

About the CREAT-IT project

The CREAT-IT project is funded with the support of the European Commission and aims to develop and support teacher skills in science education by integrating creative, cultural disciplines and social media tools in science courses, engaging students to participate in collaborative, project and case study based activities.

For teachers, creativity and innovation is a high risk activity and the incentives are few. In a system where the centre has been the innovator, practitioners' compliance understandably becomes the habit. The dynamic of change in education in Europe has been described in terms of a set of shifts, first, from "uninformed prescrip-



tion" (in the 1980s); to "informed prescription"; then towards practitioner led change. This was seen as the key to self sustaining, rapid improvement. It is within this context, that the CREAT-IT project aims to take forward the agenda of practitioner led change at a European level by introducing creativity in science education. At the level of individual teachers they need to:

become aware of specific weaknesses in their own practice. In most cases, this not only involves building an awareness of what

they do but the mindset underlying it be motivated to make necessary improvements. In general this requires a deeper change in motivation that cannot be achieved through changing material incentives. Such changes come about when teachers have high expectations, a shared sense of purpose, and above all, a collective belief in their common ability to make a difference to the education of the children they serve.

gain understanding of specific best practices. In general, this can only be achieved through training and demonstration of such practices in authentic settings.

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The CREAT-IT partners



[Stord/Haugesund University College - HSH \(Norway\)](#)



[Elinogermaniki Agogi \(Research & Development Department\) - EA \(Greece\)](#)



[University of Exeter, EXETER \(UK\)](#)



[Science View - Hellenic Association of Science Journalists, Science Writers and Science Communicators \(Greece\)](#)



[Forma Scienza \(Italy\)](#)



[CENTER FOR THE PROMOTION OF SCIENCE - CPN \(Serbia\)](#)



[European Network for Opera and Dance Education - RESEO \(Belgium\)](#)

Write a Science Opera in Glasgow!

The next Write a Science Opera (WASO) workshop will take place on October 18th at the Scottish Opera in Glasgow during the European Network for Opera & Dance Education (RESEO) conference "ALL ABOARD". It will be led by Associate Professor Bettina Smith from the University of Stavanger. Following the workshop there will be a discussion with the Programme Director of Glasgow City of Science, Dr. Susie Mitchell about music and science.

Learning science through opera!

The first Write a Science Opera (WASO) Summer School took place at Stord, Norway in August, 2014. During the Summer School, participants (musicians, scientists, educators, drama professionals, scenographers and more) from 7 countries created an original Science Opera.

The opera, "Scarlet's Choice", was inspired by technological and ethical questions in the field of Artificial Intelligence (AI) and the Human Brain.

The following are quotations of several participants about the Summer School:

"WASO is a fantastic opportunity for science teachers and others from a science background to collaborate with music, art and drama specialists to create something unique. The training programme is challenging yet great fun and is both stimulating and informative. If you want to invigorate your science teaching and work with enthusiastic and talented people from a wide range of backgrounds, then the WASO course is for you! I'm looking forward to putting the techniques I've learnt into practice and communicating the joy of WASO with colleagues and students back at home."

— **Dr Richard Spencer, MBE MSB CSciTeach CBiol PGCE PgCERT BSc (Tech) PhD, Head of Science, Middlesbrough College, UK**

"It was an unforgettable experience for me! I was in need of such an experience in my life".

— **Sandra Ladeira, Science Teacher (Portugal)**

"We had some very inspiring lectures about how to ex-



plain science via the arts, or where the arts meet science. Professors and lecturers with an impressive curriculum stole our hearts. They made us laugh, they made us wonder, they made us dance... and they made us cry. Because only now I realised that I might have been a great scientist...if only I would have experienced this connection, the artistic identity of science, during my childhood! The other thing that impressed me a lot is how we were gently pushed to explore our limits. If you would have told me on Monday that I would be playing the double bass in an opera performance on Friday (I never touched this instrument before) and that I actually would have composed some music for this opera, then I really would have laughed. Well... I'm thinking right now that it might be fun to take some double bass lessons... Thanks again for this opportunity and your wonderful training".

— **Josephine Schreibers, leader of Education Department, the Vlaamse Opera, Belgium**

"The Research Foundation to Cure AIDS (RFTCA) is build-

ing a scientific and clinical alliance to develop the cure for AIDS and to make it available and affordable worldwide. The arts have always played a role in HIV research, starting in the beginning of the epidemic where the arts was vital to mobilize public support to begin research in HIV/AIDS. Today, we are seeing artists flock to our project and we are grateful to enjoy their support. Individuals in RFTCA attended the WASO workshop in Stord, Norway, to explore how this group is pioneering the creation of artistic works that combine the arts and sciences. We came away inspired and full of ideas how to realize an artistic production of our own. The team at Stord even helped us to develop initial ideas and themes for consideration, and we also took away many great ideas and thinking on how to organize and facilitate the creative process to foster a collaborative and fertile experience and environment for our artists. We look forward to continuing a collaboration with WASO as we create our own staged productions relating to HIV/AIDS. RFTCA believes that the arts can connect ideas

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Images from the first WASO Summer School which took place at Stord, Norway in August, 2014

to people in an emotional and visceral way; we are engaging the arts to connect people to the science leading to a cure for AIDS, and WASO showed us the approach and the way. We are grateful for the preparation and thought that the organizers of WASO and the administrators of the program and facilities have put into the workshop."

— **Dr. Kambiz Shekdar, Biologist, Rockefeller University (New York City, USA)**

"The CREAT-IT WASO summer school was, by far, one of my most unexpected training courses, and truly a lifetime experience! As a music teacher, I felt really overwhelmed by being able to take part in such a learning process, in which we learned how to write a thematic science opera from scratch! "Write a Science Opera" was indeed the main topic for our journey and sharing this great opportunity with so many distinguished colleagues from so many different backgrounds and countries, revealed the outmost spiritual essence of this journey. A great connection and a natural empathy dominated the entire course among all partici-

pants, led by an amazing group of instructors and supported by science experts/investigators who brought and shared with us their own investigations in the field. In the end, it was determinant to build up and achieve the best possible outcome for our science opera. In spite of the tight schedules and intense work during the training course, it all happened so spontaneously and so intensely that it exceeded way beyond my best expectations. Lots of fun! It really gave me a new perspective for building up further creative strategies to work with our students in the coming years. Thank you WASO!"

— **Victor Gomes, Musician**

and Educator, Portugal

"Truly enriching and inspiring. The WASO Summer School showed the common path between science and art: creativity".

— **Andreia Sousa, Musician and Educator, Portugal**

"Although I received both an artistic than a (more) scientific education, I could not imagine how those two could be combined together. But after following the WASO-course in Norway, I am not only convinced it IS possible, I also hope to start up this project in my own college in Belgium".

— **Tom van den Broek, Musician and Educator (AP College, Belgium)**



Associate Professor Oded Ben-Horin at the WASO Summer School which took place at Stord, Norway in August, 2014

About WASO

WASO is an application of the widespread Write an Opera method, which has been successfully implemented in many countries. WASO is a creative professional development approach to creative, inquiry-based science education informed by the arts, in which participants gain first-hand experience creating original educational performances directly related to and inspired by the science curriculum for students.

A specific methodology for creating science-informed original performances in schools will be experienced first-hand through the creation of such a performance by participants. WASO uses a pedagogical framework for creative science education developed by the CREAT-IT EU project.

"Wake up Rosetta" video contest winners

The European Space Agency (ESA) asked for help in waking up the Rosetta spacecraft from 31 months of deep-space hibernation, and sponsored a fun video contest. The winners of the contest came from Ellinogermaniki Agogi primary school in Greece. The video included an original score composed by young Norwegian girl Oda Rolfsnes, flute played by young Greek girl Eugenia Veskouki, the voices of 1002 pupils and was produced by Petros Stergiopoulos, professor of flute and researcher at Ellinogermaniki Agogi.



The Greek students that helped wake up Rosetta
(Credits: www.esa.int)

Learning Science through Theater!



After successfully bringing together the "Student Parliament on Science", Science View, the Greek science journalists and communicators association is organizing a new, innovative project titled "Learning Science through Theater", in collaboration with the School of Philosophy, Pedagogy and Psychology of the National and Kapodistrian University of Athens. The project is based on the pedagogical framework developed CREAT-IT.

Prior to the next Student Parliament on Science that will take place in the spring of 2016, Science View continues its educational actions with "Learning Science through Theater". For this project, High School pupils (aged 11-18) are invited to dramatize science concepts and knowledge stemming from the school curriculum.

Pupils will dramatize what they learn in class, through a flexible script called "Parallel Worlds", which includes five units/acts concerning the fields of Biology, Astronomy and Physics.

There will be work groups (scriptwriters, actors, musicians, dancers,

video producers, set and costume designers) that will be offered professional support. Pupils can be part of more than one work group according to their interests.

At least one teacher per school will be responsible for organizing the activities. Teachers can make these activities part of the curriculum of the respective lessons (Physics, Astronomy, Music, biology, Art) as projects or introduce them to the school societies (drama, music etc.).

Pupils will stage the play in April 2015 in Athens-venue to be announced shortly- and there will be a panel of professionals (academics, science teachers, directors, actors, musicians).

Pupils chosen based on their performance will be asked to prepare for and participate in another performance that will include all the acts and will take place in Athens

in July 2015 and will be open to the public. Those pupils will give another performance for the International Conference of the [CREAT-IT](http://www.creat-it.eu) European project in October 2015 for conference participants as well as the public. Finally, 3-4 pupils will be chosen to take part in the international conference [«Science & You»](http://www.scienceandyou.eu) that will take place in Nancy, France, 1-6 June 2015. There they will present an excerpt of the play.

Project organisers

Science View - Greek Association of Science Journalists, Science Writers and Science communicators

Programme coordinator: Menelaos Sotiriou, Science View Secretary General

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School of Philosophy, Pedagogy and Psychology of the National and Kapodistrian University of Athens, Greece

Scientific coordinator: Zaharoula Smirnaïou, Assistant Professor zsmirnaïou@ppp.uoa.gr

For more information, visit:

<http://lstt.weebly.com/>



Professor Anna Craft has passed away

The CREAT-IT team member Professor Anna Craft of the University of Exeter (UK) has passed away. The project team wishes to express its gratitude for Professor Craft's important contribution to the CREAT-IT Pedagogical Framework during her last months. The project's final Dis-

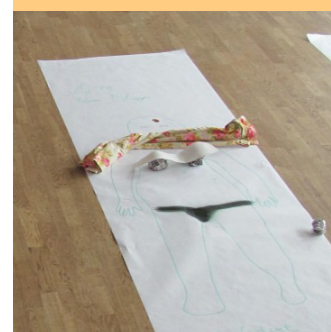
semination event in 2015, "SkyLight - a Global Science Opera", will be to a great extent inspired by Professor Craft's teachings of Possibility Thinking (PT) in education, and specifically with regard to digital learning platforms. CREAT-IT wishes to dedicate that event to her memory.



First CREAT-IT training seminar for MSc Biology students



On September 16th, 2014, the first CREAT-IT training seminar took place at the University of Bergen, Norway. During the training, Kirsti Aksnes and Oded Ben-Horin of Stord Haugesund University College) trained 50 students following the Masters Degree programme in Biology, in the WASO methodology. The opera's theme was water quality in Bergen.



CREAT-IT at the 1st International Conference on New Developments in Science & Technology Education

The CREAT-IT team participated in the 1st International Conference on New Developments in Science and Technology Education (NDSTE) conference that took place at Corfu Island, Greece from 29-31 May 2014. Members of the team gave presentations, organized a workshop and even gave an improvised performance on Creative Science Education. The conference had two objectives. The first objective was sharing new practices within the area



of research in science and technology education. The second objective was to provide international researchers a significant and friendly opportunity to network and collaborate so as to

improve ideas and processes.

The conference was structured around five main thematic axes:

- Modern Pedagogies and New Technologies in Science and Technology Education,
- Interest, Attitude and Motivation in Science and Technology Education,
- Neuroscience and Science Education,
- Assessment in Science and Technology Education,
- Teaching and Learning in Specific Disciplines.

"Introducing Creative Science" summer course in Greece

The "Introducing Creative Science" summer course took place as part of the Open Discovery space Summer Academy from 13-18 July 2014 and was organized by the R&D department of Ellinogermaniki Agogi. The course, as part of the CREAT-IT project workshop series, sought



to provide teachers with the ability to blend innovation approaches with traditional science teaching methods.

At first glance 'science'

and 'creativity' may seem to be two completely different ideas. But there is, perhaps, a common ground for national educational curricula to build inquiry-based science education activities based upon interdisciplinarity and interaction involving creativity from the Arts.

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Get to know our creative methods

Junior Science Cafes

Junior Science Cafes scenarios will follow the guidelines of the SciCafe Network (http://www.scicafe.eu/learn_more). In the framework of CREAT-IT they will be organized within schools or schools theatres; the teacher and students will attempt to incorporate creative aspects and combine science with e.g. music, art and/or theater and explore how these aspects could help science education. The teacher will introduce science topics to students with the help of an invited researcher while following the curriculum. The teachers will be trained to realize these activities within the implementation phase of CREAT-IT.

Science Theater

Science Theater will incorporate art elements in teaching science. There will be three goals:
1) to explore the use of metaphor in scientific and theatrical frameworks
2) to explore the evolution of role playing
3) to test a common training for future liberal art & science teachers. Students will be asked to explore science topics, supported by script outlines, which will inspire them. The play's characters, costumes, music and dance represent potential ways of interpreting the students' inquiries. They thus engage in Possibility Thinking (PT) regarding how the creative artistic process can act as a base for deeper inquiry as well as a medium of communication of the various hypotheses and evidence-based conclusions.

Write A Science Opera – WASO

Science Opera case study will be similar with the Science Theater but it will include one more artistic and creative element, music. Write a Science Opera (WASO) is a creative professional development approach to music and science education in which pupils of different ages, supported by teachers, opera artists and scientists, become the creators of an educational performance. WASO integrates science education into the original method by involving scientists who lead a creative process demonstrating common impulses shared by science and the arts.



The Portal - portal.creatit-project.eu

The project's website provides an entryway to the CREAT-IT Portal which makes the project resources available to teachers, students, artists and researchers.

The Website - www.creatit-project.eu/

The development of the CREAT-IT website allows for constant online presentation and dissemination of the project's progress and results. The website acts as the project's main hub of information about the project's planned activities and serves as a provider of relevant educational activities in school.

