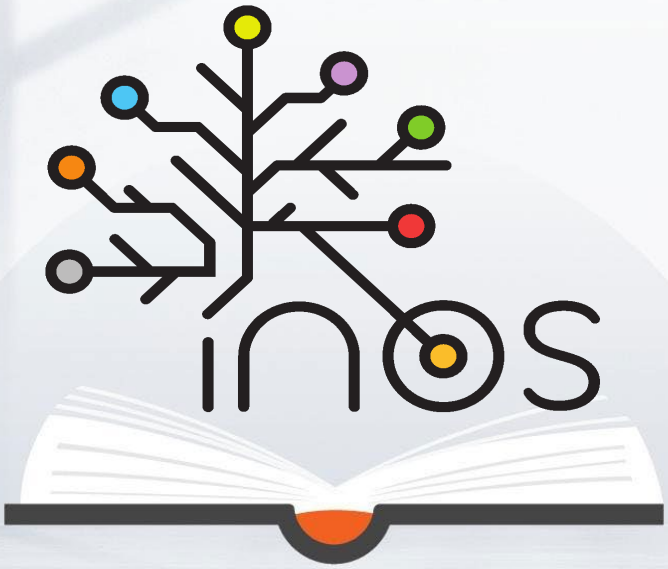
INTEGRATING OPEN AND CITIZEN SCIENCE INTO
ACTIVE LEARNING APPROACHES IN HIGHER EDUCATION



Compilation of use cases of open knowledge building activities

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	[…]
Abstract:	**This deliverable presents all the open knowledge activity (OKA) factsheets. It is provided with a short summary of the cases. The in-depth evaluation will be provided in O3.3.**
Keyword list:	**open knowledge, open data, citizen science, open science**

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Consortium

	Name	Short Name	Country
1	**Aalborg University**	AAU	Denmark
2	**Tallinn University**	TU	Estonia
3	**Web2Learn**	W2L	Greece
4	**University of Oulu**	UO	Finland
5	**University of Bordeaux**	UBx	Fance
6	**STICHTING LIBER**	LIBER	The Netherlands

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Version	Date	Revised by	Reason
V0.5	15/04/2021	University of Bordeaux	External review
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Executive Summary

This deliverable presents the short overview of the use cases of open knowledge activities conducted by INOS partners in HEIs.

1.Introduction

1.1. Scope

This document provides a short introduction to all the open knowledge activities INOS project partners have carried out in 2020/2021.

1.2. Audience

The audience of the document is higher education institutions who intend to enrich their teaching and learning practices towards open science and citizen science activities in order to provide higher societal impact, increase collaboration and grow inclusion between academic and other stakeholder groups.

1.3. Structure

The document provides a short overview of the conducted open knowledge activities and presents each learning activity scenario using the table format. The in-depth qualitative information of the activities, as well as, the impact evaluation regarding citizen science competences development is provided in O.3.3.

Table 1 presents the overview of OKA cases and summarises the cases.

HEIs established the open science and citizen science goals in OKAs by:
i) opening up the learning activities in HEIs and blending students, researchers, mentors and external stakeholders in wide age ranges (young students, teachers in secondary education level, various professionals, scientists, elderly groups);
ii) providing learning activities that introduced open science and citizen science concepts, and the practices of open codesign, working with digitized open data; teamwork with people external from the university;
iii) creating some types of open knowledge (the degree of openness and reusability of open knowledge and data differed from totally public to stakeholder-groups' owned);
iv) promoting the learning outcomes of citizen science, open science knowledge; the competences of open co-design and open data maintenance, digitally mediated collaboration, digitally mediated co-design, digital open data maintenance, digital team work.

Due to the corona crisis situation most of the learning activities were carried out in digital collaboration mode, which hindered the active participation (the numbers of engaged participants remained lower than initially planned in the project). The initial plan was that 4

partners will conduct12 OKAs for 450 participants. One partner AAU could conduct only one OKA, however, OU conducted 3 OKAs instead. The final number of participants in OKAs was 408. On the other hand, the digital mode activities extended the possibilities of training specific digital competences of OKA participants, and enabled the HEI teams to accommodate for open science and citizen science many digital tools that previously were not used in HEIs activities.

Table 1. Overview of OKAs

Partner	OKA name	Learning outcomes	Open knowledge created, IP terms	Number of participants
AAU	Data Workshop for "Technological and Organizational Trends in Service Design"	To scrape and visualize data with several tools; Understanding of digital methods; To creatively use data in the discovery phase of the design process	Instagram data visualization, public access	In total 49: Service System 46 Design students (1st year masters); Professor (1) Postdoctoral Researcher (1) PhD student (1)
OU	Life in farm Gamified learning script for the environmental science module (Rajakylä school)	To codesign a pedagogical gamified script with clients; To pilot the learning design; To evaluate the learning design	Gamified STEAM learning modules	In total 30: 4 academic staff + 4 facilitators + 22 participants Part of curriculum for 1st year LET master's degree students, course teachers, coaches, and clients, 4th graders who are studying in technology-oriented class in Rajakylä primary school
OU	Gamified learning script for the	To codesign a pedagogical	Gamified FabLab learning modules,	In total 29: 4 academic staff +

	event in FabLearnLab	gamified script with clients; To pilot the learning design; To evaluate the learning design		6 facilitators +19 participants . Part of curriculum for 1st year LET master's degree students, course teachers, coaches, and clients, 4th graders who are studying in technology-oriented class in Rajakylä primary school
OU	LET master's programme 15 years anniversary event	To get familiar with educational design research and activities; To deepen the contacts and relations between alumni and working life cases and current students; To get knowledgeable of the continuous learning possibilities in the field of education	Collective design activity	In total 27: 4 academic staff + 23 participants 1st year LET master's degree students (+ 2 minor subject students) in Educational Technology; teachers, coaches, and alumni
LIBER	Four OKA events: Integrating Citizen Science at Universities: from 'What' to 'How	Open and Citizen Science application in an academic setting; Copyright application in Citizen Science projects; Collaborative use	Citizen Science project concept, presentations	In total 157 (in four events): students, mentors

		of documents; Presentation skills, project creation/planning skills;		
TU	Noise Pollution at Reidi Road	Knowledge of citizen science / sound volume; Using Globisens app, Avasturada.ee app; Designing the learning activities at geolocative trails for crowdsourcing and evaluating the data and the trails' quality	Citizen science trail, crowdsourced dataset from the trail, available openly at avastusrada.ee	In total 39 participants: 25 teacher education students of Tallinn University who are working as teachers, 1 mentor, 12 students from 9th grade (15-16 years old), 1 mentor
TU	Designing public services for elderly with external stakeholders	Knowledge of the Design thinking process; Using the Zoom, Trello and Google classroom for collaboration; Collaboration in team	Public services' or elderly design concepts' canvases in Trello.com, ownership and access for teams who advance these further	In total 13: 10 participants from elderly groups or representing elderly stakeholders, 3 mentors (HE)
University of Bordeaux	Edit-a-thon – "My thesis, Wikipedia and I"	Citizen science / Wikipedia approach to enrich scientific inquiry Concrete, hands-on approach to Open Knowledge for PHD students; Wikipedia using and contributing; Make use of	Improvement in Wikipedia in specific field, open access	In total 12: 7 PHD students, universitary communities + 5 mentors from the civil society (wikipedists)

		research methodology outside the academic context		
University of Bordeaux	SPINE Event	Brain function and neuroscience / neurodegenerative diseases (multiple sclerosis); Inquiry method; Using of the data management software; Segmenting a brain structure.	Neuroscience and biomedical image annotation dataset, SPINE platform	In total 49 participants: (all sessions combined) + 4 academics + 4 mentors (on technical support during the group sessions)

2. Methodology

The document was compiled using the common OKA reporting template. The template particularly focuses on pedagogical goals, learning activity structure and learning outcomes, open knowledge development aspects, human and digital resources used in the activity. Each partner reported shortly about the OKAs using the same structure that allows quick overview and enables easy comparison of cases. However, the in depth analysis will follow in the deliverable O3.3, where the qualitative report data and quantitative survey data will be used that have been collected from OKAs.

3. Use cases of OKAs

3.1. Data Workshop for "Technological and Organizational Trends in Service Design" (AAU)

1. Activity Description				
Name of the activity	Data Workshop for "Technological and Organizational Trends in Service Design"			
INOS Partner	Aalborg University (AAU)			
Topic - areas	Data scraping from online open data sources Data visualization using open source software Creative use of open data for the discovery phase of design process			
Inspirations (e.g. external event, internal event,…)	N/A			
Activity approach (e.g. research-focus activity, education focused activity,…)	Workshop/Inquiry-based learning component			
HEI context (part of curriculum, extracurricular, regular event…)	Part of curriculum of university module "Technological and Organizational Trends in Service Design", for 1st year masters Service System Designs students			
Date(s)	3-5 March			
Place(s)	Online			
Format				
Online / physical venue / mixed	Online			
Number of participants	Expected	45	Achieved	49
including (number of students)	Expected	40	Achieved	46
Duration	3 days			
Please briefly describe the program	Day 1: ● Introduction (15 mins) ● Basic principles, tools/software for data exploration and visualization (1 hour lecture) ● Student presentations & Q&A (45 minutes) ● Design Inquiry through Data (1 hour lecture) ● Student feedback session (15 mins) Day 2:			

	• Scraping Instagram data (1 hour lecture) • Student group work (2 hours) • Student feedback session (15 mins) Day 3: • Student group work (3 hours) • Student group presentations (2 hours)			
Public pitches, ceremony, and/or award	Final presentations (15 mins for each group) on Day 3.			
If yes and known, specify	-			
Mode of engagement (e.g. groups' sizes, composition of the groups, plenary sessions…)	Students worked in their established student groups.			
Type of results expected	Students will achieve the following skills: Ability to scrape and visualize data with several tools; Understanding of digital methods; Ability to creatively use data in the discovery phase of the design process.			
2. Organization				
Organizer(s)	Service Systems Design Lab, Aalborg University			
Partners and funders	-			
Students involvement in the organization	Students were not involved in the organisation, since this activity is a part of their module curriculum.			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	46	Service System Design students (1st year masters)	Participants	Previous lecture and homework
Mentors' description	3	Professor (1) Postdoctoral Researcher (1) PhD student (1)	Workshop facilitators	-
3. Activity Timeframe	Who?	When? How long? (Duration)	How? (tools, method,…)	

Framing the activity (Choosing the topic, setting goals)	AAU Mentors	1 month	Microsoft Teams meetings, emails and joint conversations
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	AAU Mentors	1 month	Microsoft Teams meetings, emails and joint conversations
Engaging the participants (according to their backgrounds)	AAU Mentors	Throughout the duration of the event	Mentors give several lectures, are available for Q&As, and provide feedback every day to each student group.
Evaluation	AAU Mentors	After the event	Survey available on the course's Moodle
Dissemination	N/A	N/A	N/A
4. Resources	For Design (activity)		For Collaboration (between the participants)
Software (e.g. open source)	Microsoft Teams		Microsoft Teams Miro Google Drive
Facilities (e.g. shared space, innovation space)	N/A		N/A
Online tools	Moodle (licensed)		Instaloder (open source) OpenRefine (open source) RawGraphs (open source) Tableau (licensed) QGIS (open source) Table2Net (open source) Gephi (open source)
Learning resources	Lectures (pre-recorded) Tutorial videos for online tools and software Journal articles		
Data	Cleaned data set from PhD student's (who is also a mentor) research on open data		
IP terms and conditions on the output	The output will not be openly available.		
5. Learning goals identified			
Knowledge of the topic	How can we make experiences of cities as cultural districts legible by using data visualization to map social		

	media data enriched by vision AI algorithms?
Technical skills (e.g. using software)	Ability to scrape and visualize data with several tools. Understanding of digital methods. Ability to creatively use data in the discovery phase of the design process.
Soft skills (e.g. project management)	-
Others, please specify	-

3.2. Gamified learning script Life in Farm for the environmental science module (Rajakylä school) (OU)

1. Activity Description	
Name of the activity	Gamified learning script Life in Farm for the environmental science module (Rajakylä school)
INOS Partner	University of Oulu
Topic - areas	Gamification and gamified learning have raised high interest among Finnish teachers, and these are also emphasized in the current national curriculum for primary and secondary education. Applying digital games, adding game elements into teaching, designing own games etc. are all part of gamified learning, and methods that can be applied even with young children. In Rajakylä primary-school, STEAM-pedagogy is emphasized especially in technology classes. STEAM-pedagogy includes the idea of collaborative learning, problem-based learning, (creative) problem solving as well as regulation of learning. Gamification is one way to enhance these skills and competences. Rajakylä school offers two cases for LET-students. The purpose of these projects is to develop and pilot two gamified learning modules or experiments in Rajakylä school. Gamified learning refers in this context to learning situation in which various game elements, such as leader boards, badges, roles etc.are applied.Project 1 is related to environmental science module and project 2 to Rajakylä school's new maker space FabLearnLab (see

	more detailed descriptions below). Students who are participating in either of these projects are expected to get familiar with the content (gamification in learning) and the context (Rajakylä school) of the project including Rajakylä FabLearnLab.			
Inspirations (e.g. external event, internal event,)	The working name there was “Gamified outdoor problem-solving event”			
Activity approach (e.g. research-focus activity, education focused activity,…)	Research-focus activity and education focused activity			
HEI context (part of curriculum, extracurricular, regular event…)	Activity planning: Part of curriculum for 1st year LET master's degree students (+ 2 minor subject students) in Educational Technology Projects-course who will plan the activity together with the course teachers, coaches, and clients Implementation:			
Date(s)	April 6-29, 2021			
Place(s)	Face-to-face			
Format				
Online / physical venue / mixed	Online, physical venue			
Number of participants	Expected	34	Achieved	30
including (number of students)	Expected	30	Achieved	22
Duration	3-5weeks			
Please briefly describe the program	Tasks for the students (organizers): •To design a pedagogical script –in collaboration with a classroom teacher –for a 3-5weeks environmental science module in which the elements of gamified learning are applied. •To observe the pilot of the implementation. •To participate in evaluation of the script.			
Public pitches, ceremony, and/or award	none			
If yes and known, specify				
Mode of engagement (e.g. groups' sizes, composition of the groups, plenary sessions…)	Small group collaboration (mixed gender group of 3)			
Type of results expected	Students will achieve the following skills: Collaboration skills, ICT skills, Problem-solving skills			

2. Organization				
Organizer(s)	University of Oulu (LET Master´s degree programme)			
Partners and funders	INOS project, Rajakylä school			
Students involvement in the organization	Students are planning the activities.			
	Expected number	Background (s)	Role(s)	Preconditions needed
Participants' description	22	4th graders who are studying in technology-oriented class in Rajakylä primary school	Pupil	Basics of Minecraft
Mentors' description	8	4 LET Master's degree students and 4 university staff members	Facilitator	Basics of Minecraft
3. Activity Timeframe	Who?	When? How long? (Duration)	How? (tools, method,…)	
Framing the activity (Choosing the topic, setting goals)	1)OU mentors 2)Classroom teacher 3)HE students	1-3) Two-weeks	Classroom activity and Kahoot!	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	1)OU mentors 2)Classroom teacher	1) - 2) 1 month 3) 1 month	Minecraft and Microsoft Teams	

	3)HE students		
Engaging the participants (according to their backgrounds)	1)OU mentors 2)Classroom teacher 3)HE students	1) - 2) 1 month 3) 1 month	Minecraft and Microsoft Teams
Evaluation	1)OU mentors 2)Classroom teacher 3)HE students	1) - 2) 1 week 3) 1 week	Minecraft and classroom
Dissemination	1)OU mentors 2)Classroom teacher 3)HE students	1-3) 1 week	Blog post
4. Resources	For Design (activity)		For Collaboration (between the participants)
Software (e.g. open source)	Microsoft Teams Minecraft Kahoot!		WhatsApp
Facilities (e.g. shared space, innovation space)	Microsoft Teams		Microsoft Teams
Online tools	Microsoft Teams Minecraft Kahoot!		Microsoft Teams
Learning resources	Lectures, workbook of environmental science		
Data	Questionnaire		

IP terms and conditions on the output	The output will not be openly available.
5- Learning goals identified	
Knowledge of the topic	How the farm life is
Technical skills (e.g. using software)	Using digital tool (Minecraft)
Soft skills (e.g. project management)	Collaboration skills, problem-solving skills
Others, please specify	none

3.3 Gamified learning script for the event in FabLearnLab (OU)

1. Activity Description	
Name of the activity	Gamified learning script for the event in FabLearnLab
INOS Partner	University of Oulu
Topic - areas	Gamification and gamified learning have raised high interest among Finnish teachers, and these are also emphasized in the current national curriculum for primary and secondary education. Applying digital games, adding game elements into teaching, designing own games etc. are all par t of gamified learning, and methods that can be applied even with young children. In Rajakylä primary-school, STEAM-pedagogy is emphasized especially in technology classes. STEAM-pedagogy includes the idea of collaborative learning, problem-based learning, (creative) problem solving as well as regulation of learning. Gamification is one way to enhance these skills and competences. Rajakylä school offers two cases for LET-students. The purpose of these projects is to develop and pilot two gamified learning modules or experiments in Rajakylä school. Gamified learning refers in this context to learning situation in which various game elements, such as leader boards, badges, roles etc. are applied. Project 1 is related to environmental science module and project 2 to Rajakylä school's new maker space FabLearnLab (see

	more detailed descriptions below).Students who are participating in either of these projects, are expected to get familiar with the content (gamification in learning) and the context (Rajakylä school) of the project including Rajakylä FabLearnLab.			
Inspirations (e.g. external event, internal event,…)	N/A			
Activity approach (e.g. research-focus activity, education focused activity,…)	Workshop/Inquiry-based learning component			
HEI context (part of curriculum, extracurricular, regular event…)	Activity planning: Part of curriculum for 1st year LET master's degree students (+ 2 minor subject students) in Educational Technology Projects-course who will plan the activity together with the course teachers, coaches, and clients Implementation:			
Date(s)	April-May 2021			
Place(s)	Rajakylä primary school FabLearnLab			
Format				
Online / physical venue / mixed	Physical venue			
Number of participants	Expected	26	Achieved	29
including (number of students)	Expected	22	Achieved	19
Duration	One day event			
Please briefly describe the program	Tasks for the students: •To design a script –in collaboration with the vice principal of the school and with a classroom teacher –for a one day event in FabLearnLab in which pupils together with their parents are engaged in maker activities(vinyl cutter, 3D-printing etc)by following the idea of gamified learning. •To observe the pilot of the implementation. •To participate in evaluation of the script.			
Public pitches, ceremony, and/or award	none			
If yes and known, specify				
Mode of engagement (e.g. groups' sizes, composition of the groups, plenary sessions…)	Group of family members, a total of 8 groups			
Type of results expected	To introduce pupils' parents basics of programing and robotics and 3D printing			

2. Organization				
Organizer(s)	University of Oulu (LET master´s degree programme), Rajakylä school			
Partners and funders	INOS project			
Students involvement in the organization	Students are planning and implementing the activities.			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	19	4th graders and their parents + classroom teacher	participant	none
Mentors' description	10	LET Master's degree students (N=6) and UO staff members (N=4)	facilitator	Good knowledge and skills of programing, robotics and 3D printing
3. Activity Timeframe	Who?	When? How long? (Duration)	How? (tools, method,…)	
Framing the activity (Choosing the topic, setting goals)	1)OU mentors 2)Classroom teacher 3)HE students	1)1 week 2)1 week 3)1 month	Face to face and Microsoft teams	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	1)OU mentors 2)Classroom teacher 3)HE students	1)1 week 2)1 week 3)1 month	Face to face and Microsoft teams	

Engaging the participants (according to their backgrounds)	1)OU mentors 2)Classroom teacher 3)HE students	1)- 2)8 hours 3)8 hours	Beebots, sphero-balls, Tinkercat, 3D printer, Garage band
Evaluation	1)OU mentors 2)Classroom teacher 3)HE students	1)- 2) 2 days 3) 1 day	Face to face
Dissemination	1)OU mentors 2)Classroom teacher 3)HE students	1-3) 1day	Blog posts
4. Resources	For Design (activity)		For Collaboration (between the participants)
Software (e.g. open source)	Tinkercad GarageBand Wordpress blog		Microsoft Teams WhatsApp
Facilities (e.g. shared space, innovation space)	Rejakylä FabLearnLab		Microsoft Teams WhatsApp
Online tools	Mentioned above		Mentioned above
Learning resources			
Data	YouTube videos, short speeches		
IP terms and conditions on the output	N/A		
5. Learning goals identified			
Knowledge of the topic	Basics of programing, robotics, 3D-printing		
Technical skills (e.g. using software)	Programming, 3D design		

Soft skills (e.g. project management)	Collaboration, problem-solving
Others, please specify	none

3.4. LET master's programme 15 years anniversary event (OU)

1. Activity Description				
Name of the activity	LET master's programme 15 years anniversary event			
INOS Partner	University of Oulu			
Topic - areas	• Celebrate together long history of LET programme • Introduce current LET research • Introduce research-based activities in LET teaching • Make apparent working life relevance of LET studies through alumni stories • Increase our visibility locally and globally • Offer continuous learning possibilities in the field of education			
Inspirations (e.g. external event, internal event,…)	N/A			
Activity approach (e.g. research-focus activity, education focused activity,…)	Discussion based learning activity which provides an opportunity for participants to network and collaborate to cocreate knowledge about diversity in Education.			
HEI context (part of curriculum, extracurricular, regular event…)	Activity planning: Part of curriculum for 1st year LET master's degree students (+ 2 minor subject students) in Educational Technology Projects-course who will plan the activity together with the course teachers, coaches, and clients			
Date(s)	April-May 2021 (weeks 15-17)			
Place(s)	Online (Zoom) and in social media (LET channels)			
Format				
Online / physical venue / mixed	Online			
Number of participants	Expected	42-45	Achieved	23
including (number of students)	Expected	42-45	Achieved	23
Duration	3-4 hour online session			

Please briefly describe the program	Tasks for the students: ● To plan and implement online event in where the students and alumni are highlighted ● To contact alumni and current students based on the plan in order to produce content for social media and to organize online event ● To plan and implement contents/activities in social media which relates to students and alumni perspective ● Pedagogical script for continuous learning ● Pedagogical ways of content producing			
Public pitches, ceremony, and/or award	None			
If yes and known, specify				
Mode of engagement (e.g. groups' sizes, composition of the groups, plenary sessions…)	Online participation which included panel discussion, presentations, small group collaborative activities and networking. The following apps were used: Zoom, Microsoft Teams, Wonder.me, Google Forms, Flinga, Jamboard			
Type of results expected	● Activating participants current knowledge on diversity and education ● Cocreating knowledge on the impact of diversity in the LET Master's programme ● Learning about diverse career choices in the field of Education			
2. Organization				
Organizer(s)	University of Oulu (LET master's degree programme)			
Partners and funders	INOS project			
Students involvement in the organization	HE students: LET- master´s programme students (former, current and becoming) and PhD students were involved as event facilitators and participants.			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	42-45	LET- master´s programme	participant	no requirements

		students (former, current and becoming) PHD students People interested in learning and educational technology		
Mentors' description	8	LET Master's degree students (N=4) and UO staff members (N=4)	HE students: planning and facilitation Academic staff: supporting HE students in planning the event	Part of LET course

3. Activity Timeframe	Who?	When? How long? (Duration)	How? (tools, method,…)
Framing the activity (Choosing the topic, setting goals)	1) HE students 2) UO staff	1) 2 weeks 2) 2 weeks	Microsoft Teams, Thinglink, Zoom, Open badge factory
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	1) HE students 2) UO staff	1) 6 weeks 2) 6 weeks	Microsoft Teams, Thinglink, Zoom, Open badge factory
Engaging the participants (according to their backgrounds)	1) HE students 2) UO staff	1) 4 weels 2) 4 weeks	Zoom, Wonder.me, Google Forms, Flinga, Jamboard, Instagram, Facebook
Evaluation	1) HE students 2) UO staff	1) feedback collected from the participants 2) Project evaluation as a part of assessment criteria of the course	Google Forms, Open Badge Factory, Microsoft Teams, Zoom
Dissemination	1) HE students 2) UO staff	1) 2 weeks 2) none	Instagram, Facebook

4. Resources	For Design (activity)	For Collaboration (between the participants)
Software (e.g. open source)	Microsoft Teams, Thinglink, Zoom, Google Form	Zoom, Wonder.me, Flinga, Jamboard
Facilities (e.g. shared space, innovation space)	Microsoft Teams, Thinglink, Zoom, Google Form	Zoom, Wonder.me, Flinga, Jamboard
Online tools	Same as above	Same as above
Learning resources	Web conferencing software (Zoom, Wonder.me) Collaboration and file-sharing software (Jamboard, Flinga)	
Data	The knowledge they create together first in breakout rooms and then in the networking session at the end of the whole event, they will be displaying their outputs in Jamboard and Flinga wall accordingly. The social media events will be recorded and be accessible (in several platforms; ex: YouTube, Facebook, Instagram, university website etc.	
IP terms and conditions on the output	N/A	
5. Learning goals identified		
Knowledge of the topic	• Activating participants current knowledge on diversity and education • Cocreating knowledge on the impact of diversity in the LET Master's programme • Learning about diverse career choices in the field of Education	

Technical skills (e.g. using software)	Utilizing above-mentioned digital tools
Soft skills (e.g. project management)	none
Others, please specify	none

3.5. Integrating Citizen Science at Universities: from 'What' to 'How (LIBER)

1. Activity Description				
Name of the activity	Integrating Citizen Science at Universities: from 'What' to 'How (4 events)			
INOS Partner	LIBER			
Topic - areas	Citizen Science integration in Universities and Research Libraries			
Inspirations (e.g. external event, internal event,…)				
Activity approach (e.g. research-focus activity, education focused activity,…)	Education-focused activity (learning-by-doing approach)			
HEI context (part of curriculum, extracurricular, regular event…)	Extracurricular event. Co-organisation with 2 HEI libraries and participation of a national library, to enhance the experience.			
Date(s)	26-28 October 2020			
Place(s)	online			
Format				
Online / physical venue / mixed	online			
Number of participants	Expected	110	Achieved	157
including (number of students)	Expected	96	Achieved	150
Duration	Three 1-hour sessions			
Please briefly describe the program	Day 1: Lectures on Citizen Science, Copyright and Data Mining, followed by Q&A and splitting into working groups and explanation of task.			

	Day 2: Coaching session on preparing a project and delivering presentations online, followed by a Q&A Day 3: Debates, with working groups presenting their projects, followed by judges' assessment and announcement of winners.			
Public pitches, ceremony, and/or award				
If yes and known, specify	Ceremony and award: Groups that took the first and second place were announced during the event and received gift cards after the event.			
Mode of engagement (e.g. groups' sizes, composition of the groups, plenary sessions…)	a) Plenary sessions b) Group work outside of the event timeline: 5 participants per group, each group with participants that represented every stakeholder group c) Debates/presentations by the participants in plenary style			
Type of results expected	a) Each group presenting their Citizen Science project concept b) Upskilling HEI faculty and library staff, and students through a learning-by-doing process.			
2. Organization				
Organizer(s)	LIBER			
Partners and funders	Co-organizers: University Library 'Svetozar Marković' (University of Belgrade), University of Library Studies and Information Technology. Extra participant: St. Cyril and Methodius National Library			
Students involvement in the organization	Students were not directly involved in the organization of the event.			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	25	any	participants	n/a
Mentors' description	3	Knowledge of CS basics	mentors	Background knowledge of CS basics
3. Activity Timeframe	Who?	When? How long? (Duration)	How? (tools, method,…)	
Framing the activity (Choosing the topic, setting goals)	LIBER, University	1,5 months	Skype conversations and e-mails, joint conversations,	

	Library 'Svetozar Marković' (University of Belgrade), University of Library Studies and Information Technology		LIBER responsible for all initial drafts and coordination of discussion
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	LIBER, University Library 'Svetozar Marković' (University of Belgrade), University of Library Studies and Information Technology	1 month	Skype conversations and e-mails, joint conversations, LIBER responsible for all initial drafts and coordination of discussion. LIBER responsible for technical hosting of the event, logistics and all pre- and post-event communication, partners responsible for participants recruitment
Engaging the participants (according to their backgrounds)	LIBER moderators	Throughout the duration of the event	Participating in group meetings, being available for individual Q&A, preparing a competition to stimulation project idea development
Evaluation	LIBER	After the event	Google form sent via e-mail
Dissemination	LIBER	After the event	Blog post

4. Resources	For Design (activity)	For Collaboration (between the participants)
Software (e.g. open source)	GoToTraining	Skype, MSTeams
Facilities (e.g. shared space, innovation space)	n/a	n/a
Online tools	n/a	GoogleDrive
Learning resources	Lectures (recorded)	
Data	Zenodo	
IP terms and conditions on the output	GDPR was taken into account for the whole activity, from registration to recording of lectures and the debate. The lecture/coaching session materials are openly available on Zenodo and lectures on YouTube.	
5. Learning goals identified		
Knowledge of the topic	Self-evaluated by participants upon registration	
Technical skills (e.g. using software)	Not included in the initial goals, however collaborative use of documents was one of the skills used/enhanced.	
Soft skills (e.g. project management)	Presentation skills, project creation/planning skills	
Others, please specify	Open and Citizen Science application in an academic setting, copyright application in Citizen Science projects.	

3.6. Noise Pollution at Reidi Road (TU)

1. Activity Description	
Name of the activity	Noise Pollution at Reidi Road
INOS Partner	Tallinn University
Topic - areas	Natural sciences
Inspirations (e.g. external event, internal event,…)	
Activity approach (e.g. research-focus activity, education focused activity,…)	Education focused activity
HEI context (part of curriculum, extracurricular, regular event…)	Curricular event organized by the university of Tallinn University
Date(s)	October, 2nd, 2020; 4th of March 2021

Place(s)	Outdoors at Reidi road, Tallinn; Discovery trail challenge at Türi				
Format					
Online / physical venue / mixed	mixed				
Number of participants	Expected	*42*	*Achieved*	*37*	
including (number of students)	Expected	*40*	*Achieved*	*37*	
Duration	One day event				
Please briefly describe the program	Four groups of students attended in separate session hours between 8-16 the classroom where they were introduced with the concepts and digital environment and the app of Avastusrada.ee and Globises sensors for sound measurement. Then the students together with the teacher went to the Reidi road (nearby the university). Each group explored the questions at the trail using the apps. At the end of the trail the students individually filled in the survey. We moved back to the university and corrected the trail for the next group. We discussed the issues that had arised. We looked at how the crowdsourced data looks like. The second activity was done with the school students from gymnasium. The same app was used and the trail was created in Türi, measuring the air pollution.				
Public pitches, ceremony, and/or award	No				
If yes and known, specify					
Mode of engagement (e.g. groups' sizes, composition of the groups, plenary sessions…)	Mainly small groups during the introduction of tools and concepts. The students worked individually and in pairs.				
Type of results expected	Contributions on Avastusrada.ee to test out and validate the activity trail questions' content and positions. In the second activity the goal was to learn how to crowdsource for data with geolocation citizen science tool Avastusrada.ee				
2. Organization					
Organizer(s)	Tallinn University (School of Digital Technologies)				
Partners and funders	INOS project				
Students involvement in the organization	Students are in-service teachers who work at schools.				

	Expected number	Background (s)	Role(s)	Preconditions needed
Participants' description	40	Teachers of all subject areas; gymnasium students	In-service teachers; gymnasium students	No preconditions
Mentors' description	2	Natural science, education, information technology	Mentor	No preconditions
3. Activity Timeframe	Who?	When? How long? (Duration)	How? (tools, method,…)	
Framing the activity (Choosing the topic, setting goals)	School of Digital Technology; Türi Gümnaasium	One day, one day	Method: crowdsourcing Tool: Avastusrada.ee, Globisens sensors, different noise app in smartphones	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	School of Digital technology, in-service teachers	One hour	Method: Laboratory practice, outdoor-trail Tool: Avastusrada.ee, Globisens sensors	
Engaging the participants (according to their backgrounds)	School of digital technologies; Türi Gümnaasium students were engaged outdoors only	One hour; one hour	Mailing (targeting mailing list)	
Evaluation				
Dissemination				
4- Resources	For Design (activity)		For Collaboration (between the participants)	

Software (e.g. open source)		Avasturada.ee	
Facilities (e.g. shared space, innovation space)		Tallinn University Innovation lab	
Online tools	Avasturada.ee	Avasturada.ee	
Learning resources	Google Classroom		
Data	Crowdsourced environmental and opinion data		2 test datasets
IP terms and conditions on the output	The output is available at Avasturada.ee		
5- Learning goals identified			
Knowledge of the topic	Citizen science / sound volume		
Technical skills (e.g. using software)	Using Globisens app, Avasturada.ee app		
Soft skills (e.g. project management)	Designing the learning activities at geolocative trails for crowdsourcing and evaluating the data and the trails' quality; crowdsourcing for environmental data with citizen science tools to solve environmental problems		
Others, please specify			

3.7. Designing public services for elderly with external stakeholders (TU)

1. Activity Description	
Name of the activity	Designing public services for elderly with external stakeholders
INOS Partner	Tallinn University
Topic - areas	Co-designing services for elderly groups
Inspirations (e.g. external event, internal event,…)	
Activity approach (e.g. research-focus activity, education focused activity,…)	design-focused activity, education focused activity
HEI context (part of curriculum, extracurricular, regular event…)	Extracurricular event

Date(s)	15-16 December 2020			
Place(s)	Online			
Format				
Online / physical venue / mixed	Online			
Number of participants	Expected	20	*Achieved*	*13*
including (number of students)	Expected	15	*Achieved*	*10*
Duration	Two days event			
Please briefly describe the program	Day. 1. Introduction to design thinking. Phase 1. Mapping the values for design in Trello.com board (all groups together) and simultaneously discussing in Zoom Phase 2. In separate groups we created in the Trello the Teams and in team space the templates for the design process. First they filled in the Future wheel (using Trello we modified the wheel to path). The Future wheel discussions were in separate ZOOM groups. The teams presented the future wheels in Zoom Day 2. Introduction to User-centred design. Phase 3. Persona mapping in Trello.com board in groups with Zoom discussions. Teams presented their results to each other. Phase 4. User journey mapping in Trello.com. with Zoom discussions. Teams presented their results to each other. Discussion on co-creation digital tools. Phase 5. Finning in the INOS survey. Final homework: To create the Business canvas about their service in Trello.com.			
Public pitches, ceremony, and/or award	Yes (3 hours in separate sessions)			
If yes and known, specify	All boards were pitched			
Mode of engagement (e.g. groups' sizes, composition of the groups, plenary sessions…)	Training was in a joined group, the design sessions were held in separate breakout rooms for each design group (3-4 members + facilitator in each).			
Type of results expected	The canvases for service design			
2. Organization				

Organizer(s)	Tallinn University (School of Digital Technologies, School of Education, Open University)			
Partners and funders	INOS project			
Students involvement in the organization	Students are not involved in the organization.			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	20	Elderly people	Participants	Not required
Mentors' description	2-5	education, design thinking	Teaching staff	No conditions
3. Activity Timeframe	Who?	When? How long? (Duration)	How? (tools, method,…)	
Framing the activity (Choosing the topic, setting goals)	Team of facilitators		Method: design thinking Tool: Facebook messenger, Zoom, Trello	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Team of faciliators	One day	Method: design thinking Tool: Trello, Zoom, Google classroom	
Engaging the participants (according to their backgrounds)	Participants	Two days	Method: training Tool: Zoom, Trello	
Evaluation	Participants	Four hours	Presentations of boards and discussion	
Dissemination		The project members will apply their design idea of the services	Method: design thinking Tool: in real environment	
4. Resources	For Design (activity)		For Collaboration (between the participants)	
Software (e.g. open source)			Zoom, Trello, Google classroom	
Facilities (e.g. shared space, innovation space)			Zoom, Trello, Google classroom	
Online tools			Trello	

Learning resources	Google classroom		
Data	Trello boards of design thinking		
IP terms and conditions on the output	Participants' own the boards		
5- Learning goals identified			
Knowledge of the topic	Design thinking process		
Technical skills (e.g. using software)	Using the Zoom, Trello and Google classroom for collaboration		
Soft skills (e.g. project management)	Collaboration in team		
Others, please specify			

3.8. Edit-a-thon – "My thesis, Wikipedia and I" (UBordeaux)

1. Activity Description				
Name of the activity	Edit-a-thon – "My thesis, Wikipedia and I"			
INOS Partner	University of Bordeaux			
Topic - areas	Natural sciences, social sciences, arts, humanities, law, political science, economics (according to the participants' thesis)			
Inspirations (e.g. external event, internal event,…)	https://en.wikipedia.org/wiki/Edit-a-thon			
Activity approach (e.g. research-focus activity, education focused activity,…)	Research-focus activity and education focused activity			
HEI context (part of curriculum, extracurricular, regular event…)	Extracurricular event organized by the university of Bordeaux			
Date(s)	April, 3rd			
Place(s)	Online			
Format				
Online / physical venue / mixed	Online			
Number of participants	Expected	25	Achieved	12
including (number of students)	Expected	20	Achieved	7

Duration	One day event			
Please briefly describe the program	The aim of "My thesis, Wikipedia and I" is to introduce doctoral students to the philosophy of Wikipedia and to have them contribute to Wikipedia through the prism of their thesis. Morning- from 9 am to 12.30 pm Introduction to the workshop, Wikipedia overall philosophy; five-finger exercises on the basic editing tools. Afternoon – from 2 pm to 5 pm Editing workshops (adding sources, bibliographies or links) Roundtable “Wikipedia in my thesis field” (do I spot some areas of improvement in Wikipedia in my own thesis field?) The edit-a-thon will be preceded by individual interviews (about 1 hour) with participants to determine their contributions on D-Day.			
Public pitches, ceremony, and/or award	No			
If yes and known, specify				
Mode of engagement (e.g. groups' sizes, composition of the groups, plenary sessions…)	Mainly large group			
Type of results expected	Contributions on Wikipedia pages related to the thesis subjects.			
2. Organization				
Organizer(s)	University of Bordeaux (Library Department)			
Partners and funders	INOS project			
Students involvement in the organization	Students are not involved in the organization.			
	Expected number	Background (s)	Role(s)	Preconditions needed
Participants' description	20	All research fields (to	PHD students	No preconditions, except a one-to-

		precise with the registration of the participants)	and young researchers	one meeting to prepare participants' activities (wikipedia account)
Mentors' description	5	All backgrounds	Members of the Wikipedia users group (association "La Cubale")	No preconditions
3- Activity Timeframe	Who?	When? How long? (Duration)	How? (tools, method,…)	
Framing the activity (Choosing the topic, setting goals)	Library Department and the PHD students	2 months + one hour	Method: Edit-a-thon model Tool: one-to-one meeting with the participants to choose the topic and prepare the activity.	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Library Department and the mentors	One day	Method: workshops organized by the Wikipedians Tool: Wikipedia	
Engaging the participants (according to their backgrounds)	Library Department Communication Department	1 month	Mailing (targeting mailing list and internal newsletter)	
Evaluation				
Dissemination				
4. Resources	For Design (activity)		For Collaboration (between the participants)	
Software (e.g. open source)			Zoom	
Facilities (e.g. shared space, innovation space)				

Online tools	Wikipedia		
Learning resources	Bibliography on Wikipedia		
Data	Each participant thesis		
IP terms and conditions on the output	The output will be additions to Wikipedia. All Wikipedia content is under the CC-BY license.		
5- Learning goals identified			
Knowledge of the topic	Citizen science / Wikipedia approach to enrich scientific inquiry Concrete, hands-on approach to Open Knowledge for PHD students		
Technical skills (e.g. using software)	Wikipedia using and contributing		
Soft skills (e.g. project management)	Make use of research methodology outside the academic context		
Others, please specify			

3.9. SPINE Event (University of Bordeaux)

Name of the activity	SPINE Event			
INOS Partner	University of Bordeaux			
Topic - areas	Health / neuroscience (neurodegenerative diseases) and biomedical image analysis			
Inspirations (e.g. external event, internal event,…)	Crowdsourcing events			
Activity approach (e.g. research-focus activity, education focused activity,…)	Research-focus activity			
HEI context (part of curriculum, extracurricular, regular event…)	Extracurricular event			
Date(s)	25 and 26 May			
Place(s)	Online			
Format				
Online / physical venue / mixed	Online			
Number of participants	Expected	30	Achieved	49
including (number of students)	Expected	10	Achieved	41
Duration	One day event			
Please briefly describe the program	The event will be structured in three phases. Each group will participate in an introduction (60 minutes, phase 1) followed by a 30-45 minute session (phase 2) during which they will complete a self administered module. A feedback session with experts will close the activity (one hour). This module includes: 1. Day 1 - General introduction (plenary session) Introduction to MRI analysis neurodegenerative diseases and presentation of the megaproject SPINE - online laboratory 2. Day 2 - in groups. Step-by-step learning and executing of an image analysis workflow targeting the volumetric measurement of an anatomical structure in the brain. These lessons are composed of slides, videos and interactive activities by annotating images.			

	3. Certification of individual participant's results compared to image annotation (workflow) done by experts 4. When certified, the user contributes to the real experiment by annotating real cases on the SPINE platform. At least one or two mentors will be available per group. All the groups will perform phase 2 at a different time (slots during the day), phase 1 will be done in a plenary session the day before and will be recorded. Phase 3: Plenary sessions at the end of the day 2 when all the groups are done with phase 2 Discussions between participants and researchers and feedback on the experience. (1 hour). This phase could be captured and made available online for people who can not attend the plenary session.			
Public pitches, ceremony, and/or award	Yes (1hour)			
If yes and known, specify	Discussions in plenary session, with Q&A			
Mode of engagement (e.g. groups' sizes, composition of the groups, plenary sessions…)	We will target groups of students in multiple areas, but also patients (from associations), scientists and broad audiences . Conclusion will be plenary sessions. Training and contributions will be done in groups (homogeneous or heterogeneous)			
Type of results expected	Annotations and new biomedical data			
2- Organization				
Organizer(s)	University of Bordeaux (Labex TRAIL) and Center for the neurological imaging (Brigham and Women's Hospital)			
Partners and funders	INOS project			
Students involvement in the organization	Students are not involved in the organization.			
	Expected number	Background (s)	Role(s)	Preconditions needed
Participants' description	30	No specific background	Students, academics and citizen	For most of the participants, having knowledge

			outside the universitary communities	about scientific methodology.
Mentors' description	1-5	Medical imaging background	Researchers	No conditions
3- Activity Timeframe	Who?	When? How long? (Duration)	How? (tools, method,…)	
Framing the activity (Choosing the topic, setting goals)	Project team included mentors		Method : software development Tool: SPINE Platform	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Project team included mentors	One day	Method: software development, building educational content Tool: SPINE Platform	
Engaging the participants (according to their backgrounds)	Participants	Half an hour	Method: training Tool: SPINE Platform	
Evaluation	Participants	One hour	Discussion	
Dissemination		Continuous dissemination	Method: crowdsourcing project Tool: SPINE Platform	
4- Resources	For Design (activity)		For Collaboration (between the participants)	
Software (e.g. open source)	SPINE Platform		Zoom	
Facilities (e.g. shared space, innovation space)				
Online tools				
Learning resources				
Data	From the researchers. Multiple sclerosis cohort from CHU Bordeaux			
IP terms and conditions on the output	Intellectual property, and GDPR - and terms of service created by the legal department of the university of Bordeaux			
5- Learning goals identified				
Knowledge of the topic	Brain function and neuroscience / neurodegenerative diseases (multiple sclerosis)			

	Inquiry method
Technical skills (e.g. using software)	Using the data management software. Segmenting a brain structure.
Soft skills (e.g. project management)	Critical thinking, observation.
Others, please specify	