



Proof of Concept

Methodology

Deliverable 5.1



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1. Introduction

Make it Open is an EU-funded project that aims to develop an open schooling model of practice and foster culturally diverse learners' communities. The project is led by Bloomfield Science Museum Jerusalem (BSMJ) and will be carried out for a three-year period (October 2020-September 2023) by a network of 7 partners and 6 Third Parties from 12 countries.

The project will support the Community of Learners (teachers, schools, educators and students) to make connections between science, entrepreneurship, creativity and innovation. And to do so, the consortium will develop an accessible and actionable framework with intense collaboration with teachers, who will be invited to set their own open schooling vision and to tailor it to their needs and contexts. The open schooling model will be supported by the Proof of Concept (PoC) process.

The project is built around **Open Schooling Hubs** in 10 European countries where more than 150 schools will collaborate with enterprises and civil society organisations to run activities where students will solve local communities challenges using approaches and tools from the maker education. This Hub stage of the project will be preceded by **two pilots** (further referred as Pilot I and Pilot II) which will provide a supportive framework by developing content (Learning Scenarios) and tools (Open Schooling Navigator) - see fig. 1. A Learning Scenario is a roadmap for open schooling, consisting of various activities (Learning Units) and steps that schools can choose and follow. Unlike traditional pedagogical methods, *Make it Open* Learning Scenarios are based on different, open schooling dimensions which were selected in the first phase of the development process. During Pilot I and II a total of 16 Learning Scenarios will be developed and tested by teachers in the 8 schools in two rounds. Simultaneously, the online tool - open schooling Navigator - will be developed as a guide for teachers using the Learning Scenarios.

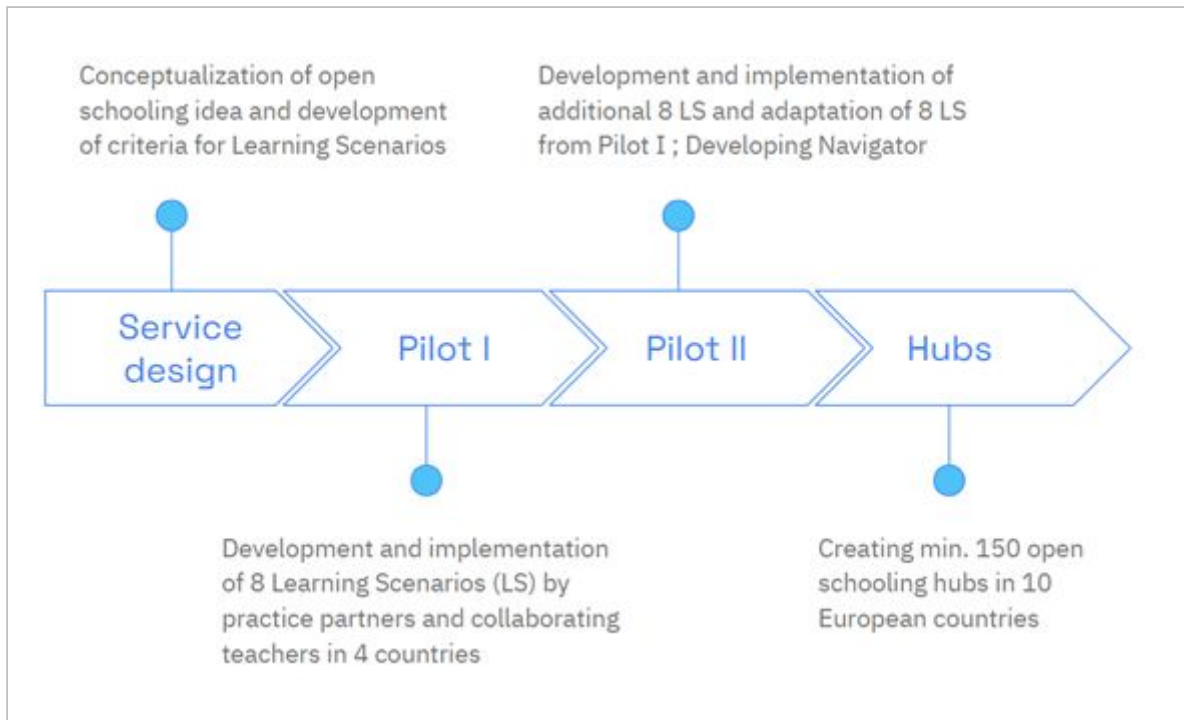


Figure 1: Make it Open project stages

A Proof of Concept is a realisation of a specific method or idea to demonstrate its feasibility or a demonstration in principle to verify that some concept or theory has practical potential. In our case this project's Proof of Concept aims to demonstrate the *Make it Open* open schooling model's feasibility and viability in a small-scale setting (Pilot I and II) before moving to a larger scale (Open Schooling Hubs). By providing this Proof of Concept, we plan to evaluate the model through research. This process's primary goal is to demonstrate the model's feasibility and viability in a small-scale setting before moving to a larger scale with many schools and districts. It can either mean formulating a similar or exact model or establishing an improvement model that considers the lessons learned from the proof of concept process.

2. Goals and objectives

In this project, the Proof of Concept methodology adopted aims to support the open schooling approach's implementation. The goal is to provide practice partners (Bloomfield Science Museum, Waag Society, Copernicus Science Centre, and FixEd) with recommendations and data to make the Pilots' outputs relevant and applicable for effective scaling. It can mean an improved formulation, one that considers the lessons learned from the proof of concept process.

The specific objectives are:

- To develop recommendations for the improvement and scaling of the process, products and tools;
- To describe and characterise the hubs (Communities of Practice and Communities of Learners) that will implement the *Make it Open* approach and create recommendations for the working processes and functioning according to the project goals before a possible implementation and wide-scale adoption;
- To deliver a report summarising the *Make it Open* approach to open schooling and capturing all the project learnings.

3. Proof of Concept stages

The Proof of concept is designed around three stages, pilot stage, hub stage and end of the project. However, the design of the working process might have to change during the project according to partners' needs, project objectives and the epidemiological situation in partnering countries.

The preliminary design of the Proof of Concept processes for the different project stages is presented in Table 1.

Project Stage	Stage's objectives	Research Subject		Research Instruments	Research Participants
Pilot I	Development and implementation of 8 Learning Scenarios	Learning Scenarios	The development of the Learning Scenarios	Workshop	Consortium partners
			The implementation of the Learning Scenarios in the classroom	E-journals	Teachers
			Learning Scenarios- product	Scenarios analysis	NA
		Participants	Participants attitude and actions	Online questionnaires	Teachers
Pilot II	Development and implementation additional of 8 Learning Scenarios, and adaptation of 8 Learning Scenarios created in Pilot I - for of total of 16 Learning Scenarios in 4 language versions	2nd iteration of studies from Pilot I with revised and improved instruments (workshop, e-journals, scenarios' analysis, teachers' online questionnaire)			
		Learning Scenarios	Learning Scenarios- product	Activities observations / case studies	Schools, teachers and students
		Participants	Participants attitude and actions	Online questionnaires	Students
				Field observations	Schools, teachers and students
	Development of digital format of the Open Schooling Navigator	Navigator	Testing of Navigator	Users' test	End-users (teachers, educators)
Hubs	Create Open Schooling Hubs in 10 European countries	Hubs	Functioning of the hubs	Online surveys	Educators
			Description of types of hubs	Hubs functioning analysis - case studies	Learning Communities

Table 1: Make it Open stages and Proof of Concept plan.

4. Research framework

By providing the Proof of Concept, we plan to evaluate the model through research. Within the project, we will use mixed quantitative and qualitative research methods. We plan to conduct surveys, interviews with the participants and observe schools and the Open Schooling Hubs. Elements of the Action Research approach will be included, with participants (especially teachers) evaluating the impact they are making with their actions. The cultural diversity of partner institutions will be considered an essential element that moderates the project's effects.

In the *Make it Open* project the research component will be a supportive tool for designers (both partners and also teachers) to create materials that will enable them to meet the criteria for the success of the project, *e.g.* increasing teachers' and students' self-efficacy towards problem-solving. All the research activities in this project serve as guiding tools for practitioners to improve the projects' products and processes (for example, the Learning Scenarios, the Open Schooling Navigator, Open Schooling Hubs); thus, researchers need to be mindful of the constraints that these dynamics present.

4.1. Research plan

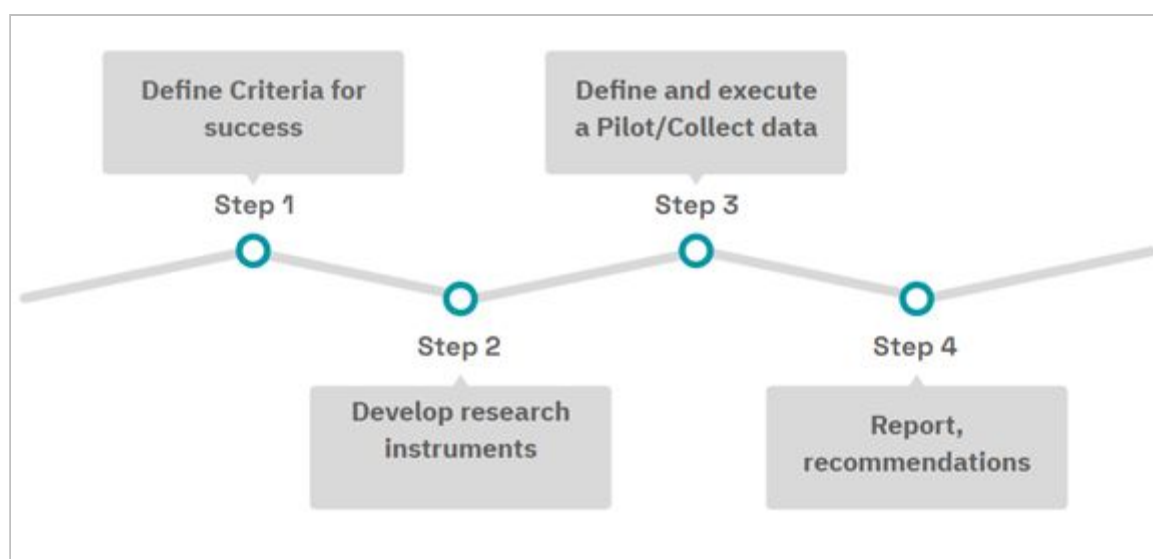


Figure 2: Proof of Concept process

The Proof of Concept process will operate in four steps (fig. 2), and will include different perspectives of the learning communities (the consortium partners, school leaders, teachers,

and students) to provide the project leaders with in-depth knowledge about its impact, limitations, and results:

Step 1: Define Criteria for success; part of the process will be developing the criteria of the transformed school culture from the actors' perspective - the criteria will be developed in collaboration with the project participants. The criteria will help formulate final recommendations for schools and leaders in the project's final stage.

Step 2: Develop research instruments; both qualitative and quantitative research instruments will be developed. Teachers will become action researchers and will be collecting data from students. At the operational level, we will use *surveys to gain data on the participants' attitude towards the project (individual level), the quality of the process, and its perceived impact on the school community*. We will also use e-journals to collect data about the processes implementation. On the students' level, we plan to collect projection methods (e.g. drawings) regarding students' learning space.

Step 3: Define and execute the Pilot; on a small scale, we plan to collect qualitative data about the project. In both Pilots, teachers will be answering a survey, filling an e-journal regarding the project's implementation in their classroom. Also, partners will be answering questions about the challenges and the process of designing the Learning Scenarios.

Step 4: Report and Recommendations; the report will be based on analysing all gathered data and materials, including declarative (online questionnaires, e-journals and workshops) and indirect methods (analysis of Learning Scenarios).

5. Research instruments

Research instruments will be designed and improved to fit each stage of the project's settings and goals. During the Pilot I and Pilot II, we will use mostly qualitative methods which are suitable for Research & Development projects. We plan to manage our data gathering and analysis collaboratively with the practice partners and the collaborating teachers. Additionally, in Pilot II, we will examine the link between *Make it Open* activities and students' skills and competencies quantitatively. The Hubs phase will include

researching approximately 150 hubs in multiple European countries. It will consist of a large quantitative online survey study and more in-depth case studies of selected hubs.

A mixed-method will be used to gather qualitative and quantitative data. Research methods might vary according to the COVID-19 epidemiological situation in partnering countries.

Proof of Concept research will include the following tools:

5.1. E-journals

The e-journal is designed as a reflection tool for teachers. It will be used during the implementation of the Learning Scenarios in the classroom. It is an online electronic format survey for teachers to write about their experience in the school. They will answer eight questions in the e-journal and repeat this process three times during the Pilot I phase, after the first activity, in the middle of their journey, and at the end.

The e-journal starts with a short introduction that explains the purpose of this study. It is followed by a few instructive questions that lead teachers to a reflection about implementing the Learning Scenarios process and aim to identify problems, weak points and constraints of the process in real-time, *e.g.*, What were the highlights in today's activity? What was the most challenging part today for you? Was there something unexpected or surprising? If you could change one thing, what would this be? (for the complete e-journal form, see Appendix 10.1.2).

5.2. Online questionnaires

Pre and Post-questionnaires will be implemented during the project (see Table 1). They will be created to fit each stage's settings and goals, and will be aligned with the primary purpose of the Proof of Concept program. The questionnaires will be revised and improved using an iterative process. These iterations will allow us to develop the tool according to the needs that come up during the study. It is important to note that some of the questionnaires cannot be created before we analyse results from the previous stages.

The following are the main goals of the questionnaires :

- To explore the meaning of the concept of open schooling for different participants (compare different actors: teachers/parents, etc.);
- to see changes in the conceptualisation of an open schooling concept (at the end of the project);
- to investigate teachers' perception of the concept of "learning";
- to see whom participants see as a "community of learners" that can be part of the description of open schooling;
- to identify a change in "open schooling culture";

The assumption is that the post-questionnaire semantic map of open schooling will be more complex than the first one, and that we will see changes in how they perceive collaboration with the community, use of "maker education" practices and "citizen science".

The questionnaire is divided into four core sections:

- The first includes background information on the teachers.
- The second part includes open-ended questions that inquire about how they see learning outside of the classroom in general, as well as give their definition and interpretation of open schooling.
- The third part is a Likert type question that evaluates the participants' attitudes towards the advantages of different components of open schooling practices and 'makers education' and 'citizen science' practices for Science, Technology, Engineering, and Maths (STEM) learning.
- The fourth part looks into teachers' concerns about participating in the *Make it Open* project.

Pre and Post questionnaires will be used to investigate the Learning Scenarios during the first and second Pilots (**Pilot I, Pilot II**); and will evaluate and shed light on some different aspects of the Open Schooling Hubs. Participants in this study will be teachers that implement and participate in the project and, in some cases, their students. Examples of the questionnaires and questions can be found in Appendix 10.1.1. The first Pre-post questionnaire (see below) has already been developed and

tested. Its processes and contents are described in detail below and can serve as an example for future questionnaires.

The first Pre-post questionnaire investigates the early stage of the project (Pilot I). The survey is directed to the teachers' that co-create and will implement the Learning Scenarios together with the project partners. The Pre-questionnaire was handed out to the teachers at the beginning of the co-creation phase of the project when they were just introduced to the project. The Post questionnaire will be handed to them after they have co-created and implemented the Learning Scenarios (31.05.2021). This tool aims to shed light on how *Make it Open* project participants (in this phase teachers) understand and perceive the concept of open schooling and how this understanding changes as the project progresses. We have already determined the items that help us identify changes in teachers' understanding and conceptualisation of the open schooling concept in STEM education and their daily practice. These comprise the inclusion of the community in the school and vice versa; the involvement of students with experts from the community; it investigates the benefits and challenges regarding open schooling and explores the cultural context regarding open schooling and the perceived advantages of the use of “Maker education” and “Citizen Science” as pedagogies for an effective STEM education.

5.3. Workshop

The workshop will be an online 1.5h workshop with the consortium partners. It is scheduled at the end of the development process of the Learning Scenarios (March 2021). The workshop will aim to gather information about problems, obstacles, and limitations encountered during the Learning Scenarios development. We will also be looking at solutions, best practices, and recommendations. The workshop will be a platform for partners to exchange practical tips and experiences. The workshop materials will also help formulate a proposal for the next part of the project (Pilot II). Several proposed tools and activities could be: creating mind maps, semi-scripted interviews, etc.

5.4. Observations and field studies

During the Pilot II stage, we plan to visit and observe a number of selected classes during the Learning Scenarios activities. We will conduct field studies in the chosen hubs in the advanced phase of the project. Due to COVID-19 pandemic regulations, the details of the observation process are open to changes. Visited schools/hubs will be selected based on several factors, including the type of Learning Scenarios implemented, the type of school and the COVID-19 situation in the selected country. The aim of this study is to provide an in-depth description of different working models.

5.5. Projection methods

During the Pilots (I and II), various projection methods will be used; such as mind maps, projection drawings, etc. We will use a drawing tool (virtual or analogue) to map participants' understanding of the concept of learning and their perception regarding learning communities and spaces in their lives. For instance, students will be asked to draw a map of learning spaces in their community (what and where do you learn?), they will draw a map of places that they feel impact them as learners and teach them something new. The drawing will represent students' perceptions about learning and their ideas about the main learning impact in their community.

6. Analysis

The analysis of the data will be based on the project's main objective which is to change the culture of learning by creating sustainable means for learning everywhere. This objective entails to expand learning opportunities for students by including experts and other actors outside of schools and by connecting schools to the local community. Those means will be based on concepts of the "Maker education" movement and "citizen science" ideas. Inquiry and problem-solving will be at the centre of the learning process. The idea is to promote student-centred, self-directed learning, in which participants build their agency and increase their sense of responsibility towards the world around them. Throughout the project, we will apply the different criteria developed by the Consortium as the research framework to evaluate the projects' products and processes.

1. One critical criterion in "Making it Open" products and activities, is the improvement of the learners' skills and competencies. During the project, we will be looking at students' skills and practices in four areas:
 - STEM literacy: for instance the ability to ask questions, define problems, solve problems, use and develop models, conduct investigations, design experiment;
 - soft skills -for example, the capacity to collaborate, deal with uncertainty, learn that failure is part of the learning process, and communicate and share ideas;
 - hands-on practices - for instance, the use of Makers' tools to design projects, the ability to use digital tools to develop ideas;
 - management skills- for example, plan labour and use of resources, managing budget, and dividing tasks and roles;
2. The second criterion is related to the analysis of "openness" of the learning communities in the project. It will be assessed based on the open schooling dimensions conceptualized in the WP1- D1.1 *Set of user-centred delivery templates*¹ :
 - Qualities: there are nine features that define quality. The features and benefits of the open schooling project are: social connection and networks, agency, real world relevance and learning by doing, equity/access/inclusion, tangible outputs, change of atmosphere, teacher/schools development, and improved p[erformance].
 - Location (physical): places beyond the school walls where learning takes place.
 - Roles (teaching): relating to roles played in the learning/open schooling experience for example: informal and non-formal learning providers, scientists, parents, experts from business, local community members, other students.
 - Components: the products and services which support an open schooling program, for example trainings , workshops, museum visits, competitions and online resources.

¹ *Make it Open*, Deliverable 1.1, Set of user centered delivery templates, 31/01/2021

- Approach: the nature of the service delivery. For example: instructional versus constructional activities, collaboration with other versus individual work.
 - Timing and duration (temporal): describes the time when learning takes place for example: during school hours and/or after-school hours, special events with parents, family activities during evening hours etc.
3. The last criterion relates to “content” of the Learning Scenarios as an additional dimension that needs to be evaluated. Under the content dimension we will analyse:
- Inquiry: Does the Learning Scenarios include inquiry activities? Do students need to explore to learn?
 - Make and design: Do students conduct any design/maker activities as part of the Learning Scenarios? Does the activity include making tools? Which tools do students use? Is the making part of the explicit learning goals of the Learning Scenarios?
 - Citizen science: Is citizen science an element included in the Learning Scenarios? Do students participate and collaborate in scientific research? Do students increase scientific knowledge as part of their activities?
 - STEM content: which STEM topics are included in the Learning Scenarios? What is the science that students learn throughout the activities? Are there explicit STEM practices as part of the learning goals?
 - Learning goals: Are learning goals included in the Learning Scenarios? What type of learning goals are included? Are there implicit goals that are relevant to the activity?
 - The big idea: what is the big idea in the Learning Scenarios? Does it cover the curriculum or is it an extra curricular topic?

The analysis of Learning Scenarios development will also include the following goals:

- Identify similarities and differences between partners and context.
- Characterise different approaches of development.
- Explore pedagogical design principles for following development.
- Identify problems, weak points, and constraints of the process in real-time.

7. Procedures

- Information: all the research activities will be clearly and openly communicated to participants either by the researchers or the Consortium partners during meetings or by email. When required, formal consent will be obtained (see 7.1. Process of acquiring ethics committee approval).
- Distribution: online tools e.g., surveys, e-journals, questionnaires and informed consents will be distributed and collected via online platforms such as Google Forms or Qualtrics. Links with the access to research tools will be followed by clear information regarding the study.
- Data collection: All data will be collected according to guidelines (see 8. Data management)., anonymized and aggregated before presenting it to the partners and third parties.
- Translations: According to the need, tools will be translated to partners' languages (especially in studies involving students and hub users). Some of the activities, such as workshops will be conducted in English. Collected anonymized answers will be translated into English for data analysis.

7.1. Process of acquiring ethics committee approval

According to EU Horizon2020 guidelines² the Consortium is required to get ethics approval for the following procedures and research methods:

Research method	Research participants	Ethics Committee approval	Informed consent	Project's phase
Workshop	Consortium partners	not required	required	Pilot I, Pilot II
E-journals	Teachers	not required	required	Pilot I, Pilot II
Scenarios analysis	NA	NA	NA	Pilot I, Pilot II
Lessons/activities observations case studies	Teachers and Students	required	required	Pilot II

² Horizon 2020 Programme Guidance, How to complete your ethics self-assessment, Version 6.1, 4 February
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Analysis of Navigator functioning / online survey	End-users (Teachers and Educators)	not required	required	Pilot II
Online questionnaires	Teachers	not required	required	Pilot I, Pilot II
(pre and post Pilots)	Students	required	required	Pilot II
Field observations	Schools, Teachers and Students	required	required	Pilot II, Hubs
Analysis of all results	NA	NA	NA	end of the project

Table 2: List of the designed research methods in the Make it Open project and Ethics committee approval requirements.

Notwithstanding the requirement for the Research Ethics Committee approval, all research subjects will be asked for informed consent to participate according to established Best Practice.

We plan to prepare a single form (in multiple language versions) for all the research activities of the project. The timeline of the process for acquiring Ethics Committees Approval is the following:

1. Preparing forms and translations for each partnering country (May 2021)
2. Ethics Committees approval process (June-July 2021) – time will vary depending on the partners
3. Acquiring Signed consents – teachers, parents (July-August 2021)

An Example of an Informed Consent form for research conducted with teachers in the Pilot phase of the project can be found in part 10.1.3 of the Appendix.

7. Data management

All of data collection, processing, storage and sharing will be in accordance with the WP7 - D7.1 *Data Management Plan*³ developed as part of Work Package 7 in the *Make it Open* project.

8. List of the outcomes

Deliverables in WP5 concerning Proof of Concept results consists of two reports listed below:

	Deliverable description	Due date [in months]
D5.2 : Recommendations, insights and reports	Relevant and applicable recommendations from the first wave of Pilots that will inform further development of the learning scenarios and the Navigator.	14
D5.3: Recommendations, insights and reports	Final recommendations and conclusions from WP5 Proof of Concept and the assessment of the project outcomes and impact.	36

Table 3: List of deliverables from the Proof of Concept in Work Package 5.

³ *Make it Open*, Deliverable 7.1, Data Management Plan, 17/01/2021

9.1. Tools and Materials used in Pilot I

'Make it Open' Survey no. 1

Dear teacher,

This questionnaire is intended to evaluate your approach and stance on 'open schooling' and assess the implementation of a 'Learning scenario' you will engage in. You will be asked to complete it today and again at the end of the first pilots to see the impact of the learning scenario and how we can improve it.

For each question, select the answer you find most reasonable. Please elaborate on the open questions and add your ideas and thoughts. Thanks for being part of this and letting us know what you think of this project.

*** Required**

- Name (full name) * _____
- Where do you work (country)? *
 Mark only one oval.
☐ Netherlands
☐ United Kingdom (Britain)
☐ Israel
☐ Poland
☐ Other _____
- Other? Where do you work (country and city)? _____
- The name of your school: * _____

- How long have you been working in this school? *
 Mark only one oval.
☐ 1-2 (years)
☐ 3-5 (years)
☐ 6-12 (years)
☐ More than 15 years
- How many years have you been teaching? (your tenure) *
 Mark only one oval.
☐ 1-2
☐ 3-5
☐ 6-15
☐ more than 15 years
- What grades/years do you teach? *
 Check all that apply.
☐ 1st (6 year old) - UK Year 1 (ages 5-6)
☐ 2nd (7 yr) - UK Year 2 (ages 6-7)
☐ 3rd (8 yr) - UK Year 3 (ages 7-8)
☐ 4th (9 yr) - UK Year 4 (ages 8-9)
☐ 5th (10yr) - UK Year 5 (ages 9-10)
☐ 6th (11 yr) - UK Year 6 (ages 10-11)
☐ 7th (12 yr) - UK Year 7 (ages 11-12)
☐ 8th (13 yr) - UK Year 8 (ages 13-14)
☐ Other _____

8. What subject/s do you teach in school? (if you teach more than one, please mention all of them)

9. What subjects/ teaching units or learning scenario would you like to teach/pilot for Make it Open project?

10. When & where was the last time you learned something new? (please, add details such as if it was an informal/formal environment? How many hours/days did it take? etc.)

11. Who was teaching you? (peer, teacher, teacher through remote learning, youtube etc.)

12. What did you learn? (what was the content, topic etc.)

13. What does “Open schooling” mean to you and how would you describe it in 2-3 sentences? (open question) *

14.	How do you feel about the following statements? *	Mark only one oval per row.				
		Not relevant	Strongly disagree	Disagree	Agree	Strongly agree
	The learning scenario enriches teaching & learning practices.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Collaborating with community members strengthens the students sense of belonging.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Including parents in the learning process empowers the students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	"Open schooling" project contributes to the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Learning happens outside of school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Open schooling raises social mobility.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Open schooling raises social responsibility.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Finding dedicated partners for "open schooling" is easy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Arranging excursions and field trips are easy to plan and organize.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Parents are keen to collaborate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	There are many parents who can be recruited as experts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Experts who are willing to come and contribute are easy to recruit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Most community businesses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15.	How do you feel about the following statements? *	Mark only one oval per row.				
		Not relevant	Strongly disagree	Disagree	Agree	Strongly agree
	The teachers can spend time planning "open schooling" activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	"Hands on" activities can contribute to STEM learning processes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	"Hands on" activities at school are worth the effort.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	"Hands on" activities have many advantages over other teaching methods.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16.	If you are familiar with the term 'citizen science' state how you feel about the following statements. If not skip this question.	Mark only one oval per row.				
		Strongly disagree	Disagree	Agree	Strongly agree	I am not familiar with that term
	It will be great to include "Citizen science" in the school curriculum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Students are equipped with sufficient knowledge to participate in "Citizen science" projects.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	"Citizen science" is a way to teach scientific practices.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. How well do these statements describe your feeling towards your participation in "Make It Open" project? 1- not my feeling at all 5- my feeling exactly *

Mark only one oval per row.

	I'm not sure	Not my feeling at all	Not my feeling some extent	My feeling exactly
I am excited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel skeptical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust project and partners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe in the project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am concerned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. How do you feel about the following concerns regarding the project? *

Mark only one oval per row.

	Not relevant for me	The least concerned	Concerned	Very concerned	Concerned to the greatest extent
Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parent consent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resources of expert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teacher training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Students do not learn anything out of school in that age	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pandemic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The school curriculum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. If you had more hours in a week with your students, how would you use that time?

Check all that apply.

☐ Maker education sessions
☐ Activities with the community
☐ Math class
☐ Improve performance in national test
 Other: ☐

20. Please explain your choice here:

21. Have you already done any activities with the community and with your students?

Mark only one oval.

☐ yes
☐ no

22. If yes, give an example:

23. If you have done activities and stopped doing it, why did you stop?

24. What is needed in order to implement "open schooling" at your school?

25. Anything else you would like us to know?

Thank you for your feedback

We really appreciate your time.
If you have any questions about this study, please contact us:
katarzyna.kotowska@kscout.karlsruhe.de

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 872106



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E-journal (English version)

E-Journal #1

An electronic journal of yoga and tantra in the christian era

Dear teacher, the purpose of the E-Journal is to get your reflection and thoughts about your experience with the learning scenario implementation in your classroom. We want to learn from you and improve the process before scaling it up. You will be asked to complete this form three times during the implementation process (beginning, in the middle, and at the end of the learning scenario session). Please elaborate on the open questions and add your ideas and thoughts.

1. We would like to know: what is your background? who are you? which school are you working at? which grade? how many students? and anything else you would like us to know about you?

2. The activity (describe what you did today with your students, what pictures)

22. Which were the highlights in today's activity?

4. What was the most challenging part today for you?

5. What was the challenging part for your students?

- Is this then something unexpected or surprising?

7. ... if you could change one thing what would this be?

8. ... Anything else that you would like to add?

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 872108



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5.1.1. Information about study participation and Informed consent

3. Data collection in which you will be involved

In this study, we will ask you to:

1. fill out an online **survey** twice during the project (pre-survey February 2021, post-survey May/June 2021). Each survey should take approximately 20 min to fill out.

The aim of this survey is to gather information about the learning environment, community involvement, conceptualization of open schooling, and expectation about the participation in the project.

2. fill out an **e-journal** for Learning Scenarios that you will co- design with your local partner. You will write in the e-journal 3 times during the implementation of Learning Scenarios in the classroom (after the first, the last activity, and also in the middle of this process). We predict each survey should take approximately 20-30min to fill out.

The aim of e-journal is to gather information about the process of implementing Learning Scenarios in the classrooms from your perspective.

All the materials, schedules, instructions and links will be provided by your local coordinator.

All data collection will happen under the supervision of Katarzyna Potęga vel Żabik (Copernicus Science Centre), Dr Tamar Furhmann (Teachers College Columbia University), Dr Chagit Tishler (Bloomfield Science Museum Jerusalem) and Dr Ilona Iłowiecka-Tańska (Copernicus Science Centre). Participation in this research has no reasonably foreseeable risk, discomfort or disadvantages and there will be no cost for your participation.

4. Your data

The surveys and e-journal data will be anonymised and no personal data will be stored. We will ask for information concerning your working experience – this will help us in our statistical data analysis.

We will ask you for your personal information in order to assign results to the same participants – this data will be collected, anonymized by the regional coordinating partner and the research team. Non-anonymised data will not be available at any point of the study to other Consortium partners.

5. What will we do with your data and how long will we store them

We will keep proof of your consent for 7 years after the project ends, and then delete it. The data that you provide us with as part of the research will be stored until the end of the project (20.09.2023) and deleted afterwards. We will collect, process and store all of your answers safely.

Other data (e.g. your age and gender, your answers, which cannot identify you) will be shared with the partners of the Make it Open Consortium. These partners are:

- Bloomfield Science Museum Jerusalem, Israel (the Coordinator);
- STICHTING WAAG SOCIETY, The Netherlands;
- Centrum Nauki Kopernik, Poland;
- FIXPERTS United Kingdom;
- EUN PARTNERSHIP AISBL, Belgium;
- TEACHERS COLLEGE COLUMBIA UNIVERSITY, USA;
- Association Européenne des Expositions Scientifiques, Techniques et Industrielles, Belgium.

Anonymised results of your answers will be used for statistical purposes, internal reports, for scientific publications, by the partners and will further be openly accessible for research purposes. These data will be stored indefinitely.

6. Your rights

You have the right:

- 1) to know what data we process;

- 2) to know the reasoning of such processing,
- 3) to object to the processing, to restrict its use and correct or delete this data.

7. Opting out of participation

You can stop participating in our project at any time - there will be no downsides. You can completely or partly withdraw your consent by emailing katarzyna.potega@kopernik.pl

8. Please ask!

If you do have any questions, please ask the researcher(s) in charge of the project: Katarzyna Potęga vel Żabik katarzyna.potega@kopernik.pl.



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