CENTRAL EUROPEAN INITIATIVE

I.D.E.E. Integrating Digital and Environmental Education for the twin transition

Final report

Goals

The main goal of the project was to educate students to the useful and conscious use of digital technologies for the purposes of environmental education. Based on three experiential educational workshops, the project was aimed at 14/15-year-old students. The workshops meant to educate in an innovative, gradual, fun way, mixing analog techniques with digital ones in order to create new awareness in students used to passively and unknowingly using screens and digital devices now widespread everywhere. Through creative learning and learning by doing, children have learned thanks to invention, passion and play. The approach was not frontal, but collaborative: the students have been involved in the projects work in teams, guided by the tutors. Starting from the analysis of a scenario, we proceeded with planning, narrative storyboarding and interfaces, up to the development of a prototype to be shared and presented to other students. The three workshops have been declined on the theme of reuse, environmental sustainability, circular economy. Using drones, augmented reality and artificial intelligence, we taught students the importance of safeguarding the world in which they live every day, the ease of adopting certain virtuous behaviors towards the environment, the pleasure of living in places where nature that surrounds them can be protected and enhanced. Playing with their creativity and with devices, they saw everyday life scenes in a different light, learning useful behaviors to have a positive impact on the environment. During the workshops, some teachers have been trained, in order to be able to replicate the educational workshops in the future.

Participation and support

The educational laboratories have been carried out with the support of the trainers of the ImpactHub Reggio Emilia Junior Digital School.

Three classes of IESS students, for a total number of 60 students (equally divided between boys and girls), and three IESS teachers have been actively involved in the project.

At the same time, the project involved one class of 20 students and two teachers of the San Marino High School, which joined the project in a transnational perspective.

For every 10 students, a mentor has been provided, chosen among the school teachers coordinated by a senior JDS staff trainer.

Project structure

Work has been organized as follows.

1. A startup presentation meeting has been held on January 12th. The meeting involved three classes of IESS students, three IESS teachers and a delegation of teachers and students of the San Marino high school. The following timetable has been established for the devolping of the laboratories, that will last approximately 2 hours.

2. Digital for reuse: January 19th to February 16th

3. Artificial intelligence for the circular economy: February 16th to March 15th

4. More ecological with the drone: March 20th to April 17th

5. At the end, a closing ceremony has been held on May 3rd, where IESS and San Marino (on line) students and teachers have presented the work done. Discussions in small groups have been held on the meaning of circular economy and on the application of this in their local and personal contexts. This allowed students to see how other groups have approached the challenge and learn from their ideas.

Two sessions were planned, in which both Italian and San Marino students could participate and interact with each other and work together remotely online. Teaching has involved strong interaction between teacher and students to make online teaching as effective as possible. During the project, students have been guided by teachers, who have assured feedback and support. Furthermore, students have been encouraged to collaborate with each other and to share their ideas and expertise. In summary, the transnational phase used a combination of hands-on activities, student interaction and group presentations to provide participants with a practical understanding of how digital technologies can be used to positively address the challenges of environmental sustainability and the circular economy.

The educational workshops have been developed as follows.

1. Digital for reuse (10 hours, 5 workshops)

Students chose unused objects and projected for them a new life, rethinking them even more useful than before.
On order to do so, they created the digital twin of the object chosen and designed a new virtual

playground and a new virtual world.

Giving new life to reused objects, they learned how to properly eliminate and dispose of the objects no longer used.

2. Artificial intelligence for the circular economy (10 hours, 5 workshops)

Students created a board game with themed quizzes by programming and using Amazon Alexa [the proposed theme was Concepts of Circular Economy, with nomenclature, concepts, examples within the reach of the 14/15 age group].

Working in groups, they chose questions and answers and designed a board game on the Circular Economy.

Through the board game, they discovered how artificial intelligence, machine learning, chatbots and voicebots work and support teaching and learning.

Setting up Alexa to be able to play with it, students brought artificial intelligence into the game.

At the end they tested the game and challenged each other in groups.

3. More ecological with the drone (10 hours, 5 workshops)

Through the use of the a drone (piloted by specialized personnel), students explored, filmed and created of a digital storytelling to improve the consciousness of the environment around us.
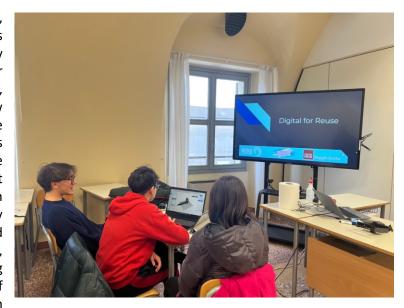
They flew over local parks, captured images and videos and assembled them together to transform them into more beautiful and cleaner places with smartphones.

Finally they produced a video to tell everyone how they would like to do it and voted for the videos produced by classmates.

Impact

With the three sets of laboratories, students acquired new skills in areas that are absolutely fundamental today both for finding a job and for becoming active citizens. In particular, they saw abandoned objects with new eyes and learned to reuse and dispose of them correctly, acquired basic skills in augmented reality, used voice recognition technologies and chatbot training and learned how to design conversational flows for bots. They also discovered the main concepts and applications of the circular economy, saw the vast possibilities of using drones, learned the techniques of storytelling and those of urban redevelopment.

With the ideas and materials developed some students will be able to imagine the birth of new products and perhaps innovative startups.

Hopefully, students will adopt new behaviours with their schoolmates, with their families, with friends in relation to environmental sustainability, the protection and enhancement of the places in which they live, the recovery of objects, the reduction and disposal of waste.

Schools will be able to replicate these workshops and include the topics of Reuse, Circular Economy, Environmental Impact in their educational offering.

Dissemination

Project results have been disseminated via website, social networks and newsletters. Dissemination activities have been gathered in the enclosed "dissemination report".

More onformation on the project workshops can be found on our website: www.iess.it.

Reggio Emilia, 28 May 2024

Yours faithfully,

Ugo Barilli
Headmaster IESS