Cultural Collisions

cross-disciplinary

science education

engagement & networking

“Michael Hoch representing the art@CMS team and EU CREATIONS Project collaborations”

michael.hoch@cern.ch
EPS2019 – Ghent/ Belgium
Different Creative Dissemination Formats
supporting school curriculum or after school activity

ScienceFlashMob
– short interaction during an event, festival or educative programme

SciARTmasterclass
– half day or full day interaction with the audience

Science&Art@School
– extended masterclass, creation in school curriculum, exhibition

Cultural Collisions
– cross discipline. inspiration exhibition, creation at school, exhibition
ScienceFlashMob

short interaction during an event, festival or other education programme

-> Feel the forces, make the move and remember the science concept and science link

example Video: workshop in Athens 2015  https://www.youtube.com/watch?v=ixlWlq3_paw

Ontario Science Centre
Toronto/Canada, 2018

Museum fuer Vorgeschichte
Halle/Germany, 2017

Science Festival
Podgorica, Montenegro, 2017
sciARTmasterclass
one day event e.g. science festival or science day,

Programme:
cross disciplinary exhibition, ScienceFlashMob,
lectures & workshops (science & creative)
CMS Junior Scientist Program -> Booklet

Montenegro 2017: https://www.youtube.com/watch?v=9vfIw-Pf7vg
first workshop in Graz, Austria with 2 schools (GIBS, BORG) 2012/2013 as well 2013/2014

Science&Art@School ECOLINT Geneva/ CH :
https://www.youtube.com/watch?v=yTqDm0Yp04E

Horizon 2020 EU project CREATIONS
http://portal.opendiscoveryspace.eu/creations
Science&Art@School
supporting school curriculum or after school activity

Sofia Bulgaria 2015

FERMILAB/ US 2015

Vienna/ AT 2016

2016 - 2017 - 2018, Science & Art across Italy
Evaluation - Students

Pierluigi Paolucci, Italian National Institute for Nuclear Physics (INFN) and CERN, Geneva
Francesca Scianitti, Italian National Institute for Nuclear Physics (INFN)

- General appreciation
- How much did this experience bring you closer to science?

How difficult it was to create the artistic composition?

Survey on a sample of 700 students
Cultural Collisions

Organisation Time Line – integrating activity in school curriculum

1) Participating science teacher receive science support material
2) Organization of a Virtual Visit with participating experiments
3) Curate **first exhibition** in a public venue - “RESEARCH & INSPIRANTION” experience –

Use the framework of the exhibition to organize a series of

- **LECTURES** on science and art topics
- **WORKSHOPS** – science workshops as well as creative workshops
- Further activity for students and general public

4) School groups leave the exhibition with the challenge to follow up their own scientific research and create science related artworks under the supervision of the science teacher & the art teacher

5) Organize a **second exhibition** in a prominent venue where the results of the student artworks are presented

- Option competition: selection of the best artworks and award them
Cultural Collisions
CREATIVE minds - CRITICAL thinking - SCIENTIFIC methodology

You are cordially invited to Cultural Collisions
An art exhibition, music and dance performance presented by Austrian and Geneva students

CERN Bldg 40 2017

Vienna Natural History Museum 2018, 2019
Guiding Questions:

Do STEM – Arts partnership spark interest & engagement in STEM fields for students who are not initially interested, nor saw themselves in STEM field.

A goal it to provide students the opportunity to take learning from a variety of subjects and apply them into new contexts, in an integrated way, while developing transferable skills that would enable them to solve complex problems.
**Purpose for this education research project:**

- Disciplines in STEM fields continue to struggle
- Encourage students to consider science, technology and engineering career pathways
- Provide authentic experience which connects to the lived realities around students
- Get inspired to wonder and ask questions
- Provide students the opportunity to learn from variety of subjects and apply them in new context -> CREATIVITY
Scientific network ORIGIN

**Scientific collaborations:**
ALICE, ATLAS, CMS, ICEcube, LHCb, LIGO, Muography VIRGO, DUNE (since 2019)

**Scientific Institutions:**
Perimeter Institute, Canadian Light Source as well as Regional University Institutes

**Scientific Topics:**
Particle Physics, Astrophysics, Gravitational Waves, Neutrino-Physics
Muography, Cosmology, Accelerator-Technology

http://originnetwork.web.cern.ch
Science: from Astrophysics to Particle Physics

Art: International art@CMS collaborative artists and local artists

Venue: Ontario Science Centre OSC, Toronto Canada

First exhibition: April 9th – 15th 2018
  student research and inspiration

Second exhibition: May 29th – June 3rd
  students art-works presentation

Cultural Collisions by ORIGIN - Canada
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>9:00 AM</td>
<td>Workshop A: Biotechnology and Medicine</td>
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<tr>
<td>10:00 AM</td>
<td>Workshop B: Biotechnology and Medicine</td>
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<tr>
<td>11:00 AM</td>
<td>Workshop C: Biotechnology and Medicine</td>
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<td>12:00 PM</td>
<td>Lunch</td>
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<td>1:00 PM</td>
<td>Workshop A: Biotechnology and Medicine</td>
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<td>2:00 PM</td>
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<td>5:00 PM</td>
<td>Workshop A: Biotechnology and Medicine</td>
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<td>6:00 PM</td>
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<td>7:00 PM</td>
<td>Workshop C: Biotechnology and Medicine</td>
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Note: The schedule includes various workshops, lunch breaks, and other events related to biotechnology and medicine. Each event is labeled with a workshop number and time slot.
Science personal dialogues

Science & Creative demonstrations

Specialized topic talks

Creative workshops

General science talks
Young audience

Rap Workshop

Cloud Chamber Workshop

Life Size Photo Wall

Creative Photo Wall

ICEcube data art work & Educational App

General Science Morning Introduction Talk
Second Exhibition - Student Results - artWorks
Student Exhibition Opening – Rap & Dance Performances

Rap performance & HipHop
Purpose for this education research project run by the Ministry:

- Students and teacher enjoyed participating in the experience
- Strong engagement and commitment by students was demonstrated
- Students enjoyed the **authentic** and **realistic** experience
  -> relate science to their own life
- Breaking down barriers what science is, what art is.
  -> understanding concepts
  -> owner ship of topics
  -> allow creative thinking
Participants gained and changed perspectives about possibilities for understanding and knowledge acquisition when presented with learning in integrated and immersive way.

Students were easily able to demonstrate their knowledge by providing in-depth explanations of concepts using specific terminology and definitions.

By making connections to personal experience and real world realities, using analogies and engaging in inquiry, students were clearly demonstrate their learning.
There is a clear and necessary role for cross disciplinary curricula integration.

Undoubtedly, the finding from this project offer insight into how to innovate for STEM learning and demonstrate the importance of relevant, cross curricular and integrated STEM education that meets students’ interests.
Some links to documents on the CCC project and the evaluation; 
with courtesy of the Ontario Ministry of Education and Ontario Science Centre;

Final evaluation report of the Cultural Collisions Canada
- Exploring the Nexus for Student Learning when the Arts and Science Collide

Final presentation Cultural Collisions Canada
– by Toronto Science Centre & Co

video walk through the exhibition
-- Ontario Science Centre
https://www.youtube.com/watch?v=4Hkrr1mCz7o&t=184s

http://originnetwork.web.cern.ch
Further collaborations with regional colleagues

Split/ Croatia, 2018
Imotski/ Croatia 2018
Sarajevo/ Bosnia 2018
Cetinje/ Montenegro 2018
Tbilisi/ Georgia 2018
Daejeon/ Korea 2019
Chateau d’Oex/ Switzerland 2019

walk through exhibition
Split/ Croatia - > https://youtu.be/XYlDehGg4Xs
IBS Daejeon/ Korea: https://www.youtube.com/watch?v=8l7V6pY0lml
Acknowledgements:

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Developing an Engaging Science Classroom (Grant Agreement No.665917; http://creations-project.eu)
Exhibition “Harbinger”

By KASK art researchers
Curated by KASK curatorial class
Venue: Botanic garden Ghent
Open 9h – 18h
Web page:
https://harbinger.schoolofarts.be/subtle-collisions/
Facebook:
https://www.facebook.com/curatorialstudies.be/
Initiated by
KASK & Conservatorium Art@CMS, Ghent University

Exhibition “ORIGIN poetics 2019”

By artists from Saint Martins College of Arts London/UK, Chelsea College of Arts London/UK, Art University Montenegro
Applied Arts University Vienna/AT
Venue: Zwarte Zaal KASK, Ghent
Open each day 13h – 17h
Vernissage/ Symposium Saturday 19h - 21h
Facebook:
https://www.facebook.com/events/685652141873296/

EPS2019 presenting
Final results of
Academic Art
4
Academic Science
Art&Science exhibitions by
KASK, Ghent/ BE
Applied Arts University, Vienna/AT
Central Saint Martin’s College of Arts, London/ UK
Chelsea College of Arts, London/UK
Art University Montenegro