* 6 (1), 16-27
- [36] Stathopoulou A, Temekinidou M, Driga AM, Dimitriou 2022 Linguistic performance of Students with Autism Spectrum Disorders, and the role of Digital Technologies , *Eximia* 5 (1), 688-701
- [37] Vouglanis T, Driga AM 2023 Factors affecting the education of gifted children and the role of digital technologies. *TechHub Journal* 6, 28-39
- [38] Vouglanis T, Driga AM 2023 The use of ICT for the early detection of dyslexia in education, *TechHub Journal* 5, 54-67
- [39] Drakatos N, Tsompou E, Karabatzaki Z, Driga AM 2023 Virtual reality environments as a tool for teaching Engineering. Educational and Psychological issues, *TechHub Journal* 4, 59-76
- [40] Drakatos N, Tsompou E, Karabatzaki Z, Driga AM 2023 The contribution of online gaming in Engineering education, *Eximia* 8, 14-30
- [41] Pergantis, P. (2024). Facilitators and barriers to the development of giftedness in children. *GSC Advanced Research and Reviews*, 18(3), 112–123. <https://doi.org/10.30574/gscarr.2024.18.3.0085>
- [42] Pergantis, P. (2024). A new era of ICTs for combating symptoms of neurodevelopmental disorders. *World Journal of Biology Pharmacy and Health Sciences*, 18(02), 036–047. <https://doi.org/10.30574/wjbphs.2024.18.1.0145>
- [43] Pergantis, P., & Drigas, A. (2023). Sensory integration therapy as enabler for developing emotional intelligence in children with autism spectrum disorder and the ICT's role. *Brazilian Journal of Science*, 2(12), 53–65. <https://doi.org/10.14295/bjs.v2i12.422>
- [44] Pergantis, P. (2023). Developmental Coordination Disorder and the role of new technologies as intervention tool. *World Journal of Advanced Research and Reviews*, 19(1), 519–528. <https://doi.org/10.30574/wjarr.2023.19.1.1333>
- [45] Pergantis, P., & Drigas, A. (2023). Assistive technology for autism spectrum disorder children that experiences stress and anxiety. *Brazilian Journal of Science*, 2(12), 77–93. <https://doi.org/10.14295/bjs.v2i12.426>
- [46] Pergantis, P., & Drigas, A. (2023a). DEVELOPMENTAL COORDINATION DISORDER (DCD) AND THE ROLE OF ICTS AND NEUROFEEDBACK (NF) FOR TRAINING AND INTERVENTION. *Journal Health and Technology - JHT*, 2(2), e2238. <https://doi.org/10.47820/jht.v2i2.38>
- [47] Chaidi E, Kefalis C, Papagerasimou Y, Drigas, 2021, Educational robotics in Primary Education. A case in Greece, *Research, Society and Development journal* 10 (9), e17110916371-e17110916371 <https://doi.org/10.33448/rsd-v10i9.16371>
- [48] Lytra N, Drigas A 2021 STEAM education-metacognition-Specific Learning Disabilities , *Scientific Electronic Archives journal* 14 (10) <https://doi.org/10.36560/141020211442>
- [49] Demertzi E, Voukelatos N, Papagerasimou Y, Drigas A, 2018 Online learning facilities to support coding and robotics courses for youth , *International Journal of Engineering Pedagogy (IJEP)* 8 (3), 69-80, <https://doi.org/10.3991/ijep.v8i3.8044>
- [50] Ntaountaki P, et all 2019 Robotics in Autism Intervention. *Int. J. Recent Contributions Eng. Sci. IT* 7 (4), 4-17, <https://doi.org/10.3991/ijes.v7i4.11448>
- [51] Chaidi I, Drigas A 2022 Digital games & special education , *Technium Social Sciences Journal* 34, 214-236 <https://doi.org/10.47577/tssj.v34i1.7054>
- [52] Bravou V, Oikonomidou D, Drigas A, 2022 Applications of Virtual Reality for Autism Inclusion. A review , *revista Retos* 45, 779-785 <https://doi.org/10.47197/retos.v45i0.92078>
- [53] Drigas A, Mitsea E, Skianis C 2021 The Role of Clinical Hypnosis & VR in Special Education , *International Journal of Recent Contributions from Engineering Science & IT (IJES)* 9(4), 4-18. <https://doi.org/10.3991/ijes.v9i4.26147>
- [54] V Galitskaya, A Drigas 2021 The importance of working memory in children with Dyscalculia and Ageometria , *Scientific Electronic Archives journal* 14 (10) <https://doi.org/10.36560/141020211449>

- [55] Drigas A, Mitsea E, Skianis C. 2022 Virtual Reality and Metacognition Training Techniques for Learning Disabilities , SUSTAINABILITY 14(16), 10170, <https://doi.org/10.3390/su141610170>
- [56] Drigas A., Sideraki A. 2021 Emotional Intelligence in Autism , Technium Social Sciences Journal 26, 80, <https://doi.org/10.47577/tssj.v26i1.5178>
- [57] Bamicha V, Drigas A, 2022 The Evolutionary Course of Theory of Mind - Factors that facilitate or inhibit its operation & the role of ICTs , Technium Social Sciences Journal 30, 138-158, DOI:10.47577/tssj.v30i1.6220
- [58] Karyotaki M, Bakola L, Drigas A, Skianis C, 2022 Women's Leadership via Digital Technology and Entrepreneurship in business and society , Technium Social Sciences Journal. 28(1), 246–252. <https://doi.org/10.47577/tssj.v28i1.5907>
- [59] Mitsea E, Drigas A., Skianis C, 2022 Breathing, Attention & Consciousness in Sync: The role of Breathing Training, Metacognition & Virtual Reality , Technium Social Sciences Journal 29, 79-97 <https://doi.org/10.47577/tssj.v29i1.6145>
- [60] Drigas A, Mitsea E, Skianis C 2021. The Role of Clinical Hypnosis and VR in Special Education , International Journal of Recent Contributions from Engineering Science & IT (IJES) 9(4), 4-17.
- [61] E Mitsea, A Drigas, C Skianis 2022 Metacognition in Autism Spectrum Disorder: Digital Technologies in Metacognitive Skills Training , Technium Social Sciences Journal, 153-173