



SciArt case studies

Piloting and Implementation of the SciArt activities in Cyprus



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The Case Study of Cyprus: The Falcon School

Location of the Implementation

The implementation of the SciArt project was carried out in the Falcon School, Nicosia, Cyprus. The director of the school, the teachers and the parents of the students who were involved in the implementation were informed and had given permission for the implementation to be carried out.

School Profile

The Falcon School is a private, international institution established in 1976, offering continuous education for boys and girls aged 4 to 18. With English as the primary language of instruction, and additional languages such as Modern Greek taught, the school promotes strong communication skills and global awareness. Emphasizing active, inquiry-based learning, Falcon fosters critical thinking, creativity, and a love of lifelong learning within a diverse, multicultural community.

Grounded in traditional values while embracing innovation, the Falcon School prepares students for the evolving demands of the modern world. Its forward-looking educational philosophy encourages adaptability, collaboration, and a strong sense of social and personal responsibility. Falcon's nurturing and inclusive environment helps students grow into confident, capable individuals, ready to succeed in their future endeavours and contribute positively to society.

The Falcon School is an accredited IB World School offering the Middle Years Programme (MYP); a program that promotes critical thinking, global awareness, and the all-round development of the students.

Teaching Staff Involved

The three teachers involved in the implementation of the program are members of the school staff; an ICT teacher, an English Language and Literature teacher, and a Science teacher.

- Costas Pringipas is an experienced IT professional and educator, who has been teaching for over 20 years, with a background that includes a BSc in Information Management from University College London and an MSc in Educational Technology from California State University, Long Beach (Fulbright Scholar). His expertise covers educational robotics, digital skills, and the design of innovative, interactive learning experiences—such as outdoor escape rooms using QR codes to engage children and the local community.
- Maria Kyprianou is a passionate English Language teacher with a decade of expertise. She graduated from the University of Brighton with an undergraduate degree in English Studies and Linguistics and she also obtained a Master's Degree at the same university in English Language Teaching as well as a CELTA certificate.

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- Kyriakos Solomou is an experienced teacher with around 7 years of teaching experience, who holds a BSc in Biology, an MSc in Cancer Research from the University of Manchester, an MSc in Biomedical Sciences from the University of Cyprus, and an MBA from the University of Leicester. He has previously worked as a Genetics Researcher and has experience with Optical Microscopy, Confocal Microscopy, Fluorescence microscopy, and Spectrophotometric Analysis.

The three teachers have worked collaboratively in order to create an Interdisciplinary Unit which focuses on the STEAM approach and each teacher has contributed to the implementation of the project within their area of expertise. The science teacher's experience has helped understanding and teaching the science material, the English teacher's experience in combination with the Master Training event's material has helped comprehend concepts related to the cultural heritage and stories behind the artefacts and the ICT teacher's experience has helped students experiment with various applications and eventually the creation of the multimodal e-books. The English teacher and the ICT teacher attended the Florina Master Training event in November 2024.

Student Participation

Fourteen students have participated in the implementation of the project. All students were around 13-14 years old and they were members of the same class; they were in grade 8 (Second grade of lower Secondary school). The class was a diverse class of 5 boys and 9 girls with international students of different backgrounds and there was an SEN student in the class, who was able to participate in most activities. The school's language of instruction is English; therefore, all the activities were carried out in English. The implementation took place during regular school hours and was integrated into the curriculum as an Interdisciplinary Unit. The subjects of Science, English language and Literature and ICT were involved.

In order to ensure inclusivity, the information was presented in various ways, such as AR video, real life experiences, interactive activities, which ensured that all students were engaged and they gained knowledge and developed lifelong skills. The language used in specific tasks and worksheets was simplified for the SEN student. Teachers encouraged students to use a variety of methods to present their work, which enabled students of diverse abilities and skills to produce a project that best reflected their strengths.

Artifact(s) Under Investigation

List of the artifacts used in the implementation of the pilot:

- Those left behind, A.G Leventis Gallery, Cyprus
- St. Christopher Alm Dish, Esposende Municipality, Portugal
- Half-finished glass vessel, Byzantine Museum, Greece

Classroom Activities

In this interdisciplinary unit, students delved into the theme of travel by exploring various artworks and artefacts from Cyprus, Greece and Portugal. They explored how these works of art reflect shared cultural values across the three countries. Using a variety of texts, stories, and scientific, archaeometric analysis, students investigated the ways materiality is expressed through art. They then presented their findings and opinions in a multimodal output. Students were able to cultivate 21st century skills such as communication, collaboration and thinking as they worked in groups in which they could communicate their ideas and knowledge and completed activities that enhanced their creative as well as critical thinking skills. The inclusion of artefacts from all countries involved in the project was an opportunity to explore part of the culture and heritage of each country and promote international mindedness.

1. Preparation

Initially, the teachers involved in the Project discussed the period of time needed for the project to be implemented as part of the curriculum through a STEAM approach. Teachers who were present in the Master Training in Florina trained the third teacher involved in the project and provided all the necessary information and material such as AR videos and worksheets that would be necessary for the implementation.

Moving forward, the three teachers created a Unit Plan based on the worksheets and lesson plans that were provided in the SciArt booklets, and it was decided which materials would be used from the resources. The Unit: Travelling/ travelling routes and the activities were divided based on the artefacts; firstly, the painting 'Those left behind' and then, the glass vessel and St Christopher's Alm Dish as part of a ship's cargo/ treasures. The different eras were explored, and conclusions were made in each subject. The teachers ensured that the worksheets and activities that were created enabled students to work individually as well as in groups. Some of the teaching material was taken from the booklet and others were created by the teachers. Some examples are included in this document.

2. Introduction to the Unit through different disciplines

The introduction of the Unit Travelling and Travelling routes included videos, maps, and discussions on why, how and where people used to travel in the past and continue to travel in modern times. Students shared their experiences and then conducted research to find out more about the different memoirs and travel writing logs of explorers. The learners were engaged from the initial class discussion and brainstorming sessions. Through the research they conducted, students, as problem solvers, tried to answer questions such as 'Why do people travel?' or 'How do we know where and when people travelled in the past?'. They students also wondered why each artefact was important what their unique story is.

Students had the opportunity to visit A. G. Leventis Gallery, where they were introduced to the Cypriot Collection and the painting of interest. They were informed about the artist's background and they saw the painting 'Those left behind' among other paintings of the same artist as well as other Cypriot artists, delving into the history behind the painting and exploring themes such as migration, poverty and the power of those who were left behind. Students were able to make connections between the

painter's era and their times and discussed how an artefact might be hiding various symbols and meanings. During their visit they engaged in creative activities such as the creation of a comic strip, a poem or a recreation of the painting, which they then used in their e-books.

In their science lessons, students acquired knowledge from a guest speaker, an expert on microscopes explored in the unit, and after a step-by-step introduction to the five archaeometric methods (Optical Microscopy, SEM, EDS, FTIR, XRD) they were ready to start exploring the three artefacts in question into more depth in order to investigate their materiality and how that was connected to the stories behind them. The scaffolding of ideas in the worksheets provided helped students remain engaged and following the questions they were able to unravel the stories behind each artefact.

In their ICT lessons, they started experimenting with the various platforms that could be used to integrate different media types (audio, video, images, text, and AR). They learnt about StoryJumper and shared their experience with other programs and worked on creating QR codes.

3. Implementation of the Interdisciplinary Unit

Through the study and completion of activities based on the three artefacts, the students had the opportunity to work on their communication, critical thinking, collaboration and creativity skills based on Inquiry-Based Learning.

Students worked on the Science Worksheets in groups and through the exploration of the materiality of the artefacts/ artworks, they investigated how each microscope was used to uniquely analyse each artefact, providing insights of the different aspects of the artefacts that led to a wholistic examination. They identified the benefits and drawbacks each microscope has, based on their features and evaluated which one is suitable for specific tasks and they developed science research skills promoting a deeper engagement with scientific processes. Through the various questions and discussions based on Orientation, Conceptualization, Investigation, Conclusion, and Discussion.

The students were able to respond and form questions for the in-depth investigation of the qualities of a museum artefact, using the scientific methods (i.e. dating, provenance, authentication, manufacturing technique, preservation, value, use) and their research and analysis of the different eras and cultures for the purpose of making associations regarding the artefact's cultural meanings. The recordings of their scientific findings in combination with the creative work they have produced for each artefact were later used in their e-books. Engaging the students with thoughtfully designed critical thinking questions, not only deepened their conceptual grasp of key ideas but also strengthened their ability to conduct purposeful research and approach problems with structured, strategic thinking. Questions that required identifying differences between materials and how the knowledge they acquired can help investigate further intrigued the students. The learners were asked questions such as 'Can the materials give us information about the artist's technique or socio-economic status?' which sparked further inquiry as the students were able to find a connection between the scientific examination and the cultural value of the artefacts.

Students organized the recordings, creative work, and reflections created throughout the unit. After the creation of a personal portfolio with their poems, travel writing blogs and other creative pieces of work they produced, as well as their scientific findings, they then worked in groups to narrate their inquiry process and use various platforms to create a multimodal book incorporating multimedia

elements such as text, audio and images. In groups, the students presented their multimodal books to the class for feedback. Students also evaluated how they have worked in their group and how engaged they were through the SciArt project. Finally, the students thought of different ways they could present their work to the wider community, their school. Posters were created which were displayed in the school's corridor. The posters portrayed a glimpse of what they had been working on as well as QR codes which provides access to their ebooks.



Student-Produced Multimodal or Augmented Artefacts

The students were divided into four groups. Throughout the implementation, the students had some opportunities to work on independent tasks but mostly worked collaboratively in groups. Each student created their own poem and travel writing blog. They all completed the science worksheets that were linked to the artefacts in question in the science lessons. They were also given multiple creative tasks to choose from; for example, they could choose to recreate the painting, create a comic strip, or role play an interview. As a group they then decided which pieces of writing/ work would be used for their ebook along with an introduction and conclusion.

The students also created posters to present their work to the school. The posters were 'a glimpse' of what they had been working on and are displayed in the school's corridor. Their e-books can be accessed through a QR code on the poster, which was created using Picsart.

Each group has narrated their own story, using different tasks such as audio of an interview, comic strip, narration of poems, travel writing log, their analysis through microscopes as well as introduction and conclusion of their book. Some groups used the Story Jumper while other groups used other platforms.

All the e-books can be downloaded from the SciArt webpage

(<https://sci-art.eu/resources/> → Mulimodal Outputs→ Cyprus – Students' Multimodal Outputs).

Experiences from the implementation

The teachers were enthusiastically involved in the process. After the study of the materials that were to be used, teachers mentioned how impressed they were with the amount of work that was put into the project. Teachers were engaged as they were able to collaborate and work towards a common goal and it was observed that the STEAM-based nature of the project helped teachers see things from a different perspective as they can now see clear connections between the Arts/ Culture and the Science.

According to teachers, the inclusive nature of the project ensured that all students were involved and had the opportunity to participate in a number of activities. Students were highly engaged especially in out-of-class activities (visit at the museum) as well as activities that were interactive. Students were impressed by the stories behind the artefacts and how after investigating their materiality and researching in order to acquire more information they were able to draw valid conclusions. They worked collaboratively and the freedom to work on different tasks as well as different platforms have given them the chance to show their strengths but also acquire new skills. The students also seemed eager to learn more about the stories behind the artefacts in Portugal and Greece and expressed an interest to see what the students in other countries have produced.

The multiplier event, 'A Day at the Museum', in Cyprus was considered a highlight of the project. Teachers from different disciplines and schools met to discuss the artefacts further and shared their experiences. After the event, teachers were pleased to see what other schools have produced and

were inspired by the work of their colleagues. They thought that it was a great opportunity to share ideas and discuss the difficulties and the breakthroughs they had during the implementation, and the potential the project has in general. Students also benefited from the multiplier event as they were able to talk to other students but also present their work. One of the students from the class proudly shared her experience and watched students from other schools presenting their work.

Even though the materials and lesson plans were provided, and the discussions in meetings with other teachers enabled the exchange of ideas, one of the main challenges teachers faced was time management. Initially, it was difficult to incorporate the unit into the existing curriculum and the potential of the project to be explored further. Ensuring that implementation begins earlier in the academic year would give teachers more time to plan and prepare effectively. Additional time would also allow for deeper implementation and the opportunity to further expand on the unit's potential

Finally, there seems to be an intention for the material to be used in the future, possibly with more disciplines involved as other teachers in the school also seem interested in incorporating parts of the project into their unit plans.

Additional tasks used in class created by the teachers



'Those left behind'



Choose one of these tasks and work in your group.

Task 1: Poem

Inspired by the painting 'Those left behind', write a poem. Your poem might include feelings of the women, children or men and some description. Think of whose perspective you are writing the poem from.



Task 2: Comic

Create a comic strip. What do you think happened before this scene? Who are the characters in your comic? Tell the story from your perspective.

Task 3: Recreation of the painting

Recreate the painting. Write a paragraph to explain your perspective to the audience.



Glass vessel
Late 3rd – 4th century



Alm dish
16th– 17th century



Task 1:

Choose one of the periods in question:

16th- 17th century (Portugal) or |

Late 3rd - 4th century AD (Greece)

Imagine you are a **traveller/ explorer**. Write a 200-250 word diary entry narrating your experience at sea. What happened? What did you see? How did you feel? Be descriptive.

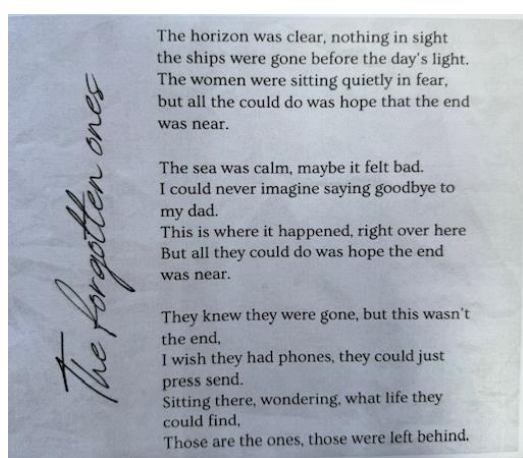
Task 2:

Create a sound for the artefact.

Look at the story behind these artefacts. Create an audio using sound effects or a musical instrument to describe the artefact or your feelings.

Examples of Students' Work

The black, scribbled figures are men, whose presence is still felt, even though they are gone. The surroundings are black to emphasise the emptiness around without the husbands, sons, brothers and fathers.



Importance of Artefacts

Artefacts are important to us as they help us understand a lot of things. By studying them we can learn about the time and the way of life. They can be analysed to understand the availability of certain materials and their usage, traditions, and methods of making them. They are often used to study a particular time in history and are supposed to be dated at least 50 years old.

To conclude they are both culturally and historically significant to humanity.

Reflection

We analysed these three artefacts under the microscopes (Simple Light Microscope, SEM, EDS, Micro X-ray diffraction, XRD) and learnt how they were culturally significant and the meaning behind them.

It was an interesting and fun experience as we got to do something we had not done before, and we learnt a lot from the experience. We were working with people we had not before and so we learnt how to collaborate and work together; how to divide work so that everyone does their share and overall, the IDU was very much educative.

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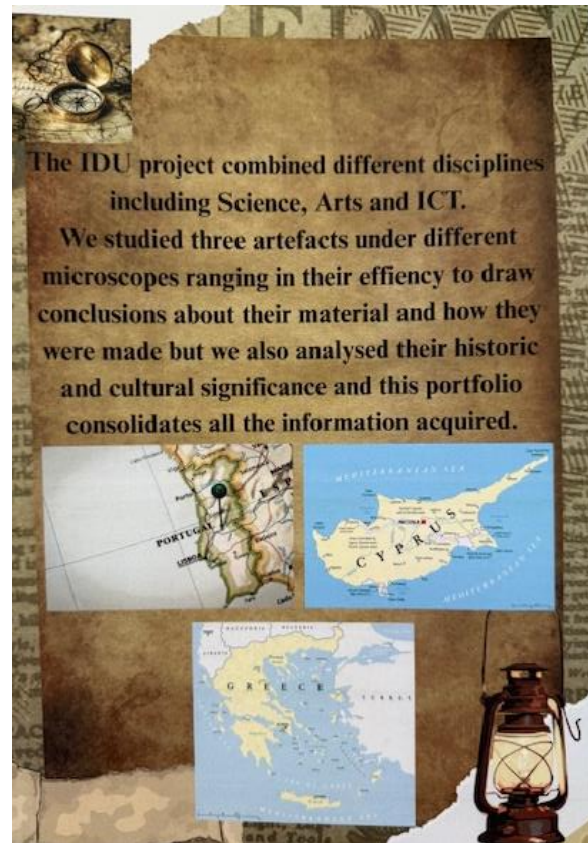
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The IDU project combined different disciplines including Science, Arts and ICT.

We studied three artefacts under different microscopes ranging in their efficiency to draw conclusions about their material and how they were made but we also analysed their historic and cultural significance and this portfolio consolidates all the information acquired.