DELIVERABLE 5.2

Research Instruments

Authors

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Shaun Ussher (TCD)

Contributors

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Brendan Owens (TCD), Joseph Roche (TCD), Maria Vicente (ULEI)

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Reference

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Contributors	Brendan Owens, Joseph Roche
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Revision History

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0.4	30 September 2020	Shaun Ussher	TCD	Final Draft

List of Acronyms

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ACRONYM	DEFINITION
CSA	Coordination and Support Action
DEI	Diversity, Equity and Inclusion
GA	Grant Agreement
H2020	Horizon 2020
IOS	Inclusion of Self
NGO	Non-Governmental Organization
OSHub	Open Science Hub
OSHub.Network	Open Science Hub Network
SME	Small and Medium Enterprise
STEM	Science,Technology, Engineering and Mathematics
STEAM	Science,Technology, Engineering Art and Mathematics
TCD	Trinity College Dublin
ULEI	University of Leiden
WP	Work Package

Executive Summary

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The OSHub.Network Research Instruments (RI) is Deliverable 5.2 (D5.2) from the coordination and support action (CSA), OSHub.Network, grant agreement (GA) 824581.This report details the tools used to carry out WP5: Evaluation of the OSHub.Newtork project.

This document describes how the Open Science Hub Network will be evaluated from 3 different levels or perspectives. The first of these levels will examine the European network-wide consortium that consists of 9 partner institutions. Here we will evaluate the processes of communication and collaboration between the partners of the OSHub.Network. The second level will focus on the local OSHubs and their network of stakeholders. Here we will evaluate how each OSHub has been established and how they have developed relationships between the hub, partner institutions, schools and their community stakeholders. The third level will evaluate the individual OSHubs and their projects and programs. Here a focus will be placed upon investigating the student and participant experiences of each OSHub project. By centering our evaluation approach on these 3 levels we aim to develop further evaluation tools to obtain an in-depth and holistic view of all work packages in the project.

The following document will describe in detail the instruments that will be used to complete evaluation of the OSHub.Network project at the 3 levels described above. The accompanying appendix will house examples of each instrument. It is important to note that many of the instruments will be delivered via different formats from partner to partner. Therefore, the text included in the tools presented in the appendix is simply an example for guidance rather than mandatory scrip. These Research Instruments will provide partners with a flexible toolkit of evaluation instruments to capture the experiences, feedback, thoughts and needs from partners, stakeholders and students throughout the OSHub Network. They will also inform the overall project management and necessary future actions to ensure the project's future sustainability.

The research instruments are a continuation of Deliverable 5.1: Feedback Forums (D5.1) and will contribute to the function of a baseline study (D5.3) in month 14 of each country's OSHub as detailed in Task 5.4. The Research Instruments will also act as foundation for the overall Impact Evaluation Toolkit (D5.4). Details of how research instruments will be analysed will be included as part of the evaluation toolkit in Task 5.6. The variety and accessibility of these research instruments allow for a homogeneous evaluation approach across multiple aspects of the OSHub.Network, and can provide measurements of the effectiveness of all work packages as stated in Task 5.1. These instruments may also allow the consortium to adapt their processes by identifying the needs of partners or participants and providing adequate resources when needed.

This report should be prefaced with the information that these feedback forums were established over the course of the COVID-19 lockdown. Therefore, the majority of the feedback given by partners is related to the effect of COVID-19 restrictions had on their experience and development of the OSHub.Network.

Table of Contents

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1. INTRODUCTION

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1.1 Background: about OSHub.Network

The Open Science Hub Network (OSHub.Network), a consortium of nine partners across Europe, engages schools and local stakeholders in research and innovation as a tool for sustainable community development.

More specifically, the OSHub.Network is establishing a European network of community hubs – OSHubs, in communities that traditionally do not engage with research and innovation due to various barriers, geographical location, socio-economic status, or ethnic minority group background. OSHubs inspire, empower and engage citizens – from school children to senior citizens – in STEAM (Science, Technology, Engineering, Arts and Mathematics) learning and research opportunities, grounded on collaboration with societal agents.

As such, local OSHubs work as mediators in their local communities, positioning schools as active agents for collaboration between civil society, enterprises, research institutes, and families. This is performed by promoting an open schooling approach grounded in community-based participatory research practices: throughout this process, schools and communities identify local relevant challenges, which are then transformed into relevant research and innovation projects, led by students and teachers, in collaboration with local stakeholders.

The OSHub.Network is developing a common methodological framework, that allows each OSHub to identify and analyse local needs, issues, opportunities and relevant actors, in order to address socio-economic, geographical, gender equity issues, and untapped growth potential. Inspired by the "Mission-Oriented Research & Innovation in the European Union"[1] approach, developed by Mariana Mazzucato, OSHub.Network will define a set of Open Schooling Missions, aimed at addressing local relevant challenges linked to the Sustainable Development Goals. These Open Schooling Missions will then constitute the basis for the creation and development of the open schooling projects, enabling real collaboration across communities.

Importantly, to ensure diversity, inclusion and sustainability, in each OSHub location, there will be a local management board with representatives from local stakeholder groups – schools (including students), families, research institutes and universities, enterprises, industry, media, local governments, civil society organizations and wider society – which will be involved in all key processes and decisions regarding local OSHub programmes and initiatives.

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1   Mariana Mazzucato (2018), Mission-Oriented Research and Innovation in the European Union – A problem solving approach to fuel innovation-led growth', European Commission, Retrieved from: https://ec.europa.eu/info/sites/info/files/mazzucato_report_2018.pdf

By supporting local schools and communities with the tools and network to tackle relevant challenges, OSHub.Network aims to create local impact while simultaneously promoting an active global citizenship attitude, thus contributing to community development, innovation and well-being.

To encourage usage and maximise impact in Europe and beyond, all resources, products and solutions developed by OSHub.Network will be fully based on Open Standards, such as open education, open technology, open science, open hardware, open design and open architecture. Also, OSHub. Network will create an online platform to share OSHub expertise, resources, and best practices with all OSHubs, their partners and the communities they serve. To ensure the legacy and reach of the project, all OSHub.Network resources will also be shared on existing large online educational repositories, and relevant national networks and repositories.

Finally, OSHubs will develop a legacy and sustainability plan, and will work closely with local governments, to ensure that each local OSHub has the tools and resources to continue beyond the lifetime of the project, and that the Open Schooling approach is incorporated in the school vision and organizational structure.

By the end of the project, it is expected that the OSHub.Network will have impacted 25 000 students, 1 250 teachers and 4 000 members of the community, through involvement in more than 150 school-university-industry-civil society partnerships in open schooling projects and activities.

In the long-run, we envision OSHubs as education brokers in their local communities, supporting local school networks to incorporate Open Schooling in their vision and organizational structure, leading to sustainable quality of education. Most particularly, OSHubs will facilitate the bridge between the needs and realities of schools and their local context and resources, as well as brokering for implementing national/regional policies, passing along signals from schools when policies are failing and advocating for context-sensitive policies.

1.2   Purpose of Document

The purpose of the research instrument is to develop and pilot a range of instruments that include questionnaires, interviews, focus groups, observational tools and reflection journals that can enable high-quality impact evaluation throughout the course of the OSHub.Network project.

The research instruments established as part of the OSHub.Network project will be designed with the intent to evaluate the project at multiple levels. The first of these levels will examine the European network-wide consortium that consists of 9 partner institutions. Here we will evaluate the processes of communication and collaboration between the partners of the OSHub.Network. The second level will focus on the local OSHubs and their network of stakeholders. Here we will evaluate how each OSHub has been established and how they have developed relationships between the hub, partner institutions, schools and their community stakeholders. The third level will evaluate the individual OSHubs and their projects and programs. Here a focus will be placed upon investigating the student and participant experiences and their socioscientific awareness. By centering our evaluation approach on these 3 levels we aim to develop further evaluation tools to obtain an in-depth and holistic view of all work packages in the project.

The purpose of this document is to:

—   Provide a detailed description of the 3 levels of evaluation of the Open Science Hub Network

— Provide a detailed description and examples of each of the evaluation instruments

Through the multiple levels of evaluation the research instruments being developed will be used to evaluate the effectiveness of all work packages as per Task 5.1, a mix of quantitative and qualitative assessments as part of Task 5.2. The instruments developed will all be used in the "Impact Evaluation Toolkit" Task 5.6 and used to implement evaluation and collect data for the baseline study as per Task 5.4.

2. Research Instruments

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2.1 Designing the Research Instruments

The evaluation of the OSHub.Network project will examine the process at 3 levels as described above. The first level will focus on the European-wide network made up of the 9-partner consortium. The second level will focus on each individual OSHub and their local stakeholder network. The third level will examine the individual events, projects and workshops that take place within each OSHub. The following will provide a detailed description of each research instrument used to evaluate the different levels of the OSHub Network.

2.2 Level 1 – The Consortium

The first level of evaluation in the OSHub project will involve the 9 partner consortium consisting of University Leiden, Science Gallery Dublin at Trinity College Dublin, Impact Hub Siracusa, Onl'Fait, Ars Electronica, CCSTI de Grenoble – La Casemate, ESA-ESERO Česká republika, Plataforma de Ciência Aberta-MFCR, SCICO. These partners come from a range of institutions and cultural bac-

kgrounds. Partners interact with different audiences and tackle their own specific socio-economic, cultural and environmental challenges. The consortium is of particular interest for evaluation due to its managerial perspective. This cohort can provide insight into the progress of the overall project, the development at each stage of the project, project sustainability and insights into resource management and training requirements.

2.2.1 Feedback Forums

As per Deliverable 5.1. the purpose of the feedback forums is to facilitate dialogue and establish a feedback instrument for all partners involved in OSHub.Network. Through the establishment of these forums we hope to encourage shared learning across countries and to embolden best practice throughout the consortium. The feedback forums act as self-informative reflection for each participant's experience and for the OSHub.Network project at large. This allows partners who contribute feedback on behalf of their institution and OSHub to influence the future direction of the project, ensuring the openness, integrity and social validity of the project and the impact evaluation.

By designing a means of periodic self-reflection we can then track partners' progress over time. This will allow us to create a stronger support network for the consortium where we can create efficient and suitable collaborations, tailor training to partners needs and inform the future strategy of the OSHub.Network.

We hope to gain insight into the following information from the Feedback Forums by means of questionnaires and interviews:

— Assessing the current challenges and obstacles each partner is facing as they attempt to create their local OSHubs.

— The experience of each partner communicating/collaborating with other partners in the Open Science Hub network and their local network.

— Assessing the partners current needs and resources to develop future training.

Questionnaires

The questionnaires are delivered via google forms consisting of 5 questions and 1 optional box to add further comments. Each question comes with a detailed description providing further insight and prompts to assist participants in their answers. The google doc questionnaires are distributed via the online project management tool Basecamp. The questions can be found in the appendix section 3.1.1.

Interviews

The interviews were conducted using Zoom Video Communications software. All interviews are scheduled for 40 minutes, the questions are designed to be open-ended to allow the interviewee to express the information they felt was most important. Interviews were created to allow participants an alternative form of expressing their experiences, concerns and needs as opposed to the closed-ended format of the questionnaires. Interviews hope to capture different aspects of the partners experience, potential future go-

als, and opinions on open schooling. Interviewees are encouraged to speak as openly, long or short as they wish. The interview questions can be found in the appendix in section 3.1.1.

2.2.2 Self Evaluation Tool

A self evaluation tool was developed for partners to reflect and measure their own progress at milestones of the OSHub project. The self evaluation tool asked partners to measure themselves against 7 categories. These categories represent the pillars of an Open Science Hub. Each pillar was measured on a 7 tier scale from 1 (Lower) to 7 (Higher). Each category had several indicators which allowed partners to assess their progress. Each indicator had 3 tiers of completion, which included "Not started, work in progress or completed". Partners first assessed their progress using each indicator, the results of which allowed them to estimate their progress on each of the pillars.

The breakdown of the pillars of the Open Science Hub (1-7) and the subsequent progressive indicators (a-f) can be seen in the appendix in section 3.1.2.

2.3 Level 2 – Local OSHub Networks

The second level of the OSHub.Network evaluation is that of local Open Science Hubs. Each of the 9 partners (excluding Impact Hub) will develop a local Open Science Hub. Here, each partner will act as brokers between schools, and local community stakeholders from industry, business,research etc. At this level we want to look at the effect that Open Science Hub is having on the local community and those participating in local OSHub events.

2.3.1 Community Stakeholder Questionnaire

A questionnaire will be sent to those participating in Open Science Hub from eachs hub surrounding the locality. These community stakeholders may be from local industry, research or cultural institutions, small businesses, local charity, community groups etc. The questionnaires are distributed to stakeholders upon their agreement to take part in the Open Science Hub project and once again as a reflective questionnaire at the end of the year. The questions for local stakeholders will be written as open ended questions, as to allow participants to express their views and experiences in an open and accessible way.

From these initial questionnaires we aim to capture the following information:

— The type of stakeholders interested in being a part of the Open Science Hub network

— What they wish to contribute to their local Open Science Hub network

— What impact, if any, did being a part of the Open Science Hub network have for them or their organisation

Stakeholder questionnaires will be distributed twice a year via google forms, there will be alternative platforms for those who may have difficulty accessing google forms. The proposed questions can be seen in the appendix in section 3.2.1.

2.3.2   Event Questionnaire

A questionnaire will be available to those who attend any Open Science Hub event. These events may take place in each local OSHub separate to or as part of each local OSHub project. The questionnaires will be distributed via google forms at or shortly post the event and will be aimed to gather information from local members of the community who have attended.

The events questionnaire is designed to capture the following information:

— What type of community stakeholder group is attending the event?
— What are they looking to do to support the local Open Science Hub?
— What was their experience of the event?
— Is Open Science Hub having an impact on their work?

Stakeholder questionnaires will be distributed twice a year via google forms, there will be alternative platforms for those who may have difficulty accessing google forms. The proposed questions can be seen in the appendix in section 3.2.1.

2.4   Level 3 – OSHub.Network Projects

The third level at which the OSHub.Network will be evaluated focuses on the individual OSHub Open Schooling projects and programs. Here a focus will be placed upon investigating the student, teachers and participant experiences in OSHub workshops and throughout the development of their projects. This will be investigated through the lens of student and teacher/facilitator pre and post questionnaires along with continuous reflection throughout the program.

2.4.1   Pre/Post Identity Questionnaires

Students taking part in the Open Science Hub project will take part in a self-identification questionnaire. This questionnaire is designed to capture students' behaviour and perspectives around 'STEAM and active citizenship' and the relationship they each play within their own lives and the lives of those in their community (Young D.M., 2013). The questionnaire investigates students perspectives from a behavioural, emotional and cognitive context (Fredricks J.A., 2012)

The student identity questionnaire is based on an 'Inclusion of Self' (IOS) tool (Mashek D., 2007). This tool consists of five pairs of overlapping circles each pair overlaps slightly more than the preceding pair. Participants select the pair of circles that best portrays their relationship with another (e.g., partner, friend, parent, community, the environment), similar to that of a Likert scale (McDonald MM, 2019).

The questionnaire will ask students questions based on academic perceptions, social perceptions, environmental influence, beliefs and aspirations, future perceptions, self identity, community identity, social influences, extra curricular and demographic information adapted from (DeWitt J., 2013) (Fredricks J.A., 2012).

These questionnaires will be provided to students in the first half of their Open Science Hub project and again on completion of their Open Science Hub Projects. The reflection tool can be seen in the appendix in section 3.2.2.
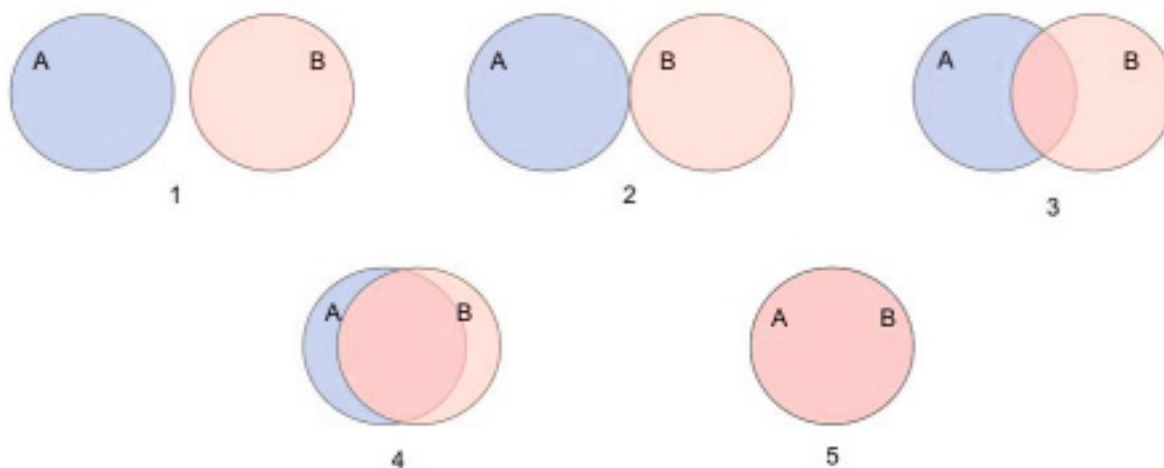
Figure 1: Descriptive prompt provided to participants of the 'student identity questionnaire'. Adapted from (McDonald MM, 2019)

2.4.2   Teacher Reflection Tool

A reflection tool will be distributed to teachers and facilitators who are partaking or observing classes throughout Open Science Hub workshops. The reflection tool is designed to function two fold. Firstly, it can act as an assessment tool for the Open Science Hub workshops to evaluate if the workshops are accessible, engaging and follow the (Diversity, Equity and Inclusion) DEI policy as per deliverable 4.1. Secondly, the reflection tool can be used for teachers to develop their knowledge of Open Science Hub and open schooling methodology. This may function as one of the tools that contributes to Task 4.8: Organise teacher continuing professional development". The reflection tool may be given to teachers after a set of open science hub workshops.

The reflection tool can be seen in the appendix in section 3.3.2.

2.4.3   ZINES

A Zine is a short, self-published book of text and images. They can be the product of either a single person or a small group of people, and are often circulated in local community spaces like cafes, libraries, and festivals. Zines are typically a small form factor collage made with images and text which

can include stickers, magazine clippings, photos, books, tape, and paper. Zines have historically been used to explore the interrelation of artistic, social, and political movement (Poletti A., 2005).

Zines may also be referred to reflection journals or learning portfolios. The nature of the zines encourages intentional play through the materials used and the personal process involved in reflection. The transdisciplinary foundation of personalisation, critical analysis, and social engagement can be an empowering reflective tool, which captures personal experiences and perspective which provides highly qualitative records (Desyllas, 2014).

The use of zines throughout the OSHub.Network will be used to capture the experience of school students throughout their OSHub projects. The format for delivering zines should be identical throughout and adhere to the following steps (Robert, 2009).

— The concept of Zines is presented to students. This includes a brief history of zines, what they can be used for, how you can make/design a zine.

— Students are told that zines will be used for reflection, and are then presented with different types of reflection.

— Students will be issued with prompts to aid their reflection.

— Students must be given an allocated time to complete their zine reflections. These reflections can happen at several stages throughout the project.

— Students will then present their zines at the end of the project.

The above steps will be described in greater detail in a workshop format and available to all members of the OSHub.Network.

Zine Analysis:

The reflections will later be analysed through the use of a zine rubric which can be seen in the appendix section 3.3.3. Each zine reflection will be examined from 3 points of interest.

1. Depth of Reflection:

First, will examine what the author is doing with their knowledge and experience. Adapted from (Ryan, 2012) depth of reflection examines ownership of knowledge. Is the author providing a description of their experience (reporting) or are they transforming the knowledge gained from their experience into something new (reconstructing).

2. Scope of Reflection:

Second, we will examine who the author is reflecting on. Open Science Hub is partially about linking science with society, therefore we want to investigate if the participants are thinking about science in the context of themselves or society at large.

3. Method of Reflection:

Third, we will examine the type of reflection the author is using. Are they examining it from a personal perspective or are they able to look deeper into themselves to critically assess their own actions and experiences.

4. Alternative Reflections:

Lastly we will capture formats of student reflections, this will examine the forms of communication through materials, colours, collage and style of language.

3. Appendix

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3.1 Level 1 – The Consortium

The first level of evaluation in the Open Science Hub project will involve the 9 partner consortium. These partners come from a range of institutions and cultural backgrounds. Partners interact with different audiences and tackle their own specific socio-economic, cultural and environmental challenges. The consortium is of particular interest for evaluation due to its managerial perspective. This cohort can provide insight into progress of the overall project, the development at each stage of the project, project sustainability and insights into resource management and training requirements.

3.1.1 Feedback Forums

It is important to note that certain questions are sensitive to the time of the projects and the milestones reached. Some questions such as question 1, 2, 5 from the questionnaire and 1, 2 and 4 from the interviews will consistently be carried forward. An analysis of the feedback forums can be seen in D5.1: Feedback Forums.

1. **How do you feel about your overall experience of the OSHub.Network project thus far?**

   Please feel free to tell us about challenges, successes, COVID-19 frustrations, or anything else you want to get off your chest!

2. **What has been your experience of developing/expanding your networks for the OSHub.Network project?**

   Please feel free to tell us about your general experiences working with other project OSHub partners, schools, and/or other stakeholders.

3. **What has been your experience of participation in the training webinars?**

   Please feel free to let us know what aspects of the sessions you found helpful, your experience of the tools, whether you have used the tools or if you plan to use them in the future, whether you have taken inspiration and modified the tools, or anything else about the training you would like to share.

4. **What do you feel are the potential impacts that your OSHub can make?**

   While we cannot measure the impact of every aspect of the project, we would like to prioritise the aspects that are most important to you. In your answer if you refer to the impact of the ‚Open Schooling' approach, please detail what this means to you and the effect that might it have on your local network, as well as the European-wide consortium.

5. **What resources can you realistically provide for evaluation during each OSHub workshop/event?**

   Please let us know if you might have a dedicated staff member (either yourself or facilitators, teachers, or anyone else who might be willing and able) to help evaluate activities. We would also like to know how much time you estimate that person could provide (whether it's a constant present during the activities, or a few minutes, or an hour after each activity has finished). This could include distribution & collection of surveys, conducting observational tools, interviews and data processing. Understanding what capacity each partner has for evaluation will help us to tailor our tools to best serve the needs of the project.

6. **Any other comments**

   If you have any feedback on any aspect of the project, or even your experience of completing this questionnaire, would you be comfortable

completing a similar form every few months? Please feel free to share your thoughts here.

Questions for Interviews

1. **Since the start of the OSHub project there have been a multitude of developments across each local hub as well as the larger consortium. What have been the most significant developments for you?**

2. **Thinking about the OSHub project on personal, local and network wide scale. What are your hopes for the future in relation to the OSHub project?**

3. **In your own opinion what does 'Open Schooling' mean?**

4. **Do you have any other comments you would like to add?**

3.1.2   Self Evaluation Tool

It is important to note that certain questions are sensitive to the time of the projects and the milestones reached. Some questions such as question 1, 2, 5 from the questionnaire and 1, 2 and 4 from the interviews will consistently be carried forward. An analysis of the feedback forums can be seen in D5.1: Feedback Forums.

1. School engagement	— Map schools based on education, social and economic factors
	— Identify target schools
	— Define partnership with school

2. Stakeholder map	— Identify stakeholders
	— Prioritise stakeholders
	— Identify local management board

3. Community Building

— Engage community champions

— Engage in multi-stakeholder sessions

— Host clinics for school support

— Host projects showcase

4. Specific Challenges Identified

— Identify local relevant challenges

— Define impact of targets

— Define initial ideas for open schooling projects

5. OSHub Value Proposition

— Value proposition

— Expected results

— Impact

— Key stakeholders

— Costs

— Revenue

6. Feasibility, Technical and Financial

— Categories of costs

— Investments

— Timeframe

— Human Resources

— Other Resources

— Other

7. Specific Challenge Implementation

— Preparation

— Kickoff activities

— Outcomes and deliverables

— Assessment of impact to the local community

— Added value to OSHub

— Sustainability / transfer

3.2 Level 2 – Local OSHub Networks

The second level of the OSHub.Network evaluation is that of local Open Science Hubs. Each of the 9 partners (excluding Impact Hub) will develop a local Open Science Hub. Here, each partner will act as brokers between schools, and local community stakeholders from industry, business,research etc. At this level we want to look at the effect that Open Science Hub is having on the local community and those participating in local OSHub events.

3.2.1 Community Stakeholder Questionnaire

Name: . . . .

Contact email: . . . .

Name of school / organisation: . . . .

What stakeholder group best describes you:

☐ Artist

☐ Charity / Non-profit organization

☐ Civil Society

☐ Community Group

☐ Clinician

☐ Designer

☐ Industry Stakeholder

☐ Parent / Guardian

☐ Non-governmental Organisation (NGO) Staff Member

☐ Researcher / Academic

☐ Small-Medium Enterprise (SME)

☐ Student (School)

☐ Student (Third Level)

☐ Teacher

☐ Youth Organisation

Why are you interested in taking part in the Open Science Hub Project?

. . . .

. . . .

. . . .

What do you hope you can offer the Open Science Hub Project?

. . . .

. . . .

What do you hope to gain from the Open Science Hub Project?

. . . .

. . . .

3.2.2   Event Questionnaire

Name: . . . .

Contact email: . . . .

Have you attended an Open Science Hub event before? . . . .

If so, what event did you attend? . . . .

Name of school / organisation: . . . .

What stakeholder group best describes you:

☐ Artist		☐ Parent / Guardian
☐ Charity / Non-profit organization		☐ Researcher / Academic
☐ Civil Society		☐ SME
☐ Community Group		☐ Student (School)
☐ Clinician		☐ Student (Third Level)
☐ Designer		☐ Teacher
☐ Industry Stakeholder		☐ Youth Organisation
☐ NGO Staff Member		

What event did you attend today?

. . . .

. . . .

Why did you choose to attend this event and what are you hoping to take away from this experience?

. . . .

. . . .

What were you hoping to contribute to today's event?

. . . .

. . . .

What is your level of satisfaction with this event?

. . . .

. . . .

Has this event had an impact on your work?

. . . .

If so, how?

. . . .

. . . .

Is there anything else you would like to add?

. . . .

. . . .

3.3   Level 3 – Local OSHub Networks

The third level at which the OSHub.Network will be evaluated focuses on the individual OSHub Open Schooling projects and programs. Here a focus will be placed upon investigating the student and participant experiences in OSHub workshops and throughout the development of their projects. This will be investigated through the lens of student and teacher/facilitator pre and post questionnaires along with continuous reflection throughout the program.

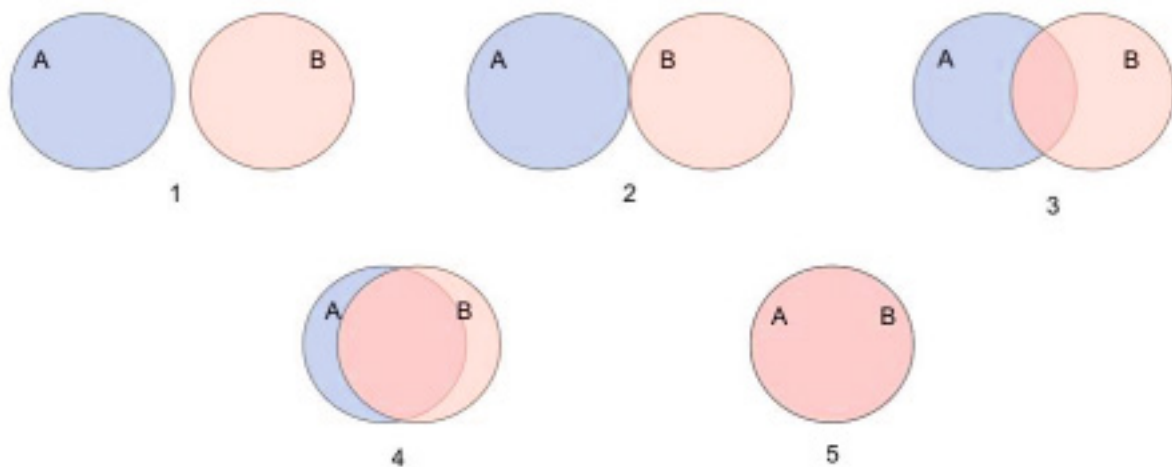## 3.3.1   Self Identity Questionnaire

Figure 1: Descriptive prompt provided to participants of the 'student identity questionnaire'. Adapted from (McDonald MM, 2019)

The graph above shows two circles overlapping in 5 different stages. The numbers correspond to the following explanations:

1. A does not know B exist
2. A is aware of B but has no relationship / A is aware of B but sees no representation in B
3. A and B have a little in common / A has little representation in B
4. A and B have a lot in common / A has a strong representation in B
5. A and B are very much the same / A is completely represented in B

1. Academic Perception

In the following statements assume you are peson A. How much do you have in common with person B, if B...

Finds learning / doing science . . . .

☐ Enjoyable   ☐ Difficult   ☐ Effortless

Finds learning / doing art . . . .

☐ Enjoyable   ☐ Difficult   ☐ Effortless

Finds learning / doing politics and social studies . . . .

☐ Enjoyable   ☐ Difficult   ☐ Effortless

2. Social Perceptions

In the following statements assume you are person A. How much do you have in common with person B, if B...

Explains the natural world using examples from . . . .

☐ Science   ☐ Arts   ☐ Politics / Social Science

Solves problems using their knowledge form . . . .

☐ Science   ☐ Art   ☐ Politics / Social Science

3. Environmental influence

In the following statements assume you are peson A. How much do you have in common with person B, if B(s)...

Family enjoys talking about . . . .

☐ Science   ☐ Arts   ☐ Politics /society

Is usually referred to as a(n) . . . .

☐ Scientist   ☐ Artist   ☐ Community activist

Is from a community that has a large focus on . . . .

☐   Science   ☐   Art   ☐   Activism

Teachers is responsible for them enjoying . . . .

☐   Science   ☐   Art   ☐   Learning about taking action in a community

Friends & social groups are responsible for them enjoying . . . .

☐   Science   ☐   Art   ☐   Activism

4. Self Identity

In the following statements assume you are person A. How much do you have in common with person B, if B(s)...

Finds it is important to be good at . . . .

☐   Science   ☐   Art   ☐   Activism

Is a . . . . you know personally

☐   Scientist   ☐   Artist   ☐   Activist

5. Future Aspirations

In the following statements assume you are person A. How much do you aspire to be like B, if B...

Has a career as a scientist . . . .

☐   Scientist   ☐   Artist   ☐   Activist

Has been awarded for their work in . . . .

☐   Science   ☐   Art   ☐   Activism

6. Future Perceptions

On a scale from 1 to 5 how much do you agree with the following statement. If 1 = strongly disagree and 5 = Strongly agree.

I believe . . . . can make a difference in the world

☐ Scientists ☐ Artists ☐ Activists

. . . . spend most of their time working by themselves

☐ Scientists ☐ Artists ☐ Activists

. . . . personal opinions matter in their job

☐ Scientists ☐ Artists ☐ Activists

. . . . work mostly by themselves

☐ Scientists ☐ Artists ☐ Activists

7. Community Identity

On a scale from 1 to 5 how much do you agree with the following statement. If 1 = strongly disagree and 5 = Strongly agree.

☐ I feel a strong sense of belonging with people who live in my community

☐ I plan to move away from my community in the future

☐ Everyone seems to care how our community looks / acts / feels

☐ In general being a resident of my community is an important part of my self identity

☐ If there was a serious problem in my community people who live in it would get together and solve it

☐ When I think of myself I often think about my friends and family

☐ I believe members of my community would help in an emergency

☐ I have a good understanding of the the diverse groups in my community

☐ I feel at home and comfortable in my community

☐ I have a good understanding of the local business in my community

8. Social Group Identity

On a scale from 1 to 5 how much do you agree with the following statement. If 1 = strongly disagree and 5 = Strongly agree.

☐ I feel a strong sense of belonging with community groups outside of where I live

☐ Overall my social groups are considered good by others

☐ The social groups I belong to are an important part of my self identity – I often feel I am a useful member of the social group I belong to

☐ Overall my group memberships have very little to do with how I feel about myself

9. Extracurricular

How often do you do any of the following?	Almost every day	Weekly	Monthly	Yearly	Never
Take extra classes outside of school					
Read books or literature not for school					
Visit art or science museums, galleries or exhibitions					
Spend time outside in nature					
Attend activities ran by community groups					
Attend protests					
Attend an after school club / youth group					
Exercise – By yourself / with friends / sports group					
Talk with friends or family about science					

Talk with friends or family about political issues				
Talk with friends or family about art				
Use social media such as instagram, snapchat, facebook, twitter, youtube				
Look up information about science, politics, the world in the library or on the internet				
Use tools to build or take things apart to find out how they work				

10. Demographic Information

How old are you: . . . .

In which country where you born: . . . .

Do you identify as a gender? If so, what gender do you identify with?: . . . .

Where do you live?

☐ Country side   ☐ Outskirts of a city   ☐ In a city

Do do you lIve at home with:

☐ Mother   ☐ Father   ☐ Guardians   ☐ Sister(s)

☐ Brothers(s)   ☐ Other relatives   ☐ Someone else

How many of the following items can be found at home	None	1	2 – 4	5+
Television				

Motor vehicles

Book Shelves

Smart phones

Computer & tablets

Musical Instruments

3.3.2 Workshop Observation Tool

Accessibility	— Is the conversation leveraging the students current knowledge? — Is the activity accessible for neurodiverse students? — Is there multiple ways of doing this activity?	
Engaging	— Is the content of this workshop relevant for students — Is there an emotional response from students — Are students engaging in conversation not on their standard curriculum	
Diversity	— Is there diversity among the examples used in the workshop – using minority groups / — Is there diversity in the examples/references participants use	
Inclusivity	— Are students able to relate to the examples / references used — Does every students have equal opportunity to take part in the discussion	

Motivation	— Have students been able to relate their personal knowledge in 'classroom talk' — Is the facilitator guiding students through prompts and questions — Are students learning from their failures	
Community	— Are there references to/representations of the local community within the workshops — Does the environment the students work in promote active engagement	
Identity Support	— Are students alternating roles / displaying different roles than they normally would? — Is there time taken to acknowledge achievements of learners	
Autonomy	— Are students demonstrating communication / collaborations — Are students partaking in talk amongst themselves — Are students beginning to plan/ take risks by themselves	

3.3.3   ZINES – Evaluation Rubric

No	Level of Reflection	Description	Observation
1	Reporting / Responding	— The learner reports on the events of the day, a summary of experience. — Describing how they responded or took part in an incident.	

2	Descriptive / Reporting	— Reporting that describes the user experience which includes the sensory detail of the participants environment, , direct quotes or definitions, or point--to-point comparison between two incidents.
3	Relating	— The learner makes connections between the event with another realm of their knowledge, skill or experience etc. reference another point in time, alternative conditions or a difference in their ability
4	Reasoning	— The learner provides a detailed understanding and explanation of features that contribute to the event being discussed. They make reference to relevant theories or experience to further their explanations. — Provide an analysis from an alternative perspectives
5	Reconstructing	— The learner has digested and reconstructed/ reframed the information in a new way. — They create alternative hypotheses / predictions based on the event. — Their ideas are supported by information given / they ask "what if?" / the effect it can have on others
6	Metacognitive	— The learner is showing awareness of their own thinking. They make reference to their current knowledge, behaviour, emotions, ability or progress. — They are reflecting on explicitly referencing their own thoughts & feelings.

7	Self Authorship	— The learner is reflecting as though their reflections are objective. Making reference to themselves — They emphasise an understanding of the effects different thoughts have on their emotions, actions and perceptions
8	Transformative	— The learner is reflecting on their experience as though it is a separate frame of reference — They comment on their experiences, what they have learned and how they can improve for the future. — Commenting what they should do. Aware of thoughts, perceptions and actions and how they feel about their reflections.
9	Personal	— The learner makes direct reference to themselves, their experience, perceptions, feeling, emotions and thoughts
10	Friends & Family	— The learner makes reference to individuals close to them such as friends and family.
11	Local Community	— The learner makes reference to individuals from larger communities in their locality or groups of people within other communal cultures.
12	Global Society	— The learner makes reference to individuals from outside their communities or unfamiliar groups. Typically on a national or global scale.
13	Accurate Information	— Is the information presented here correct?

14	Visual material interact & written text	— How does the visual material support the reflection? Is it illustrative, decorative, satirical , or metaphorical? Something else?
15	Semantic Material	— What language does the learner present; satirical, metaphorical, sarcastic?

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DELIVERABLE 5.2

Research Instruments