“Storm Tossed Sea Rocks in Pelion” an environmental synchronous online education program

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Abstract

The objective of this paper is to present an educational scenario of a School Activity Program (SAP) of environmental education. The SAP was designed as a prototype, through which it is attempted to empower students with knowledge, attitudes, and values that promote the geoenvironmental sustainability. The scenario was designed to fully implement its objectives with the support of ICTs, based on synchronous online education. The SAP is entitled "Storm Tossed Sea Rocks in Pelion" and refers to the geomorphological environment of rocky coast landforms and the coasts of Pelion. The scenario's positive evaluation, as a prototype, promotes the aspect that its teaching methods can be applied as techniques of synchronous online environmental education - if required.

Keywords: Prototype Scenario, Environmental Education, Education for Sustainable Development, Synchronous Online Education.

1. Introduction

A scenario of a School Activity Program (SAP) of environmental education was designed. Its design as a prototype, aspired, that its Teaching methods could be applied as synchronous online environmental education techniques (if required). The scenario attempts to empower students with knowledge, attitudes, and values that promote geodiversity and geocultural heritage under the prism of the sustainable development model. Subject of the SAP and its educational scenario, is "Storm Tossed Sea Rocks in Pelion". The scenario addresses to 2nd Grade students of Gymnasium and approaches entirely those with mobility and special learning issues. Its duration corresponds to an entire annual Environmental Education Program in Secondary Education, namely it

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corresponds to twenty, two-hour educational meetings, which are named Episodes, since the educational methodology of Storyline is being followed (Iliopoulou, 2005, 2006, 2016).

1.1 Interdisciplinary background

The geoenvironment is the result of the activity of endogenous and exogenous forces, combined with human activity as a geomorphological factor and operates as a witness to geological phenomena of their processes, while at the same time every socio-economic reality is inscribed on it (Drinia, 2016). Greece is an interesting region from both a geological and a geomorphological point of view and is composed of geoenvironments of great geological heritage, the georegions or geotopes (Theodosiou, Koutsouveli, & Fermeli, 2006; as referred in Theodosiou, 2010). Theodosiou states that geotopes, in combination with other sites of biotic, archaeological and cultural interest, can contribute to raising students' awareness of the environment and sustainability in all levels of education (2010). Fermeli and Markopoulou-Diakantoni (2004) state that geotopes have a multidisciplinary value because they contain their geological value but also because they are linked to other sciences, containing additional values which are related to their archaeological, historical, ecological and cultural content. More specifically, Drinia states that the value of geotopes can be: Customary (Philosophical), based on that alone which it represents. Cultural, for its contribution to culture. Aesthetic, for the aesthetic image of a region or society. Economic, regarding the supply of natural materials, mineral resources and utilization. Scientific and research, for scientific and educational purposes (2016).

Dos Reis and Henriques suggested a classification of geological objectives, aiming to evaluate the geological heritage in three categories of increasing importance: the first for indicative content, the second for documentary, illustrationary and symbolic content, and the third for conceptual and graphic content, in the geological objective (2009).

Finally, Georgousis, Savelidis, Mosios, Holokolos and Drinia examined 17 geocultural heritage values and attitudes, which are: 01. aesthetic value, 02. cultural value, 03. archaeological value, 04. religious value, 05. spiritual value, 06. geological value, 07. ecological value, 08. anthropocentric value (attitude), 09. ecocentric value (attitude), 10. environmental apathy (attitude), meaning the lack of interest in environmental issues, 11. utilitarian value, 12. intrinsic value, 13. scientific value, 14. economic value, 15. geoethical value, 16. sustainable development and 17. UNESCO criteria, namely cultural criteria 1, 5 and 7 were met by Meteora to be included in the UNESCO's "Monuments of World Cultural Heritage" list (2021).

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On the other hand, Kyriakopoulou believes that our coasts are a precious but insufficient natural resource that requires protection in order to secure our own future (2019). Thus, a rocky coastline and even an isolated rock can be classified as a typical geotope. Waves breaking on a coast, carry a large amount of energy, which causes erosion of the coast materials, producing unique erosion characteristics that are usually formed on rocky coasts with strong waves. They form the so-called "stacks" and "arches" (Earle, 2018, Albanakis, n.d.). Rocky coasts and isolated rocks, are key ecotopes of great value for marine plants, invertebrates, fish and the marine life in general, which they host. This is the reason why their protection is of great importance also in cases where human has already intervened. (Seitz, Wennhage, Bergström, Lipcius, & Ysebaert, 2014).

On an educational level, Fermeli and Markopoulou-Diakantoni discover that students who were educationally engaged with geotopes (of urban environment), had a better understanding of the natural and cultural environment, the interaction between people and the environment, perceived the areas of geological heritage and the need for their sustainable management, developed an ethical code for protection and conservation, developed a sense of responsibility for their environment and the protection of biodiversity, participated in its protection and in particular in the conservation of the geological heritage, acquired social skills by visiting natural and cultural monuments and demonstrating the appropriate responsibility and respect, improved their creative thinking by understanding the geological heritage sites and finally realized the need for management while at the same time ensuring their preservation for future generations (2004).

1.2 Objectives

The educational objectives of the scenario are developed based on the distinction between cognitive, awareness, attitudes and values, as well as participation objectives (Ragou, 2014).

Cognitive Objectives. After the end of the (SAP), students should:

- Report basic physical characteristics of a stormed tossed sea rock.
- Describe briefly how stormed tossed sea rocks are created.
- Describe elements of stormed tossed sea rocks as ecosystems.

Awareness Objectives. Students after the end of SAP should:

- Recognize the stormed tossed sea rocks as locations of geological heritage (Fermeli & Markopoulou-Diakantoni, 2004)
- Perceive the necessity of protecting or restoring the stormed tossed sea rocks (Fermeli & Markopoulou-Diakantoni, 2004)

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- Develop geocultural consciousness (Georgousis, Savelides, Mosios, Holokolos, & Drinia, 2021).

Attitudes and Values Objectives. students should:

- Recognize sustainable development values (Georgousis et. al., 2021) of coastal erosional landforms.
- Develop an ethical code and sense of responsibility for the environment protection and preservation, (Fermeli & Markopoulou-Diakantoni, 2004), of the coasts and especially the stormed tossed sea rocks.
- Develop a responsible way of behavior and respect towards natural monuments when visiting them (Fermeli & Markopoulou-Diakantoni, 2004)

Participation Objectives. students should:

- Participate in the protection of the environment and especially in the preservation of the geological heritage (Fermeli & Markopoulou-Diakantoni, 2004).
- Approach life in a sustainable way in order to protect the biodiversity and geodiversity of the planet, to ensure that it will be possible for future generations to satisfy their own needs (Fermeli & Markopoulou-Diakantoni, 2004).

1.3 Actions and Characteristics

The students "receive" a letter from a stormed tossed sea rock! The sea rock, through this letter, after introducing himself to them, he describes himself and asks from the students to get active, get to know him and his history, asks for his designation as a geoheritage site, the protection of himself and the organisms he hosts and his sustainable management in order to ensure the economic development of the families in his region. He does not miss to ask the same for all its "brother", the stormed tossed sea rocks of Pelion, even for that "pretentious" one, with the arch, in Milopotamos!

Students by using new technology, they overcome the obstacles of removal and curfew due to the Covid-19 pandemic.

- They visit, digitally and synchronously via Drone, two stormed tossed sea rocks (with the assistance of Local Government officials and technicians)
- Search the internet, discuss and distribute information on the origin and physical (geological, geometrical, chemical) characteristics of the stormed tossed sea rocks.
- They "interrogate" Local Government Mayors and Deputy Mayors in environmental, cultural and tourism matters, in order to discover the

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geoenvironmental values (Georgousis et. al., 2021) which are intertwined with the stormed tossed sea rocks.

- They interview a diver from an institute of underwater archaeological research and watch videos about aquatic life and the birds nesting in the sea rocks.
- Through a digital theatrical event, they develop attitudes of respect and responsible behavior towards the geological heritage.
- Through assignments, presentations and public debates, they develop and spread geoethics attitudes and values of sustainability.

A characteristic feature of the scenario is the intersectional approach based on interdisciplinary approaches for the holistic examination and research of the topic, such that it falls within the fields of HASS&STEM (Savelides et al., 2020).

Specificity and innovation of the SAP Digital scenario, is the characteristic of its fulfillment through fully distance synchronous education processes, using new technologies and ICTs (Doukakis, Alexopoulos, & Niari, 2021). Typical innovative actions are the implementation of student digital visits to stormed tossed sea rock areas (via Drone), the digital theatrical event (via Webex), the digital interviews of individuals (via Webex) and the general organization and asynchronous educational management (via e-me).

The educational methodology - implementation platform, could also be described as an innovation. This is the Storyline methodology (Iliopoulou, 2005, 2006, 2016).

In summary, the Program's Thematic Units, corresponding to the four Dimensions of the subject, are the following:

1. Acquaintance with the Stormed Tossed Sea Rocks, entitled: *Getting to know the Stormed Tossed Sea Rocks*
2. Identification of the geoenvironmental values and geoheritage parameters of the Stormed Tossed Sea Rocks, entitled: The value of the Stormed Tossed Sea Rocks in Pelion.
3. Development of geoethics attitudes and values of sustainability, entitled: The Stormed Tossed Sea Rocks make me conscious.
4. Development and dispersion of ecology, environmental protection and sustainability attitudes, entitled: Me, the Stormed Tossed Sea Rocks, the environment and the future.

The Digital Scenario is related to the environmental, social and cultural issue of the promotion, protection and sustainable management of the geotopes, located in East and South Pelion and specifically to the stormed tossed sea rocks on its coasts.

It coincides with the Institute of Educational Policy (IEP's) design and development Programs, of intersectional activities and the corresponding Circular of the Greek Ministry of Education and Religious Affairs (137053/GD4/09102020) concerning the

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design and implementation of School Activity Programs (SAP), of Environmental Education, and specifically with the proposed subject matter:

- Local natural environment, local ecosystems, biodiversity.
- Ecosystems, structure and function of terrestrial and aquatic systems
- Rural development, tourism, alternative/ecological tourism
- Pollution, contamination and degradation of the natural and anthropogenic environment
- Sustainable open spaces - sustainable utilization and development, sustainable management of materials and community intangible resources, sustainable development
- Utilization of ICT tools in environmental education.

1.4 Digital Synchronous Visits

Two visits are carried out in a digital way, taking into consideration the existing legislation on precautionary measures and protection of individual and public health during the pandemic.

1. A live digital educational visit of the students, is taking place at the coast and the Stormed Tossed Sea Rock with the arch in Mylopotamos, of the Municipality of Zagora Mouresi.

2. A live digital educational visit of the students is taking place at the coast and the large Stormed Tossed Sea Rock of Melani in the Municipality of South Pelion.

The digital visits are carried out with a Drone as a main tool, which is controlled and navigated by a Municipality technician, transmits the image to a Laptop and from there, through a mobile network and the Webex tele-education platform, into the screens of the students' and teachers' devices (Figure 1). There is interaction between students and technicians regarding the movement of the Drone.

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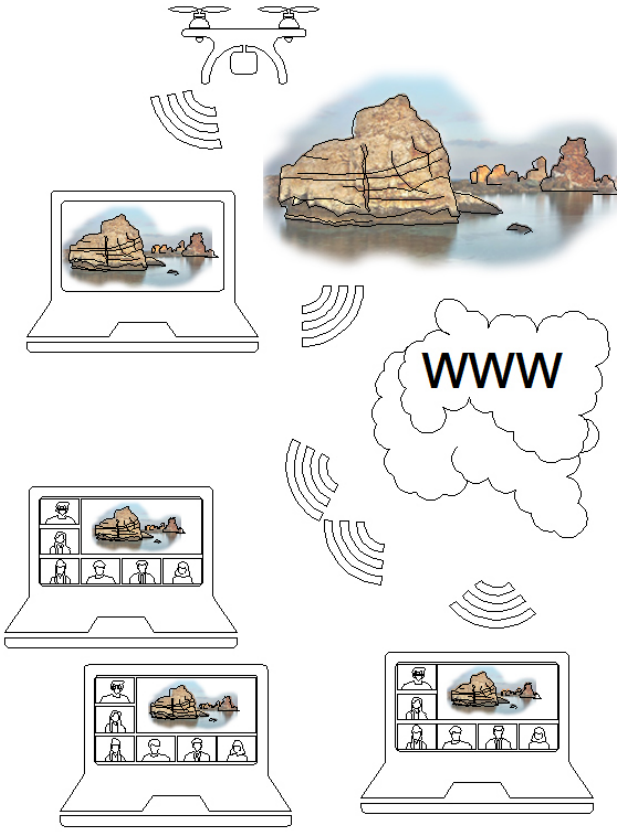

Figure 1. *Process of the synchronous web visit.*

2. Implementation Process

A process is followed, which is based on the methodology of the Storyline in four Active Phases (Phase 1: Getting to know the Stormed Tossed Sea Rocks, Phase 2: The value of the Stormed Tossed Sea Rocks in Pelion, Phase 3. The Stormed Tossed Sea Rocks make me conscious, Phase 4. Me, the Stormed Tossed Sea Rocks, the environment and the future) and two Side Phases (Phase: General Preparation and Phase: Evaluation). Specifically:

2.1 Phase 1: Getting to know the Stormed Tossed Sea Rocks.

Episode 1. *Let's begin!!!*. Synchronously, on the Webex platform is implemented, Welcoming, Organizing in Groups, Creating Cells in e-me, Educational Contract. Teaching methods: Cooperative learning (project), Discussion, Brainstorming.

ISBN: 978-960-578-084-5

Episode 2. *Introduction & Decision.* The Letter from the Stormed Tossed Sea Rock. Teachers post on the Hive Wall (e-me), a letter from the Stormed Tossed Sea Rock of Melani. Students are encouraged to read it and discuss as a group, their emotions and concerns about the geoenvironment of the stormed tossed seas rocks. Teaching methods: Cooperative learning (project), Discussion, Brainstorming.

Episode 3. *Meeting the Stormed Tossed Sea Rocks in Pelion.* Teachers encourage students to search through the internet, for videos were stormed tossed sea rocks from the coast of Pelion are presented. They also ask them to mention tips (a few words) of environmental and geocultural connotation, which refer to the stormed tossed sea rocks in the way they are presented in the videos (Webex: Polling). Teaching methods: Cooperative learning (project), Discussion, Brainstorming, Action Research, Case study.

Episode 4. *Raising awareness on stormed tossed sea rocks ecosystems.* In the form of an assignment (e-me assignment), the student Hive Groups are assigned a project sheet in which, each Group (regarding two videos, the screening of which will follow), comments in writing, the parts of the videos with particular environmental significance, draws with the assistance of a digital pen or mouse, something that made an impression on them from the videos (for students who lag in writing) and mentions five words - ecosystem terminology in English, together with their translation. Teaching methods: Cooperative learning (project), Discussion, Analogy technique, Peer teaching, Action research, Case study.

Episode 5. *How the Stormed Tossed Sea Rocks are created?* The student Groups are called to Search for videos and websites that will "teach" them about the physical (geological, geometrical, chemical) characteristics of Stormed Tossed Sea Rocks, information on the way they are created and information on their types. They compose a Report on the physical characteristics of the Stormed Tossed Sea Rocks, information on the way they are created and information on their types (also in English). They also record their information sources. Each group should also draw three basic types of Stormed Tossed Sea Rocks (an activity for students who have difficulty in writing). Teaching methods: Guided Discovery, Cooperative learning (project).

Episode 6. *Digital Educational Visit to the Stormed Tossed Sea Rock with the arch in Mylopotamos*. In collaboration with Local Government technicians, a student Digital Educational Visit to the Stormed Tossed Sea Rock with the arch in Mylopotamos is implemented. The Technicians turn into Webex presenters and with the Share command, they share their Laptop screen with the students. The students, through the Information and Communication Technology of the Groups, ask the Collaborating Technicians to navigate the Drone and its camera to specific locations. The Digital Visit lasts 15 minutes and is recorded by the students via Webex Recorder. Teaching methods: Experiential Tour, Discovery, Discussion, Brainstorming, Cooperative learning (project), Lecture by using Presentation, Action Research, Case Study.

ISBN: 978-960-578-084-5

Episode 7. *Digital Educational Visit to the large Stormed Tossed Sea Rock in Melani.* In collaboration with technicians of the South Pelion Municipality, a student Digital Educational Visit to the large Stormed Tossed Sea Rock of Melani is implemented. The technicians become Webex presenters and with the Share command, they share their laptop screen with the students. The students, through the Information and Communication Technology of the Groups, ask the Collaborating Technicians to navigate the Drone and its camera to specific locations. The Digital Visit lasts 15 minutes and is recorded by the students via Webex Recorder. Teaching methods: Experiential Tour, Discovery, Discussion, Brainstorming, Cooperative learning (project), Lecture by using Presentation, Action Research, Case Study.

Episode 8. *Pahse Summary: Getting to know the Stormed Tossed Sea Rocks.*

2.2 Phase 2: The value of the Stormed Tossed Sea Rocks in Pelion.

Episode 9. *Learning about the Geocultural values.* Teachers, distribute to students a Catalog with the 17 Geocultural values, as examined by Georgousis, Savelides, Mosios, Holokolos and Drinia (2021). The student Groups, each one, undertake some of the values, in order to examine them, to search and discover their meaning, to relate them with the subject of the Stormed Tossed Sea Rocks, to draw a characteristic drawing for each one and to record in a Report their findings. They must also record the names of the Values in English. The search is executed Digitally, on the Internet. Teaching methods: Guided Discovery, Information Research, Cooperative learning (Project), Discussion.

Episode 10. *Being affirmed of the Stormed Tossed Sea Rocks Geocultural values – 1.* An interview with the researcher - diver of an institute of maritime archaeological research, is carried out. The Associate researcher presents to the students a video he "shot" himself about the ecosystems and life in the aboveground and underwater part of the Stormed Tossed Sea Rocks and their morphology. This is followed by an interview of the researcher, under the discreet supervision of the teachers. The Coordinator of each group addresses the questions that have been prepared. The Secretary takes notes of the answers. Teaching methods: Experiential workshop, Interview, Guided Discovery, Information Research, Cooperative learning (Project), Discussion, Action Research, Case Study.

Episode 11. *Being affirmed of the Stormed Tossed Sea Rocks Geocultural values – 2.* An interview is carried out with Local Government Mayor. The Mayor shall always be interviewed under the discreet supervision of the teachers. The Coordinator of each group addresses the questions which were prepared. This is followed by a discussion in each Group, with subject the drawing of conclusions from the interview (per geocultural value) Teaching methods: Experiential Workshop, Interview, Guided Discovery, Information Research, Cooperative learning (Project), Discussion, Action Research, Case Study.

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Episode 12. *Being affirmed of the Stormed Tossed Sea Rocks Geocultural values – 3.* An interview with a Deputy Mayor, of the Local Government, is carried out. The associate Deputy Mayor always conducts the interview under the discreet supervision of the teachers. The Coordinator of each group addresses the questions that have been prepared. This is followed by a discussion in each Group, with subject the drawing of conclusions from the interview (per geocultural value). Teaching methods: Experiential workshop, Interview, Guided Discovery, Information Research, Cooperative learning (Project), Discussion.

Episode 13. *Phase Summary: The value of the Stormed Tossed Sea Rocks in Pelion.*

2.3 Phase 3. The Stormed Tossed Sea Rocks make me conscious.

Episode 14. *Preparation for… online theater.* Students are encouraged to carry out a Theatrical Performance, a Distance Experiential Workshop, through the Webex Platform, that will identify inappropriate and irresponsible attitudes and perceptions of the young people towards geotopes, their ecosystems and the environment in general. Each Group will be represented by a student, who will play the role of a young man who, in a characteristically impertinent tone, will describe his poor and disrespectful behavior towards one of the Stormed Tossed Sea Rocks during a supposed visit to them. The behavior will be recorded as part of the scenario of the Experiential Workshop. Some examples are given e.g. a young person writing with marker and spray paint on the Stormed Tossed Sea Rock, smashing soda bottles on it, blocking its caves with tin cans or chewing gums. Also suggested, is a role of a young person with typical environmental apathy, who observes the rock being contaminated by an oil spill and does not contact the authorities to have it cleaned up immediately. The other students will play the role of themselves and try to inculcate responsible behaviors in their "impertinent" and "indifferent" classmates. Teaching methods: Experiential Workshop, Role-playing, Theatre, Discussion, Brainstorming, Cooperative learning (project), Moral Dilemma.

Episode 15. *The online theatrical performance.* The "impertinent" and "indifferent" students play their roles, wearing the typical hats, in front of the scenery they have chosen and the others try to inculcate responsible attitudes and behaviors in them. In this way, both poor and descent attitudes and perceptions are revealed, in relation to geoheritage and in general the environment and sustainability. The theatrical performance is NOT recorded, in order to secure students' personal information. Teachers, highlight typical decent and poor behaviors and perceptions presented. A Plenary discussion follows. Teaching methods: Experiential Workshop, Role-playing, Theatre, Discussion, Brainstorming, Cooperative learning (project), Ethical Dilemma.

Episode 16. *Phase Summary: The Stormed Tossed Sea Rocks make me conscious.*

ISBN: 978-960-578-084-5

2.4 Phase 4. Me, the Stormed Tossed Sea Rocks, the environment and the future.

Episode 17. *Preparation of an Open Presentation of Activities by Teleconference*. The Teachers encourage the students to organize and hold an open Teleconference in which they will present their work in the project "The Stormed Tossed Sea Rocks in Pelion" to their classmates, the teachers of the School, their parents and invited guests (such as the participating mayors and scientists as well as journalists). The teleconference will take place in the next episode. Teaching methods: Experiential Workshop, Role-playing, Cooperative learning (project), Ethical Dilemma.

Episode 18. *Open Presentation of Activities by Teleconference.* The Presenter of each Group presents the Activity Report with special emphasis on the Conclusions (using Digital Presentation). The Group 1 Coordinator, thanks and addresses the inquiry to the participants of the Teleconference:

"*What I need to do for the Stormed Tossed Sea Rocks, the environment and the future?*"

This is followed by statements on the inquiry by students, teachers, parents and guests and then proposals for new conclusions on the subject by students, teachers, parents and guests. Each proposal is followed by a discussion. The proposals are recorded by the Groups Secretaries. Teaching methods: Experiential Workshop, Role-playing, Cooperative learning (Project), Presentation, Question and Answer.

Episode 19. *Phase Summary 4 and Overall Action of the SAP "The Stormed Tossed Sea Rocks in Pelion"*. The students collaborate at a Plenary level and prepare the Report of the SAP "The Stormed Tossed Sea Rocks in Pelion" under the responsibility of the groups Coordinators and the Secretaries. The Report of the SAP "The Stormed Tossed Sea Rocks in Pelion", in .pdf format, is sent (by the Information and Communication Technicians) to all students of the school, teachers, officials, the Head of School Activities, the Director of Education and the media. In addition, the Report of the SAP "The Stormed Tossed Sea Rocks in Pelion" is posted on the School's website and on the website of the School Activities Office of the Directorate of Secondary Education. Teaching methods: Experiential tour, Role-playing, Discussion, Cooperative learning (project).

2.5 Phase: Evaluation of Learning Process

A Quantitative and Qualitative final evaluation of learning process is carried out. Teachers compile a digital questionnaire, for the evaluation of the learning process, expressed in such a way that they can be addressed to all Evaluators (participating students, school students, parents, teachers, and school directors) and evaluated based on a relevant Evaluation Rubric. The questions are derived from the prescribed criteria (prerequisites) of the corresponding Circular of the Greek Ministry of Education and

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Religious Affairs (137053/GD4/09102020) and the achievement of the SAP educational objectives. This is followed by a qualitative evaluation by the participating in the SAP students. The Groups session, evaluate based on the achievement of the educational objectives of the Environmental Program and prepare an Evaluation Report on the program, filled with impressions and emotions. The evaluation of learning process is not examined in detail in the present work.

3. Results & Evaluation of the environmental synchronous online education program

The scenario of the environmental synchronous online education program was designed as an implementation prototype (Savelides, 2019). Its general effectiveness was evaluated based on 14 criteria by three "experts" (teachers - school activity managers of education directorates), using the rubric technique and achieved positive results. The scores of the evaluation per criteria are reported in Table 1.

Table 1. *Evaluation of the educational scenario "The Stormed Tossed Sea Rocks in Pelion"*

s/n	Criteria	Score
1	It is in accordance with the IEP's Programs for the design and development of intersectional activities and especially in accordance with the foreseen of the corresponding Circular of the Greek Ministry of National Education and Religious Affairs (137053/GD4/09102020)	5
2	Integrates, highlights and promotes the principles and values of sustainability, especially promotes geocultural values that contribute to sustainability	5
3	In particular, it promotes the geocultural values linked to sustainable development values	4,7
4	It falls within the interests of the students, activates internal motives, ensures the cohesion of the student group and the collaboration between its members, is directly related to the personal/social experiences of the students and responds to their needs, since these are things that are pursued in each Episode of the scenario Storyline	5
5	It is relevant to modern environmental, geocultural and sustainable development values	4,7

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s/n	Criteria	Score
6	Affected by elements of innovation in terms of teaching/research approaches, as modern technologies and ICTs are used to a very large extent.	5
7	It is analyzed in a large number of intersectional/interdisciplinary approaches and can even be integrated in the framework of the HASS&STEM fields	4,7
8	It is implemented within a realistic timetable for the completion of the planned actions/activities that support the achievement of its objectives as a full annual environmental education activity	5
9	It aims at the sustainable management of material and intangible resources (geotopes and values)	5
10	Promotes cooperation between the school community and society	5
11	Encourages democratic values and behaviors guided by the values of solidarity	5
12	Encourages attitudes and values of solidarity, respect for diversity in nature and thinking	5
13	Enables the involvement of all students, utilizing the unique abilities, skills and knowledge of each student	5
14	Strengthens students' confidence that they can, as active citizens, shape living conditions that meet their needs and aspirations	5

So, the evaluation indicated that it is in line with the IEP's Programs for the design and development of intersectional activities. It incorporates highlights and promotes the principles and values of sustainability. In particular, it highlights geocultural values and encourages the sustainable management of material and intangible resources (geotopes and values). It falls within the interests of the students, activates internal motives, ensures the cohesion of the student group and the collaboration between its members, is directly related to the personal/social experiences of the students and responds to their needs since these are things that are pursued in each Episode of the scenario Storyline. It is topical since it concerns modern environmental, geocultural and sustainable development values. It is characterized by elements of innovation in terms of teaching/research approaches, since in a large percentage modern technologies and ICTs are used (e-learning platform, wireless data transmission, drones, internet, EXA experiential workshop, interviews, digitization of images, digital drawing, etc.) and by

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a large number of intersectional/interdisciplinary approaches, which is why it can be integrated in the framework of the HASS&STEM fields. It is implemented within a realistic timetable for the completion of the planned actions/activities that support the achievement of its objectives, as a full annual environmental education activity.

It promotes the collaboration between the school community and the society, especially the local one, since there is cooperation between two municipalities and one institute.

It encourages democratic attitudes governed by the values of solidarity and respect for diversity, by using democratic processes (including even voting) and Cooperative learning techniques. Moreover, it enables the involvement of all students, making use of the individual abilities, skills and knowledge of each student, which is explicitly looked upon in all the Episodes of the Storyline.

Finally, it seems that the SAP strengthens students' belief that they can, as active citizens, shape living conditions that meet their needs and expectations, since it provides opportunities and encourages self-directed practices according to students' skills and desires (roles within the group, specified project assignments).

4. Conclusions

An educational scenario of a School Activity Program (SAP) of environmental education was designed as a prototype, which attempts to empower students with knowledge, attitudes and values that promote the sustainability of the geoenvironment. The scenario was designed to achieve its objectives with the support of ICTs, completely and based on synchronous online education. The SAP is entitled "The Stormed Tossed Sea Rocks in Pelion" and is made a reference in the geomorphological environment of the Stormed Tossed Sea Rocks and the coasts of Pelion. The SAP was evaluated based on 14 criteria, by three teachers - heads of school activities of education directorates.

The scenario's positive evaluation, as a prototype (before its implementation) promotes the aspect that its teaching methods, that are carried out completely "remotely" - with the support of ICTs, can be applied as techniques of synchronous online environmental education (if required from the circumstances).

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“Storm Tossed Sea Rocks in Pelion” an environmental synchronous online education program

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Περίληψη

Στόχο της παρούσας εργασίας αποτελεί η παρουσίαση ενός εκπαιδευτικού σεναρίου Προγράμματος Σχολικής Δραστηριότητας (ΠΣΔ) περιβαλλοντικής εκπαίδευσης. Το ΠΣΔ, σχεδιάστηκε, ως πρωτότυπο, δια του οποίου επιχειρείται η ενδυνάμωση των μαθητών με γνώσεις, στάσεις, και αξίες οι οποίες προάγουν την αειφορία. Το σενάριο σχεδιάστηκε ώστε να υλοποιεί πλήρως τους στόχους του με την υποστήριξη ΤΠΕ και με βάση τη συγχρονική διαδικτυακή εκπαίδευση. Το ΠΣΔ έχει τίτλο «Οι Θαλασσόβραχοι του Πηλίου» και αναφέρεται το γεωμορφολογικό περιβάλλον των παράκτιων βραχωδών γεωμορφών του Πηλίου. Η θετική αξιολόγησή του, ως πρωτότυπο προάγει την άποψη ότι οι εκπαιδευτικές του τεχνικές μπορούν να εφαρμοστούν ως τεχνικές συγχρονικής διαδικτυακής περιβαλλοντικής εκπαίδευσης - σε περίπτωση που απαιτηθεί.

Λέξεις κλειδιά: Πρωτότυπο Σενάριο, Περιβαλλοντική Εκπαίδευση, Εκπαίδευση για την Αειφόρο Ανάπτυξη, Συγχρονική Διαδικτυακή Εκπαίδευση.

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