



- Firenze*
- Genova*
- Milano*
- Napoli*
- Padova*
- Venezia*
- Pisa*
- Potenza*
- Matera*
- Roma*
- Torino*

**Art as a language to represent science:
a project for Lyceum**

Simone Paoletti and Pierluigi Paolucci
 Istituto Nazionale di Fisica Nucleare
 on behalf of Art&Science Across Italy Collaboration

**Which color
is the Higgs boson ?**

**Is art a universal language which can
speak of science ?**

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- The project was born in 2015 from an idea by P. Paolucci (Napoli), M. Hoch (Austria) and A. Alexopoulos (CERN)
- It was funded and organised by INFN and CERN
- It is addressed to 3rd and 4th year High School students

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STEAM is an educational and innovation framework bringing science, technology, mathematic and engineering together with the arts with the goal of being more engaging, creative and naturally successful for all members of any educational system.

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Step 6: Master at CERN

- Science and art seminars
- Visits to CERN experiments
- Hands on @ S'Cool Lab

Stimulate Creativity

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Engage in Team Work

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Make a Project

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**Profit from Interdisciplinary
Competences**

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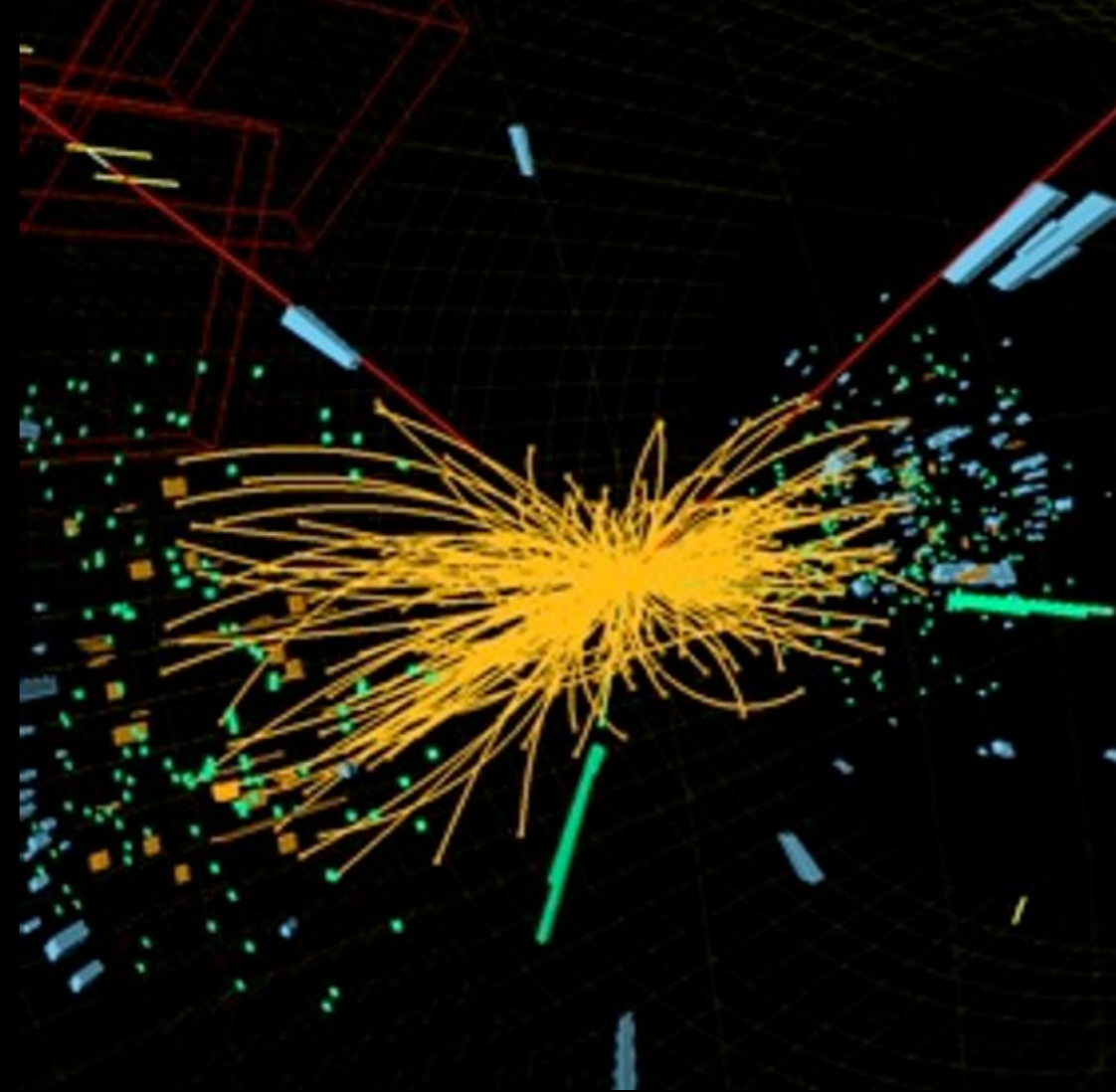
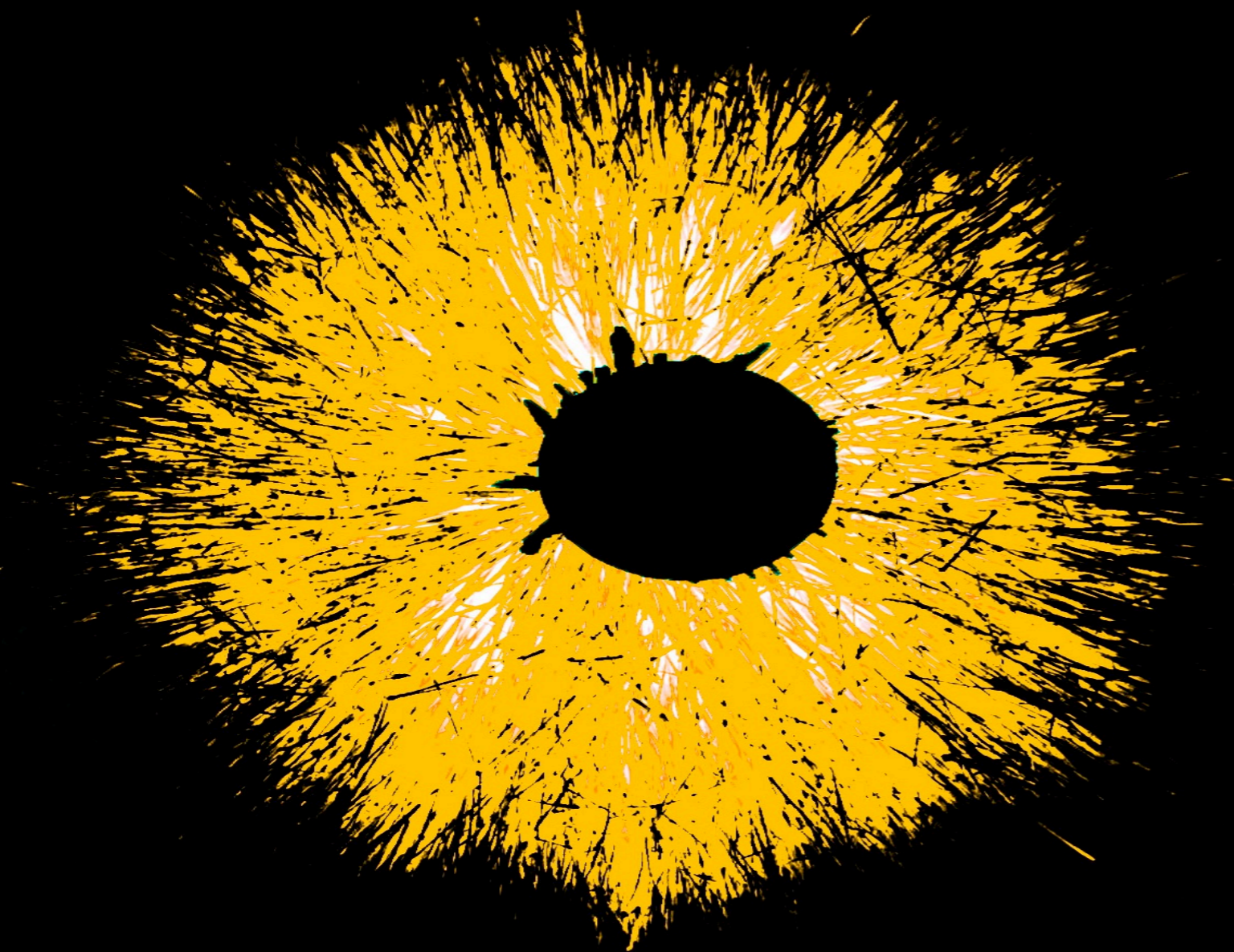
Make a Project

**Profit from Interdisciplinary
Competences**

Bring closer to science:

- Enable students to express their take
- We don't select students and we don't look at their CV !

Art&Science



A stimulating affinity

**Take the chance to break a
mindset barrier**

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**Art and Science sharing common
historical roots**

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mindset barrier**

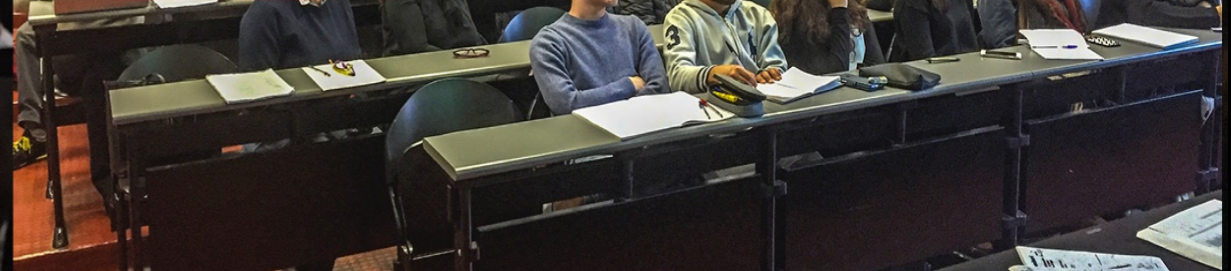
**Art and Science sharing common
historical roots**

**Different ways to observe the
world both involving:
Creativity and Abstraction**

First edition: 2016-2018

Milano
Padova
Venezia
Firenze
Napoli

38 schools,
100 teachers
more than
3000 students



5 local exhibitions



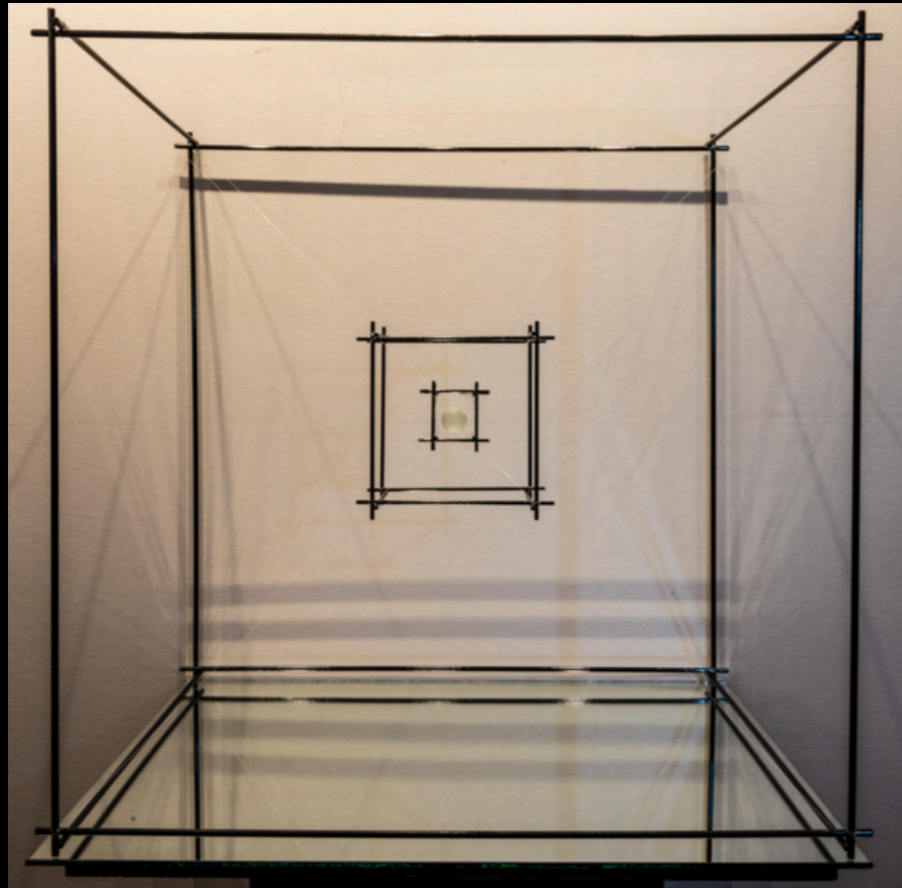
More than 410 artworks ...



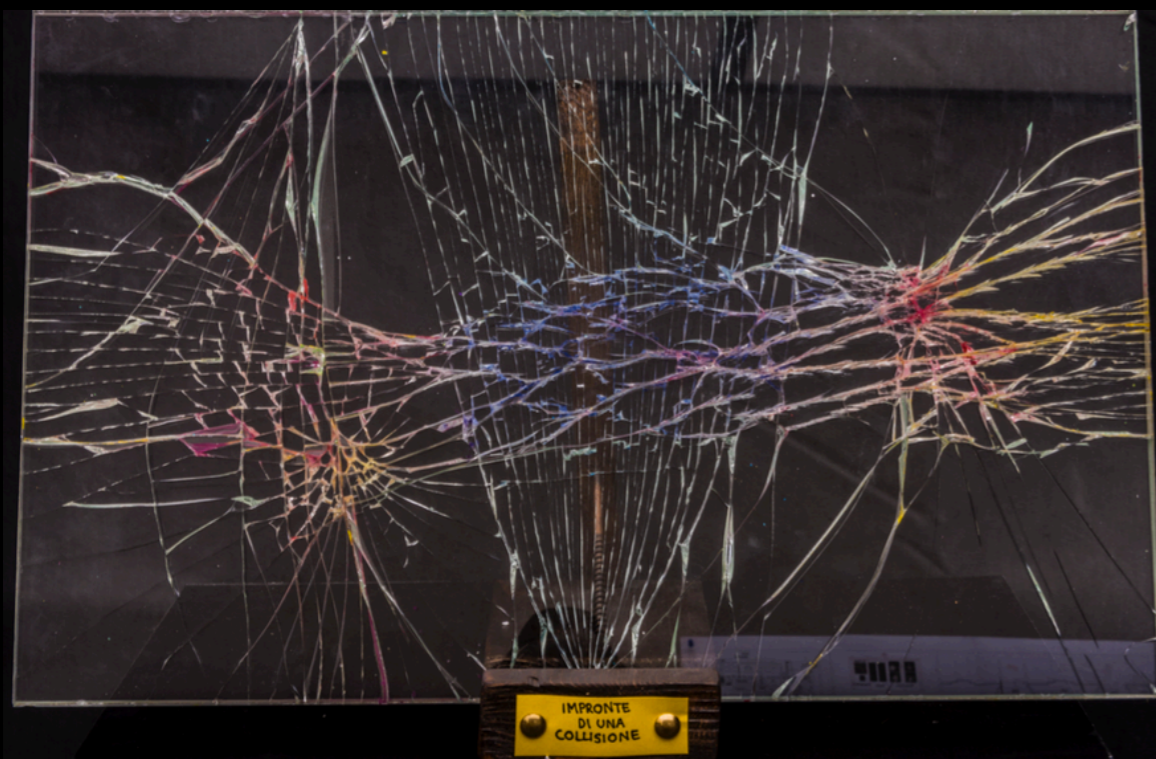
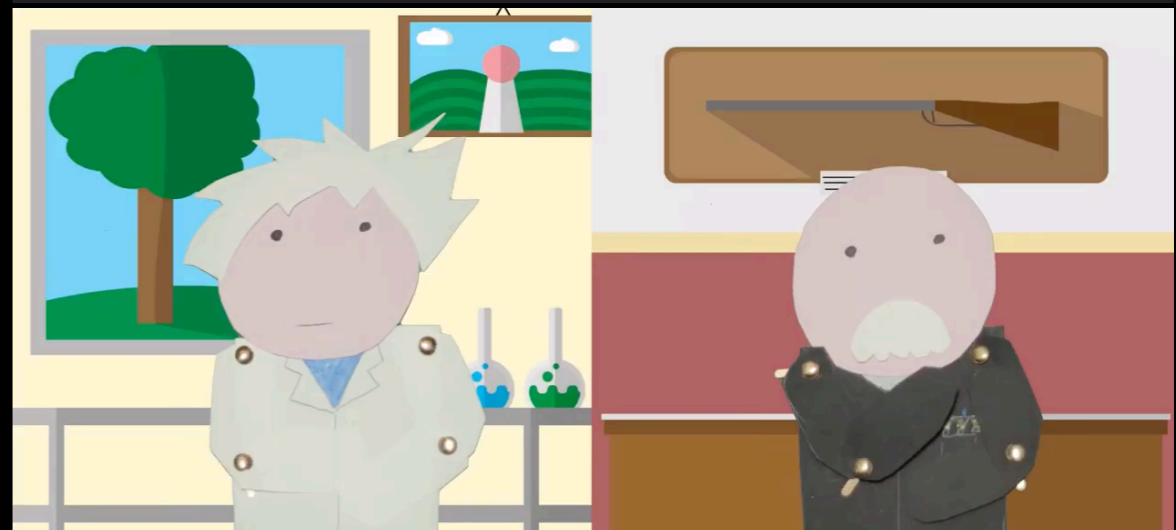
National exhibition @ MANN Naples



Artworks at the national exhibition ...



Make **SCIENCE**
not **WAR**



Award Ceremonies



Public event “on art and science”



Master at CERN



“Numerous activities ... what I liked the most is they were concerning not Science alone, but Philosophy, joining together many things usually related in different ways ... They were able to build a one.”



“Every discipline is not standing alone but we can find connections. This is important also at CERN: people dealing substantially with different scopes working together to a common goal which is to progress with new discoveries which can help all society”

Il progetto



Il progetto Le opere degli studenti napoletani per "Art & Science across Italy" che vede coinvolti i licei di Napoli, Firenze, Milano, Padova e Venezia

Dai colori del Calamandrei alla fantasia del Mercalli sfida tra studenti a colpi di arte, scienza e creatività

Benedetta Palmieri

La parola chiave potrebbe essere creatività. L'associazione all'arte è immediata, ma non è da considerarsi meno incisiva la portata creativa della scienza. E così, arte e scienza si trovano unite, grazie pure all'istituzione del movimento Stream (Science, Technology, Engineer, Art e Mathematic) - che identifica nell'arte il mezzo di comunicazione ideale per far parlare la ricerca alla scuola, e soprattutto ha dato il via al progetto europeo "Art & Science across Italy", che vede coinvolti gli studenti di alcuni licei scientifici, classici e artistici di Napoli, Firenze, Milano, Padova e Venezia. L'organizzazione dell'operazione - che è promossa nell'ambito del network "Creations (Horizon 2020)" e si avvia alla conclusione della sua prima edizione - si deve però alla collaborazione tra l'Istituto nazionale di fisica nucleare, il Cern di Ginevra e l'esperimento Cms del Cern; e, qui a Napoli, della Federico II e dell'Archeologico. A illustrare i dettagli, il responsabile Pierluigi Paolucci: «Il progetto prevede che i ragazzi seguano un percorso formativo, per introdurre ai concetti di base della fisica delle particelle elementari e illustrare le attività di ricerca svolte dalle strutture coinvolte. Al termine, sono invitati a realizzare composizioni ispirate agli argomenti trattati. La fase formativa comprende seminari e visite guidate in musei scientifici e laboratori, così come

colori del Bosone di Higgs. Percorsi tra arte e scienza" - che apre al pubblico questo giovedì alle 17 al museo Archeologico (dove resterà sino al 23) e raccoglie i cinquantacinque lavori migliori a livello nazionale, tra i circa quattrocento realizzati: gli studenti che hanno partecipato sono circa tremila (divisi in gruppi di tre), le classi coinvolte un centinaio - numeri importanti per comprendere la portata dell'esperimento. «Ma la cosa da sottolineare ancora» aggiunge Paolucci «è che i ventiquattro migliori studenti riceveranno altrettante borse di studio, e a settembre seguiranno un corso di formazione presso i laboratori del Cern di Ginevra. Il corso durerà una settimana e sarà per loro un'occasione unica. I vincitori saranno decretati da una giuria internazionale, composta da Fernando Ferroni, Paolo Giulierini, lo stesso Paolucci, Andrea Bandelli, Sascha Schumeling, Angelos Alexopoulos e Francesca Scianitti. Dunque, l'aspetto scientifico è basilare, ma i ragazzi come lo hanno poi reinterpretato artisticamente? Quelli del napoletano Mercalli hanno realizzato ad esempio un "Acceleratore di colore": un acceleratore di palloncini che, riempiti di pittura e scontrandosi come particelle, producono altro colore invece di nuove particelle, e dunque un'opera pittorica; mentre quelli del Calamandrei hanno reinterpretato il vuoto e la presenza di materia generata dal Bosone di Higgs, dando vita a una sintesi tra

More than 100 citations on the press and the national RAI channels

Website:

65.000 clicks/3.000 readers

Facebook:

2.500 followers

7.000 clicks for the national exhibition

Instagram: 250 followers

Youtube channel

<https://web.infn.it/artandscience>

<https://www.facebook.com/artandscienceacrossitaly/>

<https://www.instagram.com/artandscienceacrossitaly/>

Press Review

Second edition: 2019-2020

PARTNER:

Sapienza Università di Roma
Università degli Studi della Basilicata
Università degli Studi di Napoli Federico II
Università degli Studi di Napoli Parthenope
Università degli Studi di Padova
Università degli Studi di Genova
Università di Pisa
Università degli Studi di Torino
Università degli Studi di Napoli Federico II
Università degli Studi di Milano
Università degli Studi di Milano-Bicocca
Università degli Studi di Firenze
Accademia delle Arti del Disegno di Firenze
Accademia delle belle arti di Roma
Accademia delle belle arti di Napoli
Istituto Italiano di Tecnologia (IIT)
CNR-SPIN
CNR-IMAA
CNR-INO di Pisa
EU Insight project
AMVA4NewPhysics

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Potenza

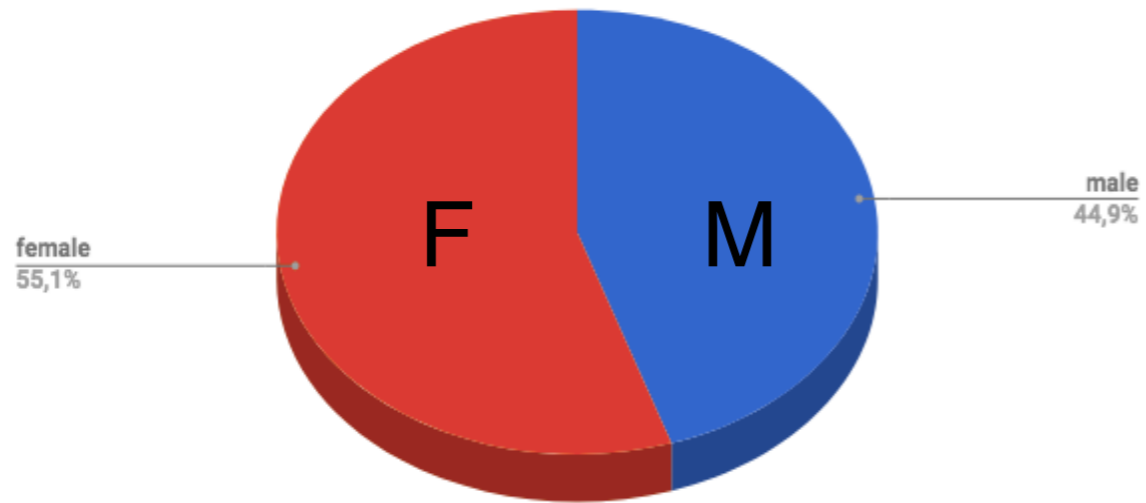
Matera

Roma

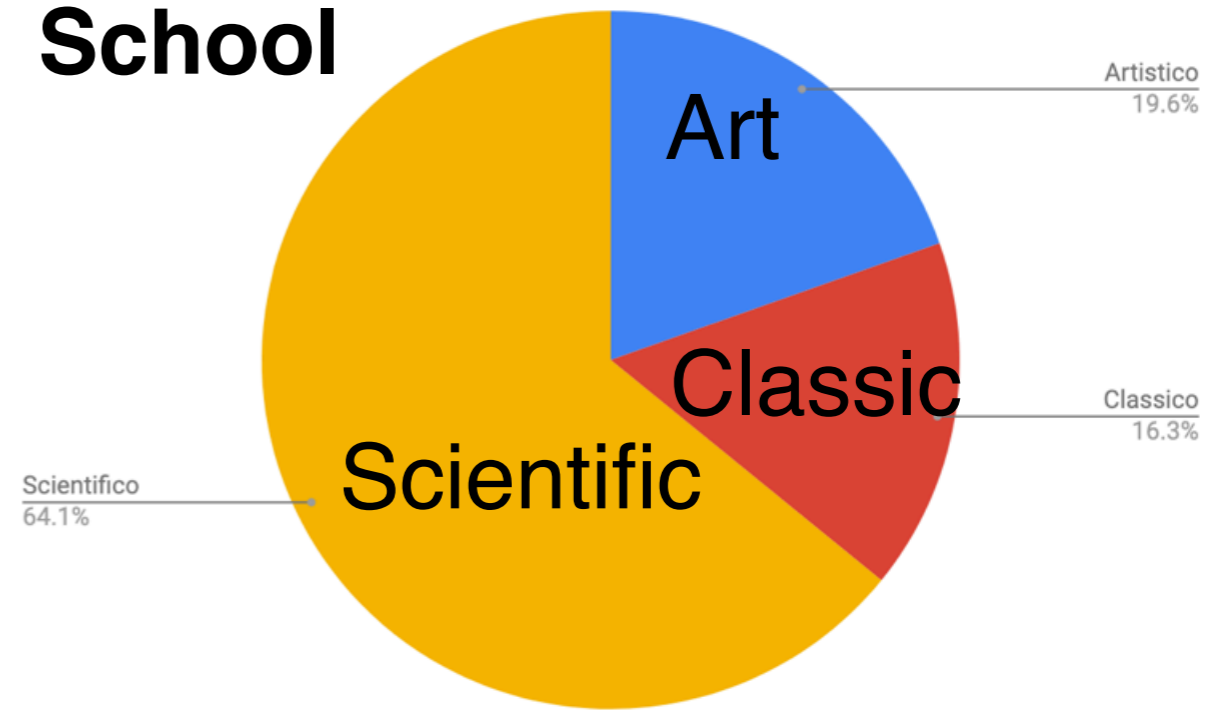
Torino

- 11 towns
- 90 high schools
- 3646 students
- 98 researchers involved
- 21 institutional partners
- 30 patronages

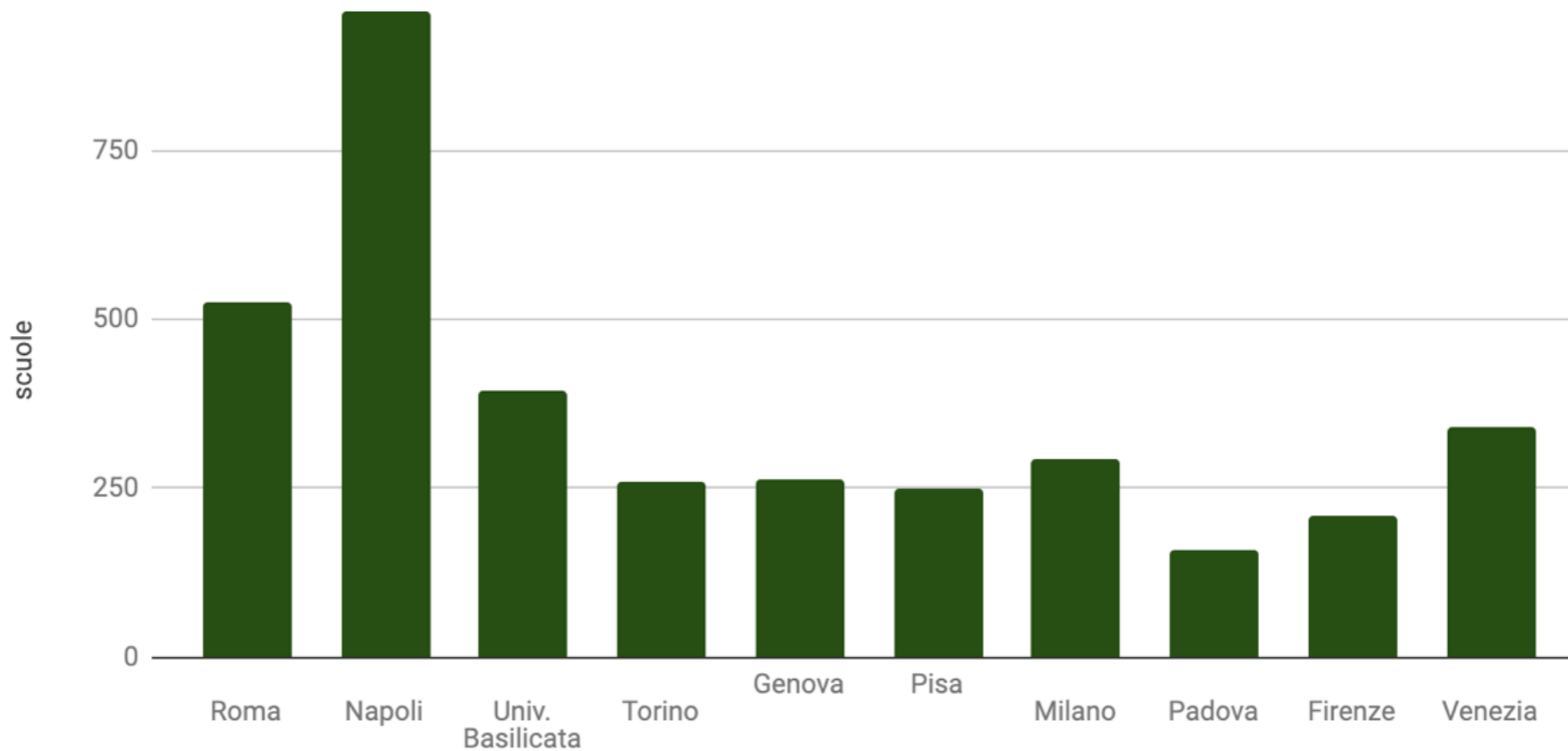
Gender



School

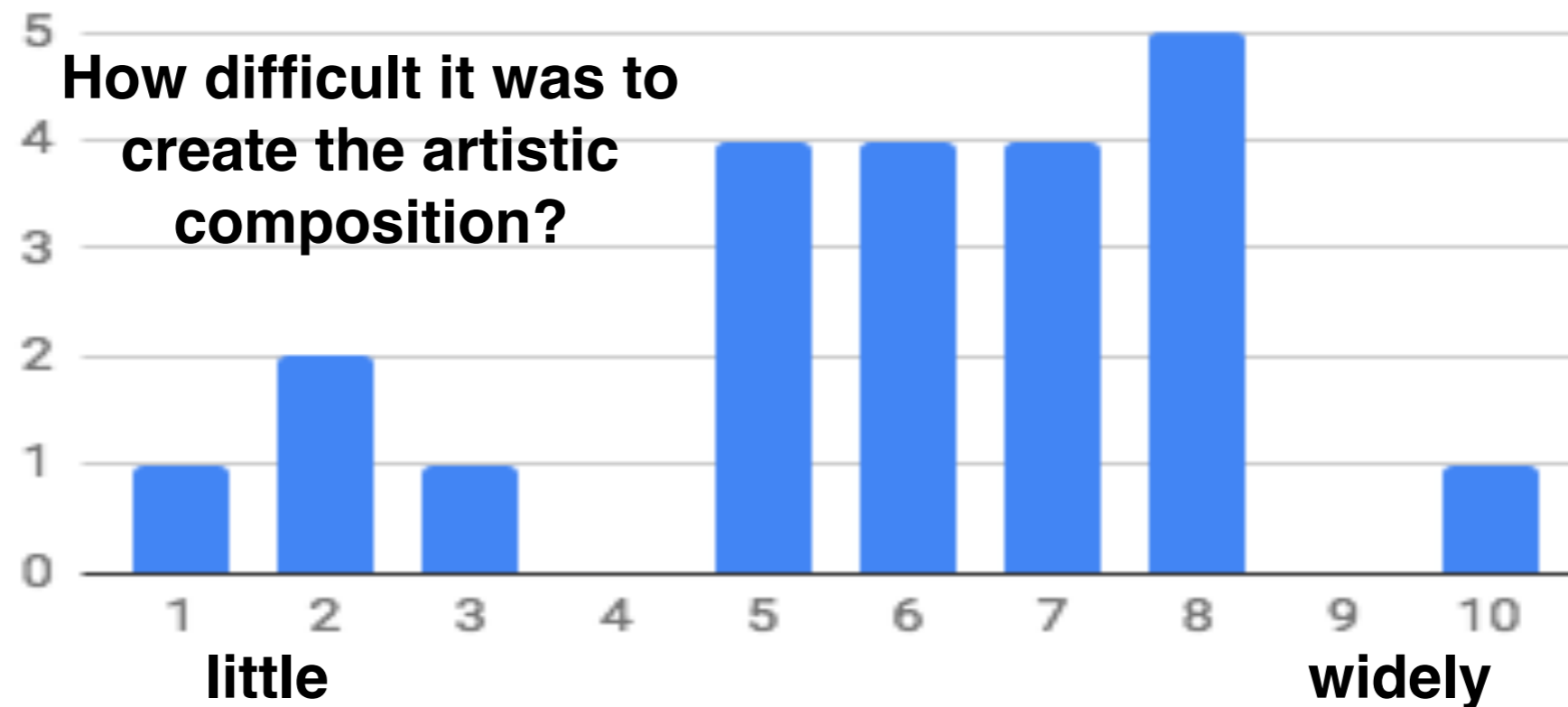
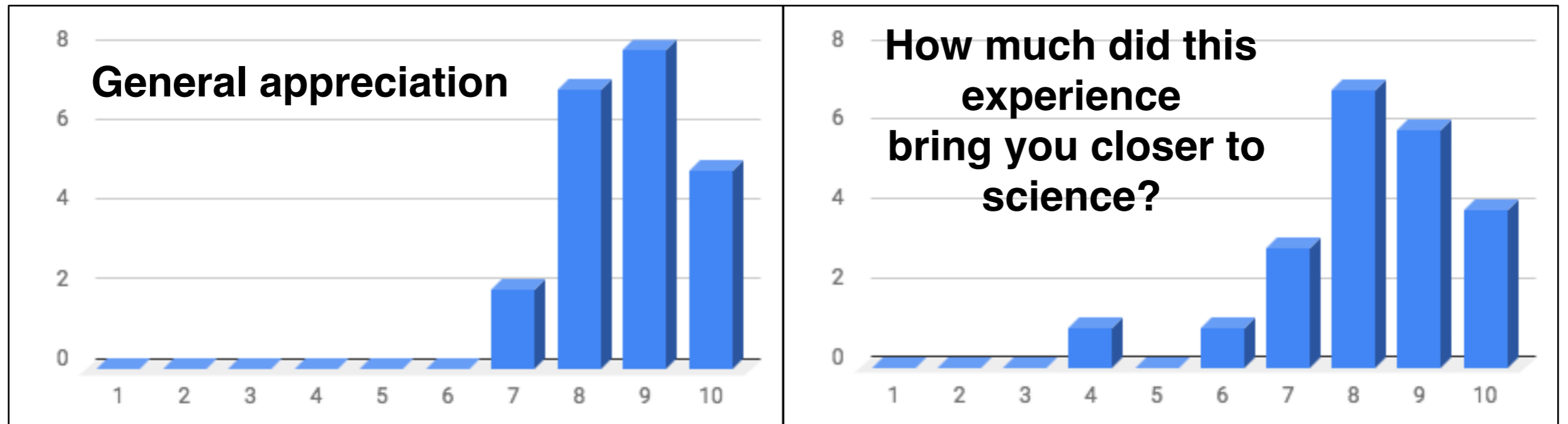


Cities



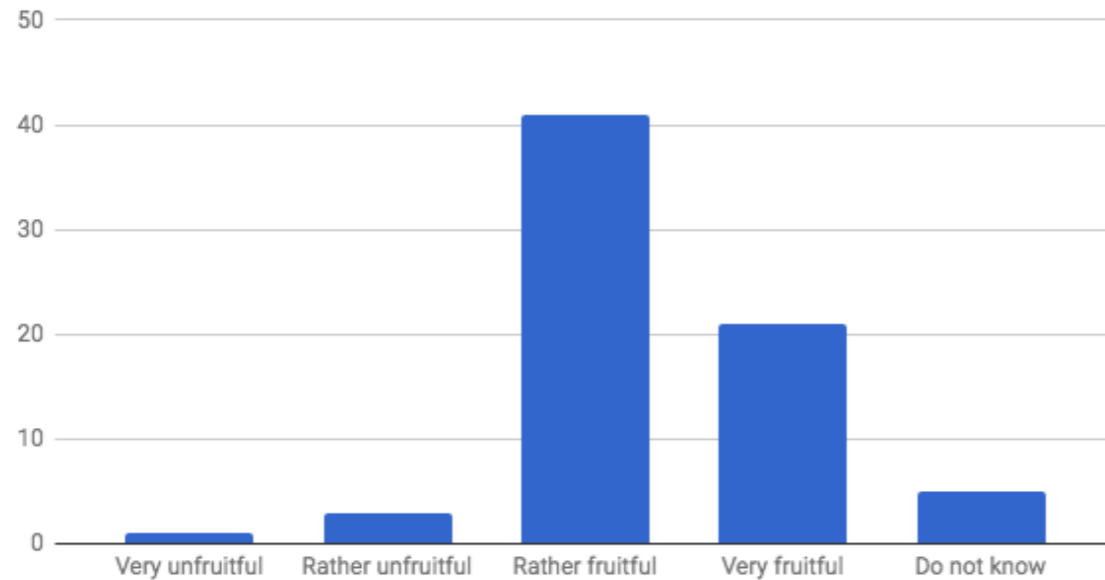
Evaluation - Students

Survey over a sample of **700** students



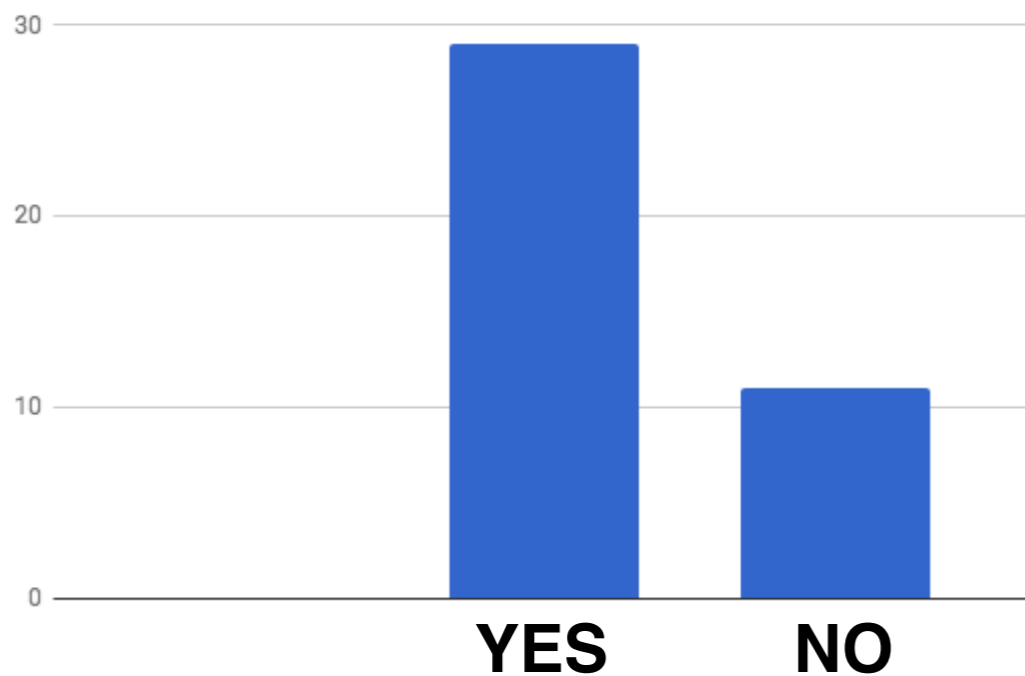
Evaluation - Teachers

On the whole, how fruitful or unfruitful do you think that the time you have spent on the "Art & Science across Italy" activity has been?

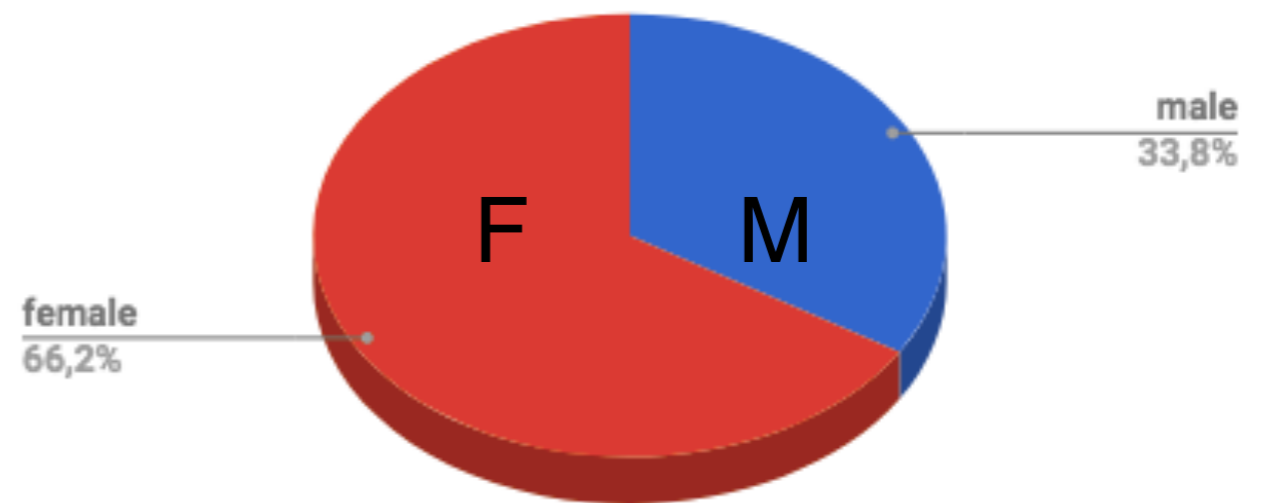


Survey made on a sample of **70 teachers**

Would you like to propose this project to your future classrooms ?

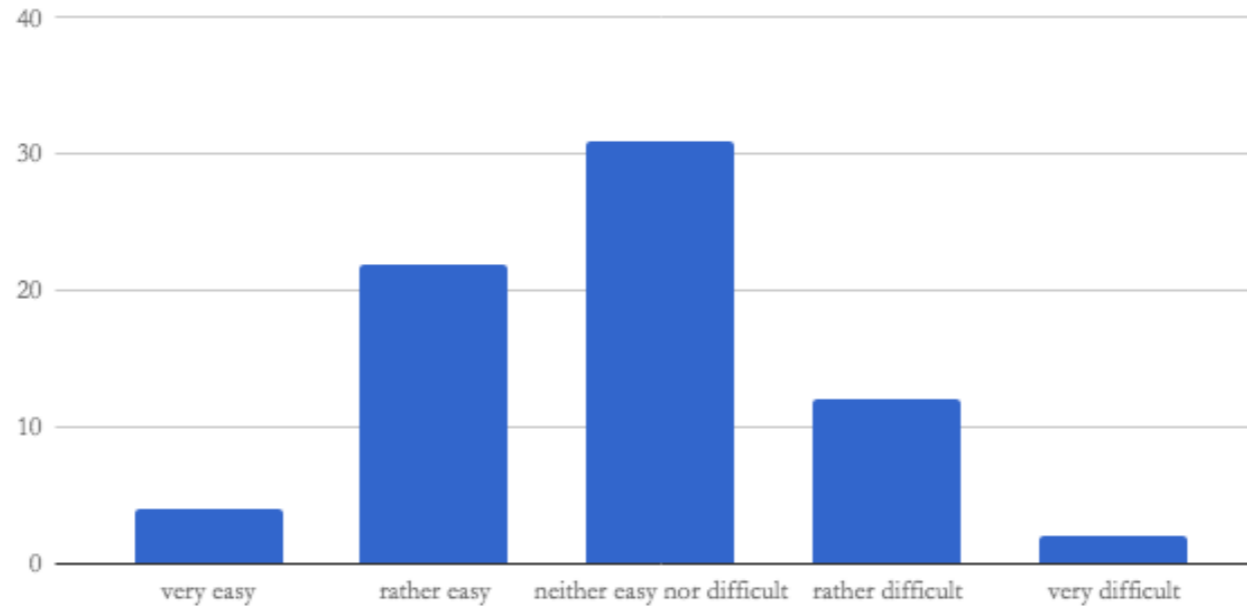


Gender

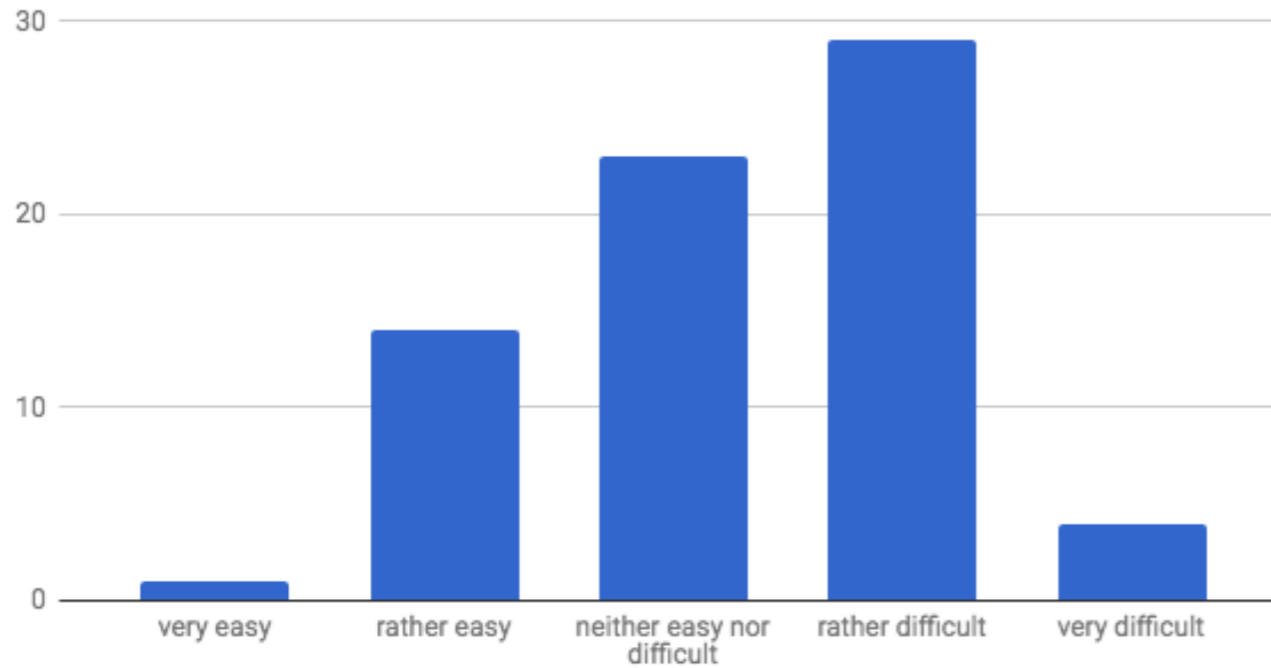


Evaluation - Teachers

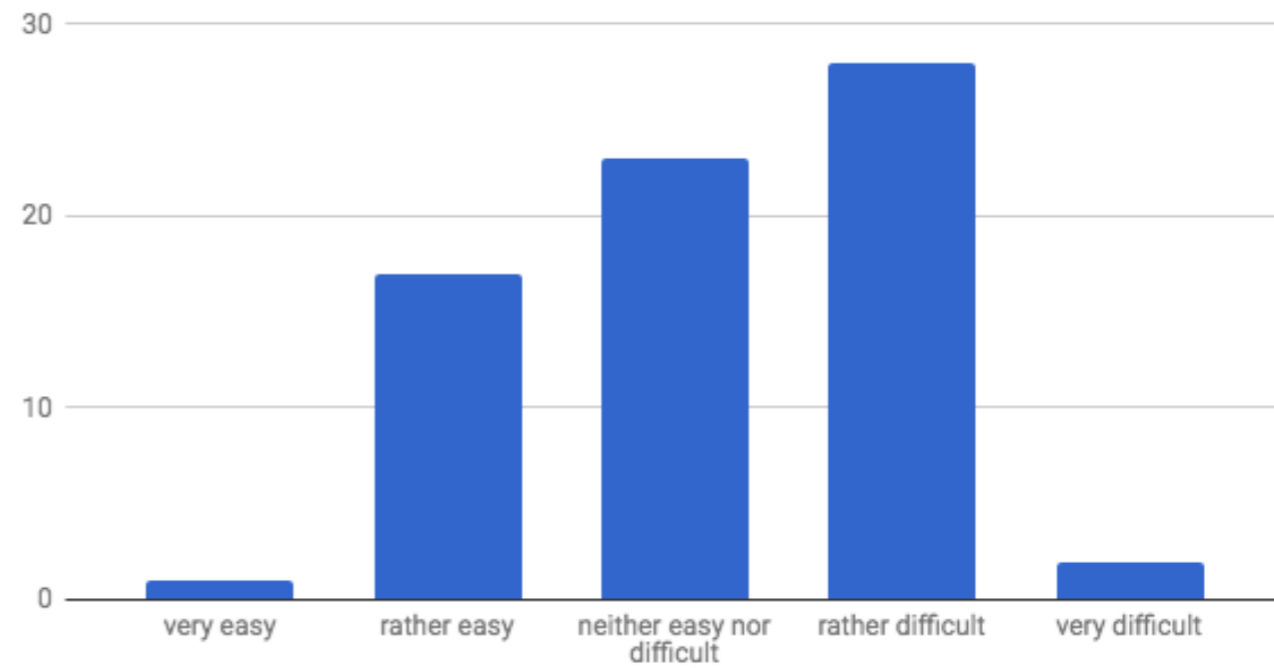
How easy or difficult is it to fit the approaches of the "Art & Science across Italy" activity you are working on into the curriculum you are expected to cover?



How easy or difficult is it to fit the preparation work of "Art & Science across Italy" activity into your working timetable at school (outside classes)?



How easy or difficult is it to fit the approaches of "Art & Science across Italy" activity you are planning into the timetable your classes have?



Thank you for your attention !

