

Newsletter #4: Multiplier events

e-InnoEduCO₂ PROJECT

“School Science e-Learning ONE HEALTH”
 (e-InnoEduCO₂) is part of the Erasmus+
 programme under KA226 for the
 years 2021-2023.



Innovation in Education on Climate Change



Concello de Outes





Concello de Outes



ALEXANDRU IOAN CUZA
UNIVERSITY of IAȘI



WHAT IS THE GOAL OF e-InnoEduCO2 ?

e-InnoEduCO2 is a STE(A)M (Science, Technology, Engineering, Arts and Maths) project that aims to enable students to develop skills and competences related to innovation, to compensate for the barriers and deficiencies resulting from the COVID-19 pandemic.

Through the development and implementation of e-lab and e-eco models linked to augmented reality, the aim is to strengthen the capacity of educational institutions to provide inclusive, quality digital education in the sciences.

SUMMARY:

MULTIPLIER EVENTS

Newsletter #4 focuses on the e-InnoEduCO2 project's multiplier events, organized by the project's various partners.

The main aim of these meetings is to disseminate the products resulting from this project to schoolchildren and the community, sharing knowledge, i.e., communicating science through teaching tools and technologies that promote conscious behavior, to raise awareness among everyone, especially schoolchildren and young people, about the emerging climate crisis and valuing the environment that surrounds us.

To care, you need to know!

This makes it possible to publicize the work that has been done.

XXVI Liceum Ogólnokształcące, Lodz

The e-InnoEduCO2 project was the first Erasmus+ project in which our school participated, and it has greatly influenced our institution in several ways. Firstly, it gave our students the opportunity to meet their peers from different countries during the "One Health Campus" in Aveiro in September 2022. In addition, our school's teachers had the opportunity to exchange ideas and experiences with teachers from different parts of the world.

Secondly, we made the Campus Climática competition part of our curriculum and now, every year, our students take part in the competition, presenting their videos, posters, music videos, etc. related to protecting the natural environment. Thirdly, the case studies we created for the project (i.e., collecting samples of invertebrates from rivers near our city and analyzing them in a university laboratory) have also become part of our curriculum and now all biology classes take part in a series of activities under the supervision of staff from the University of Lodz.

What's more, thanks to the 3-day study visit we organized as part of the project, we now have a ready-to-use study visit plan with elements of chemistry, biology and physics that any class interested in repeating our programme in the future can use.

Thanks to the project, we have started a fruitful co-operation with the University of Lodz and the University of Gdansk, which we hope to continue in the future.

Finally, by cooperating with many Spanish-speaking institutions during the project, Spanish has gained importance at our school and, as of September 2023, we will be opening a class with the extended Spanish as a second foreign language programme.



FIG.1- MULTIPLIER EVENT

MULTIPLIER EVENT:

Łódź (Poland)

On Wednesday 14 June 2023, Lycée 26 in Łódź (Poland) organized a multiplier event for the Erasmus+ project "School science e-learning ONE HEALTH" - e-InnoEduCO2, which was attended by 214 guests in total.

The event was divided into two parts: a morning meeting with all the first-year students of secondary school 26 and an afternoon meeting with the guests.

The host of the event was Michał Talar, a student from class 2c, who was responsible for the project. Together with Tomasz Siuta, the project coordinator, he began the event with a presentation of the project and its results. Michał then spoke about the first phase of the Polish case study, namely a school trip his class took in April 2022 to a river near Lodz, with the aim of learning how to take samples from the water and recognize the organisms collected. The excursion was led and organized by Barbara Przygodzka, a biology teacher and the class tutor, Tomasz Siuta, the project coordinator, and Mateusz Płóciennik, a PhD student from the Department of Invertebrate Zoology and Hydrobiology at the Faculty of Biology and Environmental Protection at the University of Łódź.

The day after the samples were taken, all the students in this class, accompanied by their tutor and the project coordinator, went to the University of Łódź laboratory where, under the supervision of Dr Mateusz Płóciennik, they analysed the samples taken from the River Grabia. Mrs. Barbara Przygodzka presented the second phase of the Polish case study, another field trip with a different class, class 3c, to Spała, about 80 km from Łódź, where, again under the supervision of Dr Mateusz Płóciennik, they analyzed the samples. Mateusz Płóciennik, the students began by collecting samples of invertebrates from the Pilica River to examine in the laboratory the following day. Then Piotr Lisiecki and Natalia Podemska, students from class 2c, presented the trip to Aveiro for Climate Campus in September 2022.

The CESGA application from the e-InnoEduCO2 project was then presented to the audience.

Next, Maria Szczygieł, a student from class 2c, spoke about an online conference that her class took part in on 25 May 2023. The lecture was given by Natalia Miernik, MA, from the Faculty of Oceanography and Geography at the University of Gdańsk. She spoke about *Zostera marina* and the process of eutrophication in order to prepare the students for the final part of the Polish case study. Marta Jarczyńska and Hanna Grabkowska from class 2c presented the final project trip to the Baltic Sea from 5 to 7 June 2023.

For 3 days, their class took part in a series of workshops related to the main topics of the project: *Zostera marina* and the eutrophication process.

The students visited the Gdynia Aquarium to see the exhibition on *Zostera marina* and carry out experiments on the chemical content of different types of water in the laboratory.

They also went to a marine research station at the University of Gdańsk on the Hel peninsula, first to listen to a lecture on the fauna and flora of the Baltic and then to take part in a cruise during which they carried out a series of practical experiments. On the same day, they collected and analyzed samples of organisms living in the Gulf of Puck, trying to find *Zostera marina* with the help of the research station's scientist.

After the presentation, Barbara Przygodzka gave a lecture on eutrophication and *Zostera marina*, followed by an online KAHOOT! quiz for the audience on the topic of the lecture.

In the afternoon of the same day, the entire programme was repeated for the guests. In addition, Mateusz Płóciennik, PhD, gave a lecture on the topic of climate change.

UNIVERSITY OF SANTIAGO DE COMPOSTELA

MULTIPLIER EVENT, Outes (SPAIN)

The University of Santiago de Compostela took part in the e-InnoEduCO2 multiplier event held in the Outes municipality on 17 July 2023, which was attended by people of all generations, predominantly members of the educational communities of the Virxe do Mar de Noia HEI and the Poeta Añón de Outes HEI.

The activity organized by the USC was led by José Antonio Caride, professor of Social Pedagogy at the USC and director of SEPA-interea, who coordinated a symposium with the participation of the technical coordinator of the USC, Francisco Sónora, the technical coordinator of the University of Aveiro Carmen Marques and the PI of the Galician Supercomputing Centre María José Malmierca. The three discussed the integration of all the intellectual products on the platform and analyzed the usefulness of each one and of the whole. Francisco Sónora presented the teaching material that makes up the training itinerary with its case studies.

Carmen Marques explained the development of the international campus and its educational use. María José Rodríguez Malmierca explained the integration of these products into the portal and the different didactic uses of the portal. José Antonio Caride developed the colloquium by questioning the three speakers so that the participants, especially the teachers from IES Virxe do Mar and IES Poeta Añón, would have the opportunity to obtain a coherent, integrated and practical vision of the three products.

The event ended with a screening of the film *Climantopía* and the performance of a band that played songs from the film.



FIG-2: MULTIPLIER EVENT, PROJECT PARTNERS



FIG-3: MULTIPLIER EVENT, OUTES (SPAIN)

UNIVERSITY OF AVEIRO

Fábrica Centro Ciência Viva de Aveiro

AGRUPAMENTO DE ESCOLAS DE AVEIRO

On Tuesday 29 August, Fábrica Centro Ciência Viva de Aveiro - University de Aveiro, with the support of Agrupamento de Escolas de Aveiro, presented a series of activities for the general public and families to raise awareness of the importance of species prevention and the impact of climate change.

Participants had the opportunity to explore the theme while: taking a close look at cockles and Zostera in the Laboratory; building and programming similar robots; modelling key elements of our ecosystems and 3D printing them... and even going into the Kitchen to make delicious chocolates, which matched the theme perfectly!

Fábrica Centro Ciência Viva convida a conhecer a biodiversidade marinha

Terça-feira Para este dia, a Fábrica Centro Ciência Viva preparou um conjunto de atividades, com o intuito de «alertar para a importância da prevenção das espécies e o impacto das alterações climáticas»

A Fábrica Centro Ciência Viva de Aveiro convida a conhecer a biodiversidade marinha, na próxima terça-feira. Para tal, preparou um conjunto de atividades, com o intuito de alertar para a importância da prevenção das espécies e o impacto das alterações climáticas.

Os participantes poderão explorar o tema enquanto «espreitam, com todo o rigor, berbigão e zosteras no laboratório; constroem e programam robôs semelhantes; modelam elementos fundamentais para os nossos ecossistemas e imprimem 3D... e ainda, passam pela cozinha, fazendo deliciosos chocolates, que combinam com o tema», sustenta.

Esta iniciativa decorre no âmbito do projeto Erasmus: "e-InnoEduCO2", promovido pela Universidade de Aveiro e financiado pela União Europeia. Tem como objetivo principal «sensibilizar e educar a sociedade para questões associadas às alterações climáticas e ao seu impacto para os seres vivos e o meio envolvente».



Procurar sedimentos e analisar alguns dos invertebrados é uma das propostas

Uma das atividades será "Protocolo Bombom... Berbigão?!", com início pelas 10 horas, visa «explorar as características e propriedades dos cereais e do cacau enquanto se fabricam saborosos bombons». Uma proposta para maiores de três anos.

Seguir-se-á "Robô Berbigão", pelas 11 horas. «Computador,

peças para montagem e abordar a nossa biodiversidade», numa atividade para maiores de seis anos.

À tarde, pelas 15 horas, terá lugar "Sedimentos LAB". Procurar sedimentos com recurso à lupa e analisar ao microscópio alguns dos invertebrados, bem como o berbigão e zosteras e saber mais sobre a sua função no ecossistema é a proposta lançada a maiores de seis anos.

Finalmente, será promovida a atividade "Modelação e Impressão 3D", pelas 16 horas. No espaço Maker da Fábrica, maiores de oito anos poderão experimentar esta tecnologia e aprender a modelar e imprimir objetos tridimensionais de elementos fundamentais do ecossistema.

As inscrições, gratuitas, devem ser efetuadas através do número 234 427 033. ◀

FIG. 4: DISSIMINATION OF THE EVENT IN THE REGIONAL PRESS



FIG-5: MULTIPLIER EVENT: AVEIRO (PORTUGAL)

WORKSHOP DOING: 3D MODELLING & PRINTING

In the Fábrika Maker Space, they were able to experiment with this technology and learn how to model and print three-dimensional objects of fundamental elements of our ecosystem!



FIG-6: 3D MODELLING & PRINTING

SEDIMENTS LAB

The challenge was to search for sediments using a magnifying glass and to analyze/observe some of the invertebrates under a microscope, as well as cockles and Zostera, and to find out more about their role in the ecosystem!



FIG-7: SEDIMENTS LAB

ROBOT ...COCKLE?!

Build and programme a cockle robot? It was the Factory's suggestion... Computer, parts to assemble and approach to our biodiversity! It was a success!

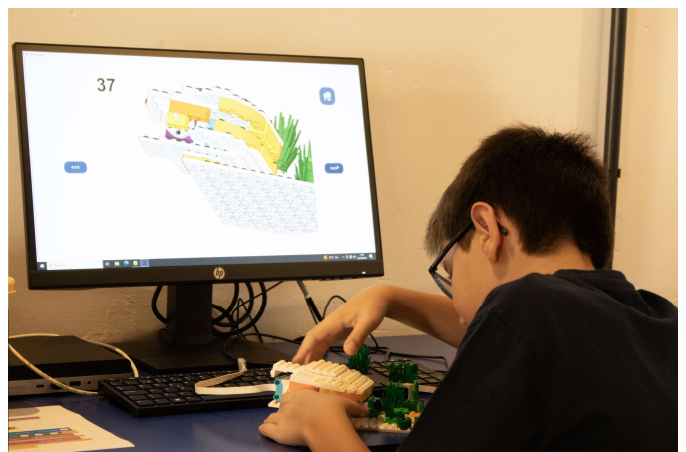


FIG-8: ROBOT ...COCKLE?!

University "Alexandru Ioan Cuza", in Iași (Romania)

Multiplier event

On Thursday 6 July 2023, the "Alexandru Ioan Cuza" University in Iași, Romania, organised a multiplier event for the Erasmus+ project "School science e-learning ONE HEALTH" - e-InnoEduCO2, attended by more than 40 guests in total: pupils, students, researchers and teachers.

The event took place at the Marine Biological Station "Prof. Dr Ioan Borcea" Agigea. The event was divided into two parts: a session of presentations and debates and a field trip to the Black Sea coast with the participants.

Together with Gabriel Plavan, the project coordinator, we began the event with a presentation of the project and its results. Dr Emanuel Baltag, director of the resort, told us about the organisation of the resort, giving us information about the Black Sea, an inland sea due to its geographical position in relation to the Planetary Ocean, about the modification of the physical, chemical and biological parameters of the Black Sea due to the anthropogenic impact on the entire basin, with eutrophication being accelerated by the huge quantities of biogenic elements brought in from the Danube, the Dnieper and the Dniester.



FIG-10:PRESENTATION, Dra.MAR SOBRAL

Dr Alexandra Jitar spoke to us about water as one of the critical resources for sustainable development, but essentially related to the development of certain branches of industry, the development of agriculture and the conservation of biodiversity.

She also addressed issues related to the integrated management of water resources, referring to all water resources: groundwater, surface water, river basins, coastal and maritime basins, but also to aspects aimed at the human user, who must benefit from them in a sustainable way. Manoleasa Laviniu and Ciulei Cosmin presented the trip to Aveiro for the Campus Climántica in September 2022. The e-InnoEduCO2 CESGA application was then presented to the public.



FIG-9: MULTIPLIER EVENT, LASI (ROMENIA)

After the presentation, Dr^a Mar Sobral, a researcher from the University of Santiago de Compostela in Spain, who was there on an Erasmus+ mobility, gave a talk on the carbon cycle in ecosystems.

In the afternoon of the same day, we went on a field trip to the Black Sea coast, where we discussed the main natural and anthropogenic sources of pollution in the Romanian Black Sea area, the identification of the main pollutants and the assessment of environmental impact and risk in surface water, seawater and sediments, taking into account the main sources of pollution.



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