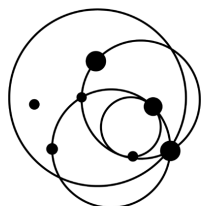


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FEDORA

Deliverable 2.3

Multimedia report of Intensive workshop I on acceleration, complexity and interdisciplinarity

Due date: Aug 31st 2021

Actual submission date: Aug 31st 2021

Project start date: Sept 1st 2020

Workpackage concerned: WP2

Concerned workpackage leader: Formicablu

Task leader: Formicablu

Dissemination level:

- PU: Public



FEDORA - Future-oriented Science EDUcation to enhance Responsibility and engagement in the society of Acceleration and uncertainty
This project received funding from the European Union's Horizon 2020 Research and Innovation program under Grant Agreement n° 872841
www.fedora-project.eu

Quality assurance

To ensure the quality and correctness of this deliverable, we implied an internal review and validation process. The deliverable was drafted by the work package leader (formicablu). All partners contributed to and reviewed the overall draft. Finally, the semi-final version was submitted to the project coordinator for a final review and validation.

Version	Date	Status	Author	
V0	12/07/2021	Draft	Formicablu Elisabetta Tola, F. Conti	Creation of the document
V1	28/08/2021	Internal revisions	Formicablu E. Tola, F. Conti	Integration of the document
V2	30/08/2021	Submitted to Coordinator		
V3	31/08/2021	Submitted on the Portal		

Disclaimer

This deliverable contains original, unpublished work except where clearly indicated otherwise. It builds upon the experience of the team and related work published on this topic. Acknowledgement of previously published material and others' work has been made through appropriate citation, quotation, or both.

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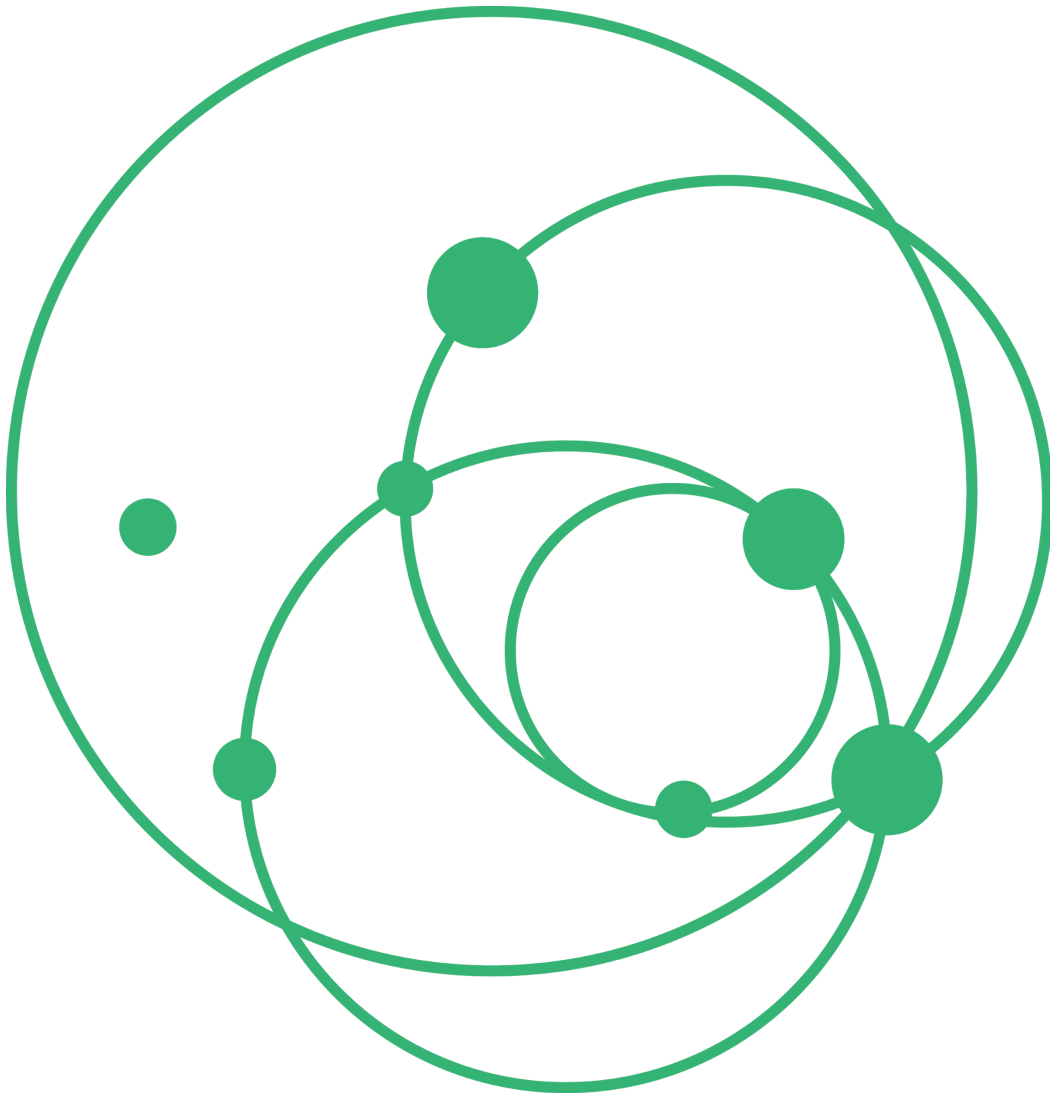


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1. Introduction

FEDORA's challenges are those of investigating, through research and co-creation, three blind spots in formal and informal science education. Firstly, science education is currently organised in vertical and hyper specialised disciplines that are inadequate to give young people the epistemic arguments needed to deal with the complexity of contemporary societal challenges. A second mismatch or blind spot has to do with formalised and exclusive school languages. There is a recognised need for new languages and formats to enhance imagination and the capacity to talk about those contemporary challenges and find ways to describe them, define them, and face them with creative solutions. Finally, a third challenge is envisaged in the distance between the atemporal or past-oriented teaching tradition and the need to support the present and next generations with the ability to construct a vision of their future that will lead to being active citizens in the present.

FEDORA's WP2 works on blind spot 2, exploring and co-creating ideas and strategies to adopt new languages and formats in science education. This work is not solely inspired by the realm of science but by breeding scientific knowledge with literary, artistic, narrative, visual approaches.

The most proficient way to discuss, define and collect insights, inspirations and ideas on how to foster these new creative approaches in science education involves creators, artists, experts from different disciplines and fields in a co-creation session inspired by the design-derived methodologies. Due to the COVID19 situation and the difficulties in travelling, the 1 creative workshop had to be organised at a local level, involving only people from one place, Bologna. However, a nice variety of professionals participated in the 3-hrs workshop, and the discussions and co-creation sessions held many valuable insights. The contents and ideas yielded by the workshop are collected and discussed in D2.2 - First draft of recommendations on "new languages" for the design of materials. This D2.3 describes the workshop's process, steps, and organisation in text, gif animation, and video clips shared through the project website and on social media.

2. Specific objectives and tasks

FEDORA WP2 addresses the following objectives:

- analyse new languages and forms of knowledge transmission that will be useful to enhance imagination and the capacity to talk about the contemporary challenges, to equip teachers, teacher trainers and their students with linguistic, argumentative and imaginative thinking skills needed to face current challenges;
- to experiment with innovative communication approaches to futurise science education, giving the youth a chance to perceive, imagine and ultimately envisage and thus shape the future.

More specifically, these objectives can be better defined as:

- detect, sample and analyse examples of contamination and cross the intersection of narratives about science and on science that use different epistemic approaches as well as a variety of languages, storytelling formats, registers and tools from the arts, music, photography, cinema and TV shows, graphic and written novels, fantasy and science fiction, design, theatre and so on;
- promote a common understanding of these alternatives, innovative, artistic and non-traditional languages and narratives within the consortium;
- foster and organise workshops to promote a lively and productive interchange among a range of professionals who inhabit these artistic and communicative territories;
- draft a series of raw prototypes to be used in innovative informal and formal science communication contests, such as the educational ones

One of the key tasks of WP2 is the organisation of two creative workshops involving an array of very diverse experts, creators, professionals and trainers and students to co-create leads for the development of recommendations for education professionals and policymakers. Furthermore, WP2 will lead to the prototyping of ideas to be exploited in the educational environment to foster inter and transdisciplinarity. These ideas should help young people to develop argumentative and epistemic arguments to deal with the complexity and acceleration characterising the present times. They will also empower them to develop strategies and take actions on their future, either as individuals and as members of a community.

3. Agenda of the workshop

The design of the I FEDORA creative workshop had to be adjusted due to the Covid19 pandemic emergency and the consequent health measures applied by every country. The workshop had been originally designed as a 2-day event to be held in Bologna with the participation of experts, creative professionals and mentors from at least all the countries represented by the consortium.

Under the new circumstances, and due to the realisation that a fruitful and open co-creation session, particularly when trying to connect a very diverse group of people and expertise, is better held in person than online, we decided to change the approach slightly.

This decision was also due to the realisation that creative languages need to be rooted in local knowledge, cultural tradition and also native languages. While visual languages are universal, the use of imagination in creating texts and oral communication is also highly correlated with local/national languages.

Considering both limitations to travelling due to the COVID19 emergency and the need to foster a relaxed and creative environment to come up with new ideas, we moved from the original plan to organising a local creative workshop in Bologna. The workshop was also the occasion to test a methodology and collect preliminary indications and inspirations. The same methodology can be replicated in other local contexts to gather ideas from different perspectives. An international workshop will also be organised as soon as possible in a safe mode involving international creators who feel confident enough to work in the English language and focus on the visual and graphic languages and formats.

The workshop in Bologna was organised around a **3-hr schedule** as follows:

4:30pm arrival, check-in, signing all modules for COVID19 rules, permissions to record and publish, data policy

4:45pm greetings; introducing the location and its history and meaning; introducing FEDORA to participants through an interview with the project coordinator Olivia Levrini by Elisabetta Tola, the WP2 lead and science journalist

4:55pm introduction to the workshop, the challenges, the issues to be discussed.

Francesca Conti, from WP2, brings the participants into the discourse creating the framework for the work ahead

5:00pm why us? Elisabetta Tola describes the composition of the group explaining why these people have been invited as participants and which competences and skills are assembled

Ice breaker: let's take the polyjuice potion directly from Harry Potter's stories, and let's try and imagine who we'd want to be: one post-it per person telling us what their specific skills are and who they'd rather be if they could be someone else



5:15pm the participants are divided into two groups. Each participant gets assigned a little gadget with either a sheep or a cow: sheep meet in one room, cows in another. They will have a total of 35 minutes to work on barriers and problems envisaged during educational work when trying to promote, use and experience with new languages and creative approaches. Groups work with post-its on a big canvas. They discuss freely and follow multiple leads to highlight as many barriers as possible.

5:50pm break with refreshments

6:00pm people reconvene in the big room. The ideation phase will begin, coming up with many diverse ideas for solutions for potential leads and paths that can help overcome the barriers and find ways to bring imagination and creativity into science education. The only limitation: that the idea needs to be sustainable in an educational environment. Participants are assigned a small wood number. They

work in pairs, finding their match in the person with the same small wood number. Participants scatter in the rooms and outside, in the park, with a load of post-its and white drawing papers.

6:45pm we move to the terrace outside and dive into the solutions. Each couple will present their main ideas and findings to the group while sipping a glass of wine.

4. The place - why, where and when



Day: Friday 9th July

Time: 4:30pm till 7:30pm

**Place: Palazzina Liberty dei Giardini Margherita, studio Antonello Ghezzi,
Piazzale Jacchia 1-4 - Bologna**

The workshop was held in an extraordinary and creative place. The building is named *Palazzina Liberty chalet restaurant*, a very original and historic building designed by the Italian architect Edoardo Collamarini in 1910, within the urban park Giardini Margherita in the city of Bologna.

The place and the initial steps of the arrival of participants, check-in procedures and then the introduction about the location made by Nadia Antonello can be seen in this video clip:

<https://youtu.be/REfGeTyC2C4>

The video clip has subtitles in Italian and English and is published in FEDORA's playlist on Formicablu's YouTube channel, available for sharing.

This building hosts a pre-school and a cultural association. In recent years, the local city government has assigned its remaining spaces, the basement and the rooms and terraces on the 2nd floor, to two creative organisations. The Studio Antonello Ghezzi, is a duo of artists who work with many different materials,

lights, mirrors, objects and design art installations that have been invited and hosted in many countries and international art fairs. Antonello Ghezzi Studio's work aims to bring in daily life art installations designed and produced with objects and materials already used in many different daily activities. These objects and materials are redesigned and rearranged in compositions that allow the public to change their perspective and look at the world differently. Antonello Ghezzi's innovative research is not limited to developing new artistic usage for these objects. It goes further in making these installations opportunities to build relations between people and elicit mutual change and a creative and human experience. That's why sometimes people are engaged in co-creating the piece of art, such as in BLOW. During this collective performance, people were invited to blow coloured bubbles, containing a particular type of colour pigment, against a canvas that represents the walls present in many cities and countries and that are obstacles for the free circulation of people. The first BLOW exhibition was held in the West Bank, but it symbolically refers to every wall around the world built to keep some people out or imprisoned within a particular space.

Antonello Ghezzi refers in their creative work to many other artists but also writers such as Gianni Rodari and Italo Calvino. Their studio hosts artwork inspired by novels and writings, such as the Blue Traffic Light, the core of one of the most inspirational short stories by Gianni Rodari, inviting people to walk and fly free in any direction.

Antonello Ghezzi's studio was just the perfect setting for the FEDORA workshop. Its spaces and artworks not only create a pleasant atmosphere but are also inspiring more substantially. This studio encourages a range of possibilities to engage young people around significant contemporary and complex challenges creatively.

The workshop was held on the afternoon of Friday, July 9th, at 4:30pm for the length of 3 hours. In the end, the activities swiftly moved into a small celebration with food and drinks and informal talks while looking at the park and hills from the 2nd-floor terrace.

5. The people - who, what and why

Since we did not have the possibility to invite people from all FEDORA's countries, we looked for a wide range of diverse skills, creative experiences and expertise in the city of Bologna, where two of FEDORA's partners are based - the University of Bologna and Formicablu.

Looking into the different worlds animating the local cultural scene as well as the expertise coming from the research world with a focus on school education, we came up with a very diverse mix of people:

1. **Annalisa** - a physicist by training, a science museum explainer and curator with a strong focus on history and pop culture
2. **Marco** - a science journalist with training in philosophy and history of science and a present experience in science communication as well as in music critics
3. **Anna** - a photographer and video maker with a background in philosophy, experience as an editor for a publisher of science textbooks and currently editor of a magazine focusing on environmental issues
4. **Paolo** - the host artist
5. **Emanuela** - a history and Italian teacher with a past as a historian and a present as a very active practitioner of new approaches to education, making a daily effort to promote transdisciplinarity
6. **Matteo** - a biotechnologist turned science communicator and entrepreneur focusing on creative and artistic approaches to informal science education and with a strong background of collaboration with school
7. **Federica** - an academic with a focus on pedagogical and sociological research regarding inclusiveness in education and a solid experience in connecting theatre and other art expressions to the educational world
8. **Nadia** - the host artist
9. **Olivia** - FEDORA's coordinator
10. **Giulia** - an academic researcher with the research team on Physics education at the University of Bologna that is coordinating FEDORA and with experience in creating innovative materials for schools on the theme of climate change
11. **Laura** - an academic researcher with a PhD in Math education involved with the research team on Physics education at the University of Bologna that is coordinating FEDORA

12. **Emma** - a videomaker and digital animation producer, with a degree in Physics, a Master in Science communication and currently attending the Master in Physics education
13. **Micol** - a volcanologist with a long history of experimenting with innovative and artistic ways to talk, disseminate and educate on science
14. **Francesco** - PhD student at Bologna University and active within the art collective ARTEMIGRANTE
15. **Martina** - PhD student at Bologna University and active within the art collective ARTEMIGRANTE
16. **Sara** - PhD student at the University of Bologna and part of the team on Physics education

The Formicablu team, which led the activities, was composed of Elisabetta Tola and Francesca Conti, who scheduled and facilitated the entire afternoon.

A professional art videomaker, **Lino Greco**, was also engaged by Formicablu to produce **a creative and imaginative video doc of the activity**. The video doc is currently being post-produced and will be made available **on the project website** and distributed through social media by the end of 2021.

6. The questions and challenges



LE NOSTRE SFIDE

COME SUPERARE LA VERTICALITÀ
DISCIPLINARE DELL'EDUCAZIONE
SCIENTIFICA

CON QUALI LINGUAGGI E FORMATI



The workshop started by discussing barriers and limitations to developing, adopting, and using innovative languages in science education.

The team of experts involved in the activities were also asked to turn the barriers and limitations on opportunities, trying to find solutions and potential leads to changing the current science education model based on rigid disciplinarity. Furthermore, they were asked to come up with languages capable of:

- overcome borders and dichotomies
- hybrid languages
- foster a multidisciplinary/transdisciplinary approach and a real inclusiveness
- facilitate sharing and co-creation rather than mere competition
- inspire
- overcome stereotypes, bias and prejudices

The explanation of FEDORA challenges and of the workshop challenges, and the initial plenary discussion is to be seen in this video clip:

<https://youtu.be/XGQh0JQV7BI>

The video clip has subtitles in Italian and English and is published in FEDORA's playlist on Formicablu's YouTube channel, available for sharing.

7. The polyjuice potion and the co-creation in groups: barriers, obstacles and limitations to new languages and formats

After diving into the framework of the challenges and expectations, the Formicablu team asked the participants to 'drink' *the polyjuice potion* (see Harry Potter and the Chamber of Secrets). They were asked to write who they'd like to be in post-its in terms of ability, skills, and professional profiles other than their current one. The idea behind this ice breaker is to facilitate participants to become more empathic with each other, more favourable to look at others' points of view, and more easily enter each other's shoes.

After collecting and merging the range of desired skills, profiles, ambitions and wishful transformations, the participants were given a small gadget with either a cow or a sheep signpost. They then were asked to mix and find their teammates to start the conversation and co-creation on FEDORA challenges.

The *Cow Team* and the *Sheep Team* worked for about 35 minutes on identifying the barriers, limitations and obstacles to the design, adoption and implementation of new languages and formats in science education.

<https://youtu.be/HMVgxKHGVJM>

The video clip has subtitles in Italian and English and is published in FEDORA's playlist on Formicablu's YouTube channel, available for sharing.

As we can see in the video clip linked above, the two groups used post-its and canvas to develop their brainstorming, cocreation and analysis and to group their insights in different lines of thought and different thematic series of barriers:

- Language barriers
- Time, methodological and institutional barriers and lack of vision
- Lack of imagination and lack of knowledge and appropriate trainers' training
- Individualism and lack of openness
- Problems with the spaces and the types of schools

The overall suggestions and insights are detailed in D2.2.

8. Co-creation: the ideas and solutions

The Cow Team and the Sheep Team came up with many different lists and definitions of barriers and obstacles. The next step was converting these problems into opportunities by looking at them from the angle of solutions, ideas, strategies.

Participants were coupled by distributing little coloured wooden numbers and making them find their match. They worked in couples for about 45 minutes, spreading in the studio spaces and outside, in the park. They were asked to come back with many possible creative ideas and insights. The only limitation was considering these ideas in terms of something that could apply to schools and the formal/informal education environment. For instance, there was no point in suggesting the enrollment of students into ESA or NASA selections for new astronauts but rather to consider how to bring the space adventures and explorations into schools and closer to students' lives and experiences.

Once the couples had filled many new post-its with lots of creative hints, the group was led to the second floor of the Palazzina Liberty into the terrace. While drinking a glass of wine and enjoying an aperitivo, people presented their ideas, and connections, complementarities and new strategies were shared and discussed.

The detailed list and descriptions of the new insights and the modulation into draft recommendations are presented in D2.2.

Here is the last of the series of videoclips documenting the entire workshop:

https://youtu.be/37h_VmuoTuk

The video clip has subtitles in Italian and English and is published in FEDORA's playlist on Formicablu's YouTube channel, available for sharing.