

“Warning!”

From physics to an interdisciplinary project to reflect on the challenges of modern societies

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PALAZZO BLU
ARTE E CULTURA

FONDAZIONE PISA

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“Warning”



The project

“Warning!” is a knowledge dissemination project which makes an effort to provide interdisciplinary educational paths, addressing the general public at large, but with a specific focus on young people

The structure

Each cycle was articulated in four or five events (seminars) on different subjects, from November to April

Main, common features:

- education on complexity, which requires:
- Interdisciplinary approach & cross knowledge



“Warning”



The Partners

- **INFN** is the Italian research agency dedicated to the study of the fundamental constituents of matter and the laws that govern them. INFN mission includes **the transfer of acquired knowledge to society**, intended as both technological transfer and **diffusion of the scientific culture to society, promoting dialogue with citizens**.
- **Fondazione Pisa** has its origins from a banking foundation, and it's active on the territory in the fields of **cultural heritage, scientific research and philanthropy**



- **Palazzo Blu** is the center of temporary exhibitions and cultural activities managed by Fondazione Pisa
<https://palazzoblu.it/>

“Warning”

The idea and the context

- The project “Warning” started in 2020, triggered by the COVID-19 Pandemics
→ to draw attention of new generations to natural events potentially threatening the whole mankind
- The title of the first edition was:
“Warning! The big planetary threats: knowing them to defend ourselves”
- The project aimed at fostering a culture of «Being ready» thanks to the adoption of responsible and scientifically sound behaviors, addressing the limits of a culture dominated by the «here and now»
- Not only pandemics! but other major planetary dangers and environmental fragilities: Earthquakes, volcanic eruptions, climatic changes, hurricanes, and even asteroids can jeopardize our lives!

All these natural events discussed in five seminars:




Alarms from the Atmosphere




Major biological hazards



The Restless Earth



Wonders and hidden dangers from Space



Climate and Oceans: Sinister Changes



“Warning”

The Organization



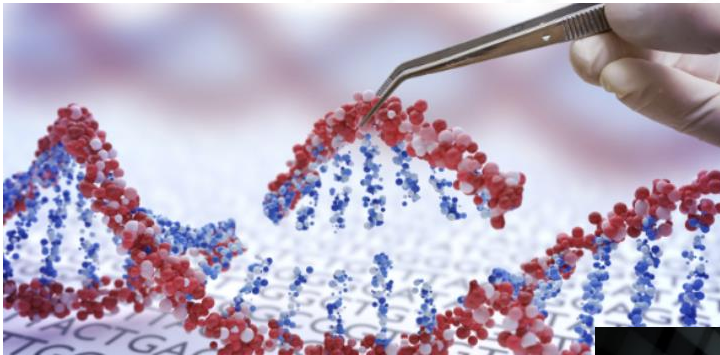
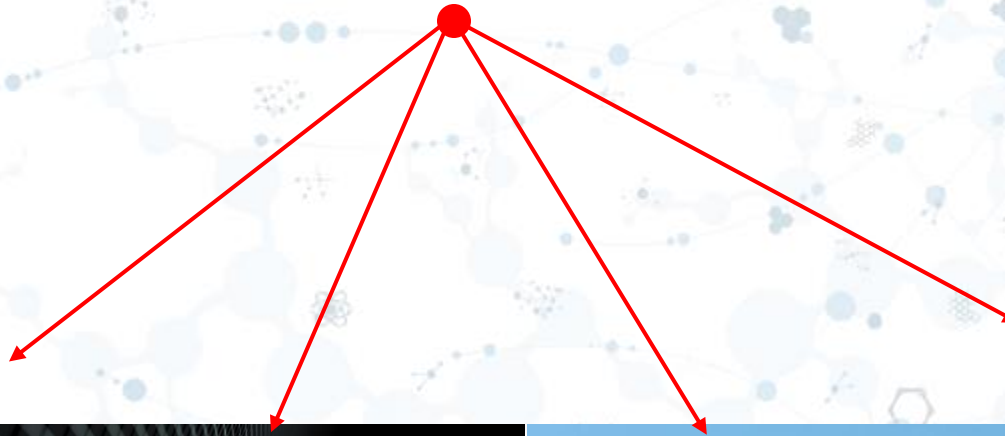
- Due to the persistence of the pandemic, the first edition took place virtually
→ more than 3000 students from 25 High Schools in Tuscany participated
- In subsequent editions, students were able to attend in person to the debates (in the 120-seat auditorium of Palazzo Blu) and online (to ensure the possibility of wider attendance)
→ about 2000 online contacts per seminar, quite stable over the years.
- Explanatory digital material was distributed a few weeks before the seminars
→ students were first asked to work on the proposed topics with their teachers and prepare a list of questions in advance
- Up to a few hundred questions were collected for each seminar
→ an accurate work of classification and selection was necessary
- For each «seminar» the speakers were two scientists/researchers with complementary and interdisciplinary expertise
- Each «seminar», being the «end-point» of a long path, lasted 2-3 hours
→ A significant part of the seminars was devoted to answering student questions

“Warning”

Four new cycles of Warning seminars have been organized in the following years:

The topics

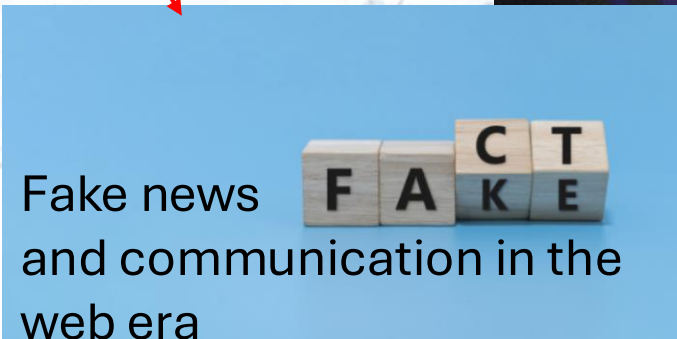
- Warning21-22: *Potential threats created by man*



Genetic
manipulations



Automation and robots



Fake news
and communication in the
web era

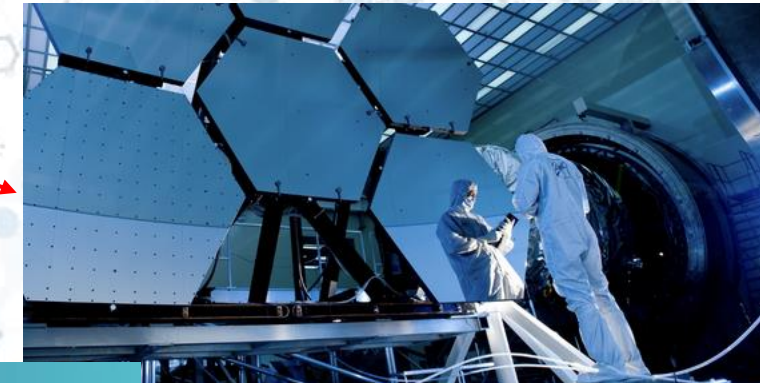
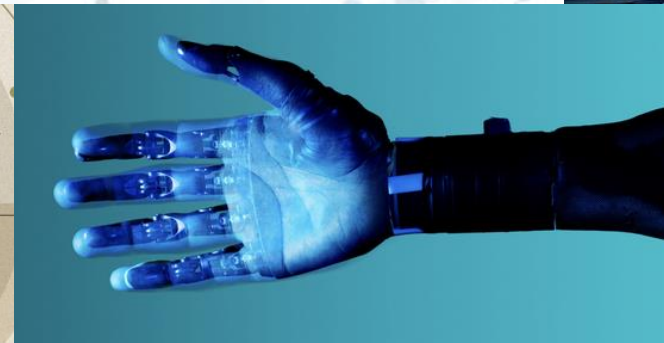


Balance between
mankind and the Earth's
resources

Four new cycles of Warning seminars have been organized in the following years:

The topics

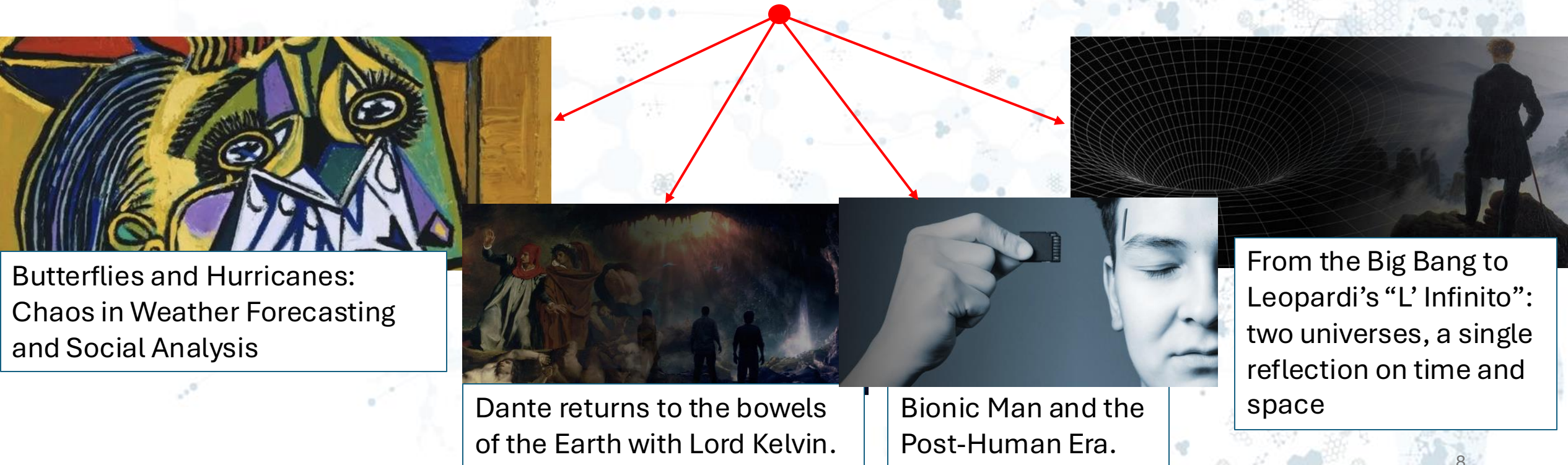
- Warning22-23: *Science is.... Ethics... Art... Innovation... Work*



Four new cycles of Warning seminars have been organized in the following years:

The topics

- Warning23-24: *Complexity of Nature and Human Society*



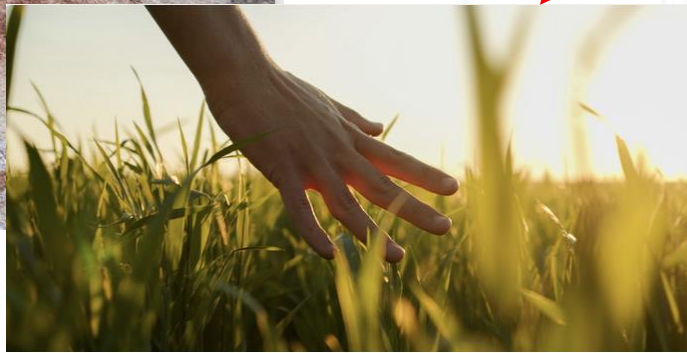
Four new cycles of Warning seminars have been organized in the following years:

The topics

- Warning24-25: *Everyone's world, a world for everyone*



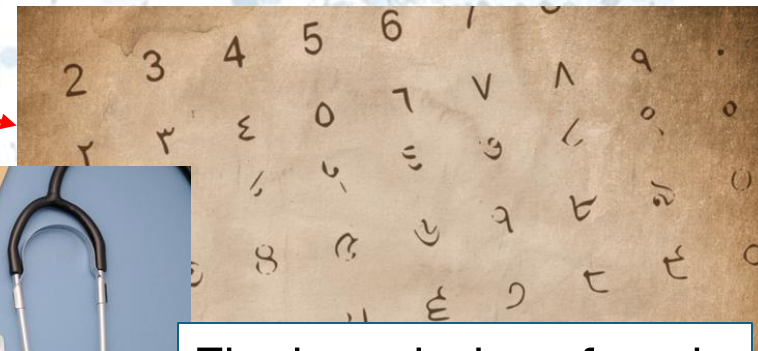
The Art of
many peoples



Living the Planet: Humanity's
Relationship with Nature



The many medical
sciences



The knowledge of each
and the science of all

Why Physics?

Strategies and methods peculiar to Physics were the “fil rouge” accompanying the participants in this journey across many fields of science

- Interdisciplinarity promotes **epistemological approaches**
→ “what can be known about it?”
- and methodological insights
→ “how can it be found out?”

It is essential to review and compare “phenomena” using a common set of metrics and to assess how they and the correlated risks are evolving
(**not very different from what we do in our HEP experiments!**)

The **real world is made up of complex things** and its complexity is manifest in the incapacity of any formalism to capture all of its properties
→ **scientific method as primary tool to deal with complexity**



“Warning”

Talking about “scientific method”....



Birth house of Galileo Galilei



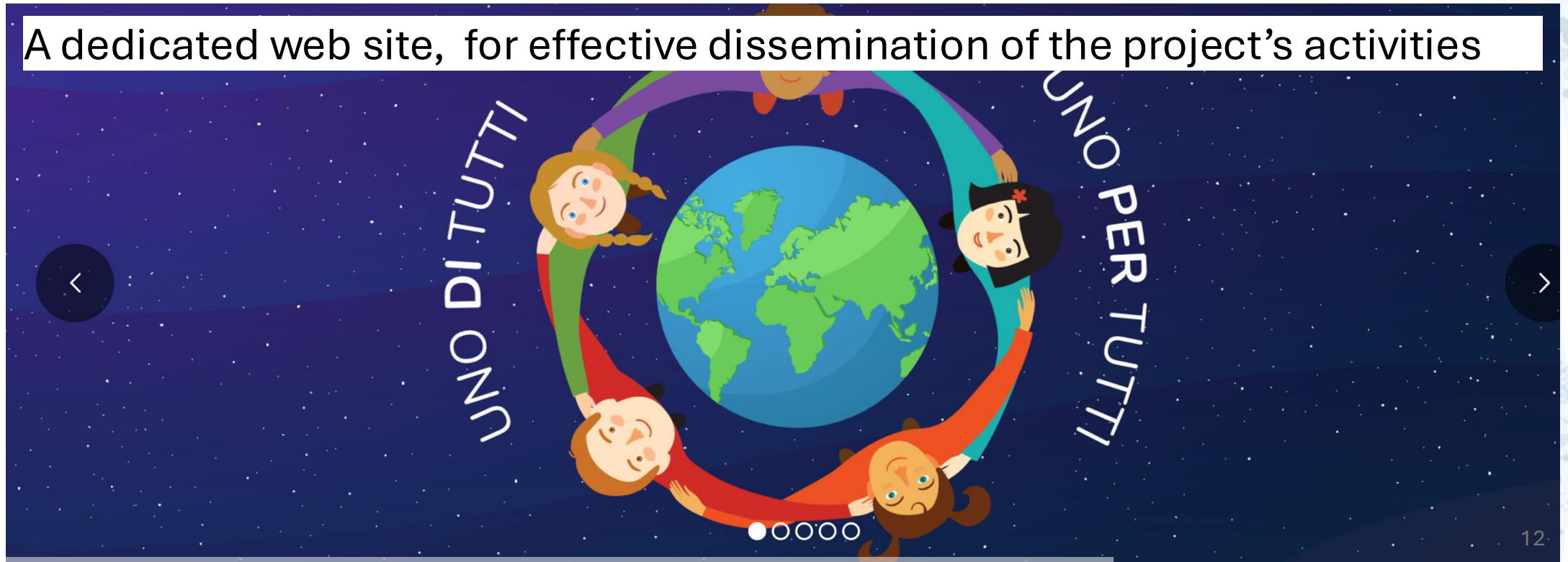
..... In the cradle of scientific method!!!!

The Website: <https://warning.palazzoblu.it/>



HOME PROGETTO E SCUOLE INCONTRI DIRETTA VIDEO EDIZIONI

A dedicated web site, for effective dissemination of the project's activities



The Website: <https://warning.palazzoblu.it/>



The screenshot shows the website's header with logos for Palazzo Blu, INFN, and Fondazione Pisa, along with social media icons. The main navigation bar includes 'HOME', 'PROGETTO E SCUOLE', 'INCONTRI', 'DIRETTA VIDEO', and 'EDIZIONI'. The 'INCONTRI' menu is open, displaying four topics: 'L'ARTE DEI TANTI POPOLI', 'VIVERE IL PIANETA: IL RAPPORTO DELL'UMANITÀ CON LA NATURA', 'LE TANTE MEDICINE', and 'IL SAPERE DI CIASCUNO E LA SCIENZA DI TUTTI'. A red arrow points from a text box to the 'VIVERE IL PIANETA' item. The background features a large illustration of four children holding hands around a globe, with the text 'UNO DI TUTTI' and 'UNO PER TUTTI' curved around them.

WARNING Il mondo di tutti, un mondo per tutti

HOME PROGETTO E SCUOLE INCONTRI DIRETTA VIDEO EDIZIONI

L'ARTE DEI TANTI POPOLI
VIVERE IL PIANETA: IL RAPPORTO DELL'UMANITÀ CON LA NATURA
LE TANTE MEDICINE
IL SAPERE DI CIASCUNO E LA SCIENZA DI TUTTI

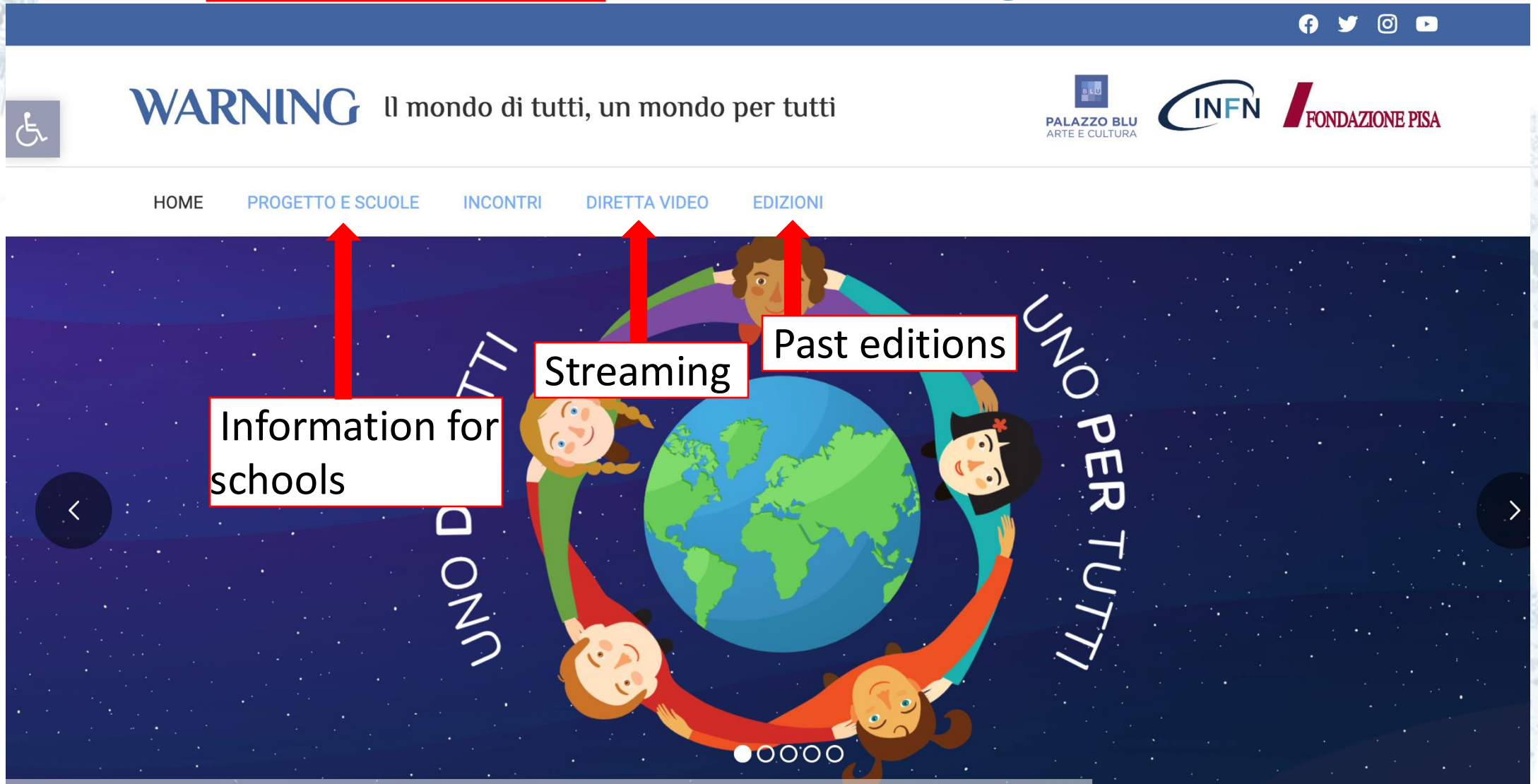
Individual sections for the four topics

UNO DI TUTTI UNO PER TUTTI

“Warning”



The Website: <https://warning.palazzoblu.it/>



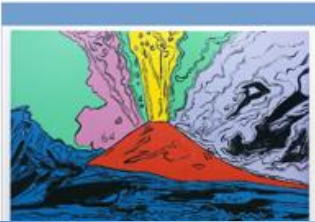


The Streaming

- Each event was streamed online on «Warning» web site, and through Palazzo Blu *YouTube* channel and *FaceBook* page
- The seminar's recording was made available from the «Warning» web site after the event.
- On average each event (cycles 2 to 5) was followed online by a few hundreds registered participants and obtained offline about 2k visualizations

“Warning”

Andy Warhol e il “Vesuvio”



“Vesuvius” è tra le opere più iconiche realizzate negli anni Ottanta dall'artista americano **Andy Warhol** (Pittsburg 1928 – New York 1987) maestro della

Pop Art.

Il **Vesuvio**, reso con colori vivaci e traboccanti di energia, è colto durante una eruzione, “episodio nefasto ma anche indizio di rinnovamento e

Warhol).

una serie
1985.

Pacific Trash Vortex

Approfondimento di un argomento contenuto nell'incontro
«clima e oceani cambiamenti minacciosi»

APPRENDERE CON WARNING 2 E RESTITUIRE CON L'ENIGMISTICA

Manipolazioni genetiche

Livio Ulisse Nini 4F



SCIENZA
e/è
ATTUALITÀ
PROGETTO WARNING



Uomo e Natura oggi:
dominio o armonia?



WARNING 5
LA SCIENZA DI TUTTI



SCIENZA E/E' DONNE

Per secoli le sole donne che potevano avere accesso all'istruzione erano quelle rinchiusi nei conventi. Forse per questo le donne che sono emerse nel passato erano soprattutto umaniste, pittrici, scrittrici, poetesse, ma molto più raramente scienziate. Infatti le scienze come matematica e fisica richiedono una preparazione di base, senza la quale è quasi impossibile progredire: alla quale le donne non potevano accedere. Malgrado le difficoltà incontrate, non sono poche le scienziate che hanno portato importanti contributi allo sviluppo della scienza, facendosi strada tra pregiudizi e sfiducia nei loro confronti: ricordiamo **Marie Skłodowska Curie, Margherita Hack, Rita Levi Montalcini** e tante altre. Al giorno d'oggi, però, meno del 30% dei ricercatori nel mondo sono donne: questo numero dovrebbe allarmarci, perché la più grande barriera che impedisce alle donne di avere una carriera di successo nella scienza (e non solo) è il sessismo. Purtroppo, questo pregiudizio di genere si riflette anche sugli stipendi, infatti in media, gli scienziati donna guadagnano il 17% in meno rispetto ai loro colleghi maschi nell'UE. Lo squilibrio di genere, però, non scompare soltanto con più ragazze che scelgono materie legate alla scienza e tecnologia e più donne che scelgono programmi di dottorato STEM. È necessaria una maggiore consapevolezza del pregiudizio di genere nella scienza all'interno del mondo accademico e della società: cercando di garantire pari opportunità a donne e uomini.



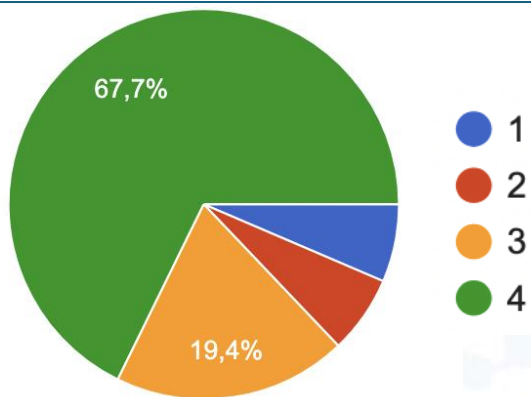
Many of the participating student groups produced a final product in which they presented a personal elaboration on the various themes proposed during the project (a short video, a presentation, an artistic work.)

⇒ Some very interesting insights!

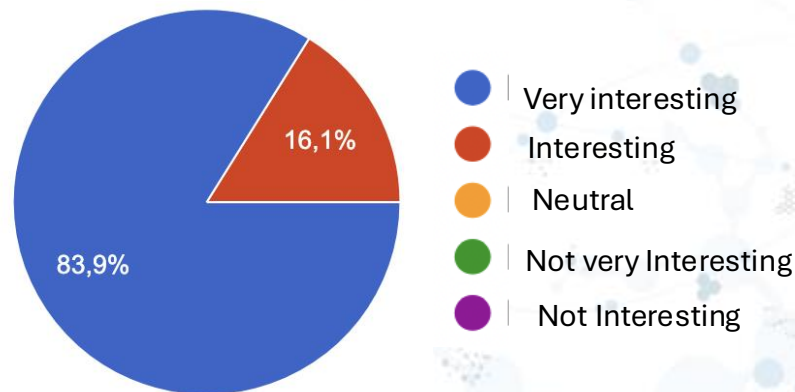
End-of-project survey

At the end of each cycle* a questionnaire was proposed to the teachers that coordinate the students' participation, to assess if the initiative met a positive response

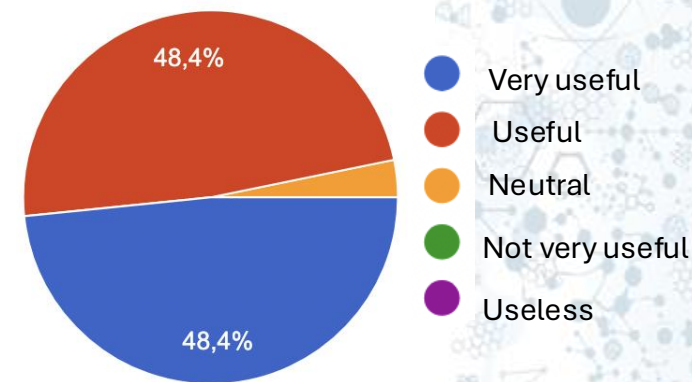
Attended how many seminars?



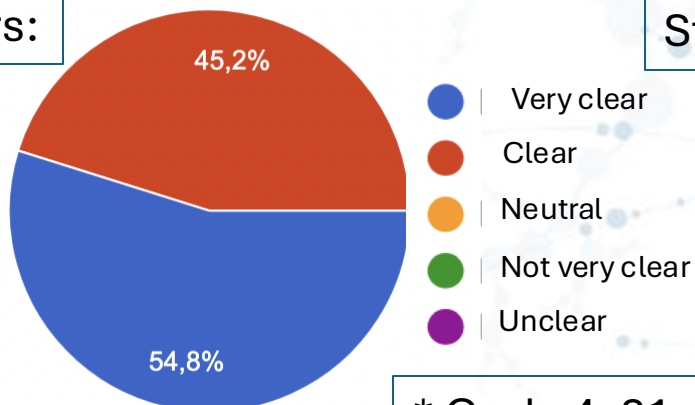
Topics of 4 seminars:



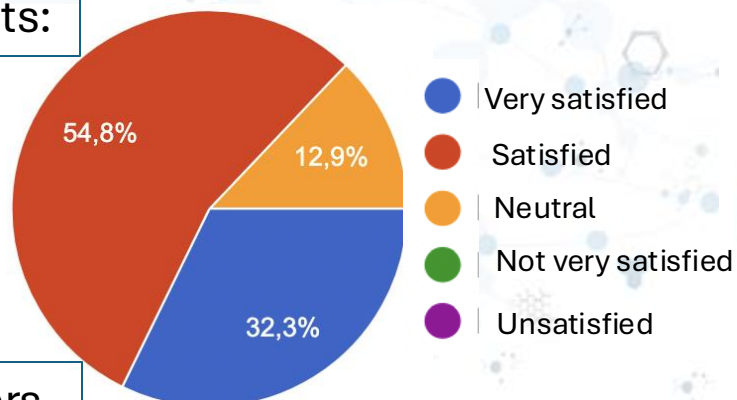
Integration material:



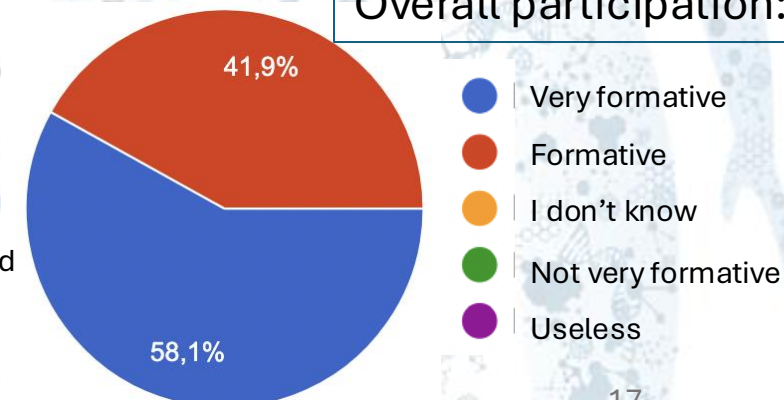
Speakers:



Students:



Overall participation:



* Cycle 4, 31 answers



Conclusions

- Scientific method and multidisciplinary approach represent the best tools we have to face complex problems
- “Warning” aimed to raise young people’s awareness on the challenges of modern societies, encouraging a scientific discussion about them
- The positive response from participants exceeded our expectations:
 - ⇒ “Warning” started as a “one-cycle project”, product of the pandemic
 - ⇒ it has become a regular event for high schools in the Pisa area
 - ⇒ we are preparing for the 6th cycle
- “Warning” is a useful educational support for students and teachers, giving them the opportunity to integrate and deepen topics covered in school.



Acknowledgements

- Cosimo Bracci Torsi Palazzo Blu (Fondazione Pisa)
- Maria Chiara Favilla Palazzo Blu (Fondazione Pisa) general coordination
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