LOESS

LITERACY BOOST THROUGH AN OPERATIONAL EDUCATIONAL ECOSYSTEM OF SOCIETAL ACTORS ON SOIL HEALTH

# A PROJECT TO INCREASE SOIL LITERACY

## Community Engaged Research and Learning (CERL) Workshop: From a Real-World Soil Problem to a Research Question

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# WORKSHOP: FROM A REAL-WORLD SOIL PROBLEM TO A RESEARCH QUESTION 🌱



This workshop was designed by The Science Shop, Queen's University Belfast in collaboration with Corvinus University Budapest and Technological University Dublin. It builds on materials from Bonn Science Shop, the University of Groningen Science Shop, the Living Knowledge Summer School and the CIRCLET consortium.

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# SESSION PLAN

1. Welcome
2. Establishing learning Outcomes
3. Working in groups – addressing a research question
4. Feeding back and plenary discussion
5. Summarising

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## Main LOESS project activities

- Mapping of existing soil-related materials and educational programmes and identification of educational needs.
- Engagement and connection of stakeholders in Communities of Practice in 15 European countries.
- The co-creation and piloting of new courses, teaching modules, educational materials and learning tools for soil education for use in primary and secondary schools as well as universities and vocational colleges.
- Hands-on engagement activities related to soil education through community projects involving students and local communities; the development of an augmented reality app; and crowd mapping to identify, visualize and address local soil problems.
- Development of a toolkit of soil education and training materials and resources based on existing good examples as well as new ones developed by LOESS.
- Campaigns and dissemination activities aimed at schools, universities and members of the public.
- Engagement with policymakers and lobbying for the advantages of integrating soil-related activities into formal education.

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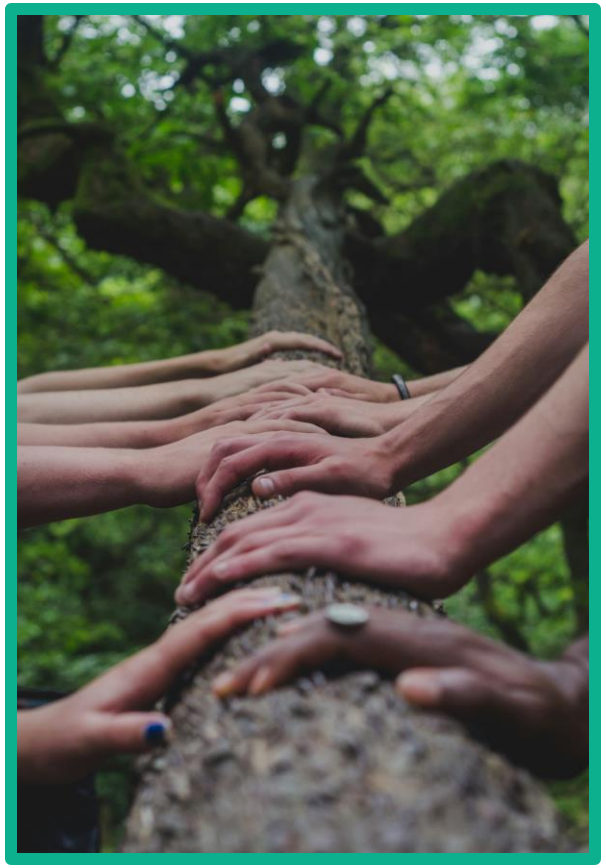
# WHAT IS COMMUNITY ENGAGED RESEARCH & LEARNING?

- Community Engaged Research and Learning (CERL) is an approach which involves university students working with community partners on collaboratively designed real-life projects.
- The goal is mutual benefit – enhancing student learning whilst carrying out a project or piece of research which benefits the community.
- There is a focus on enhancing soil health literacy and civic competence.
- CERL emphasises collaboration, co-creation, and reflective practice

*(McKenna and Weinberg, 2025)*



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# FROM A REAL-WORLD SOIL PROBLEM TO A RESEARCH QUESTION: LEARNING OUTCOMES

YOU WILL HAVE A CHANCE TO **IDENTIFY YOUR PRIOR KNOWLEDGE AND SET PERSONAL LEARNING GOALS FOR THE SESSION**

YOU WILL BE ABLE TO **DESCRIBE KEY PRINCIPLES OF PARTNERSHIP WORKING**

YOU WILL HAVE **EXPLORED HOW A REAL-WORLD SOIL ISSUE CAN BE TURNED INTO A RESEARCH QUESTION**

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# TYPES OF KNOWLEDGE

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- **Scientific or expert knowledge** - the peer reviewed knowledge produced through scientific research
- **Political knowledge** - encompassing those in positions of power and/or who are able to influence decision making processes
- **Local/place-based knowledge** - the lived experiences of people in a place
- **Collective cultural/generational knowledge** - e.g. local and indigenous peoples' understanding of natural resource management

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# STEPS FOR DEVELOPING RESEARCH QUESTIONS IN COLLABORATION WITH COMMUNITY PARTNERS

- **Listen** to understand what are the problems from the community perspective?
- **Map** how big the problems are from the community perspective
- **Scope** the problems. Carry out preliminary research (online, checking other sources of information, do answers already exist?)
- **Define** the research questions, sub-questions and related tasks.
- **Assess** the research questions – can you/your students undertake all of them? Elements of them? Do you need to consider practical details, e.g. cost, safety or ethical issues?
- **Check** the questions with the partner or against the original problems–did you miss anything? Are some elements more important than others?

**You might also do some further refining of the questions**

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# EXERCISE: CREATING A RESEARCH QUESTION FROM A PROBLEM

**Problem:** A landscape heritage organisation has responsibility for managing walking paths in the LOESS Mountains. They get in touch to ask for some research. Their walking paths are eroding much faster than they did in the past. Due to the poor condition of the path, visitors are beginning to walk on the grass, impacting soils and biodiversity. They want to make a case for more funding from the government to help them maintain the pathways.

Simulate asking questions in an interview with the organisation

- **What kinds of questions would you ask the organisation to better understand the research they need?**
- **What would you foresee as being areas for research that universities might carry out? What kinds of questions would you pose for students?**
- **Can you see where these kinds of research might fit in the research or teaching of a university?**

**Background:** The LOESS Mountains, are a predominantly granite mountain range in the UK. Their highest mountain is 850 m (2,790 ft). The LOESS Mountains are designated an Area of Outstanding Natural Beauty. The area sees over 50,000 visitors every year. The landscape heritage organisation's activities include: Litter maintenance, maintenance of play parks, green lanes and rights of way, stiles, fences, bridges and interpretive panels; post-storm tree clearance, invasive species control and monitoring user numbers and events.

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# GROUPWORK

Each group will have a facilitator to act as a **time-keeper** and a **rapporteur**

**5 mins** - Quick introductions: Name / Role / Are you already working with partners? (1 min per person)

**7 mins** - What kinds of questions would you ask the organisation to better understand the research they need?

**7 mins** - What would you foresee as being areas for research that students might carry out? What kinds of research questions might you pose for students?

**5 mins** - Can you see where these kinds of research might fit in the teaching of a university (or school?).

**Rapporteur to report back to the main group:**

- Questions for the organisation
- Potential research questions
- Suitable discipline(s) for carrying out research with the organisation

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# PRINCIPLES FOR BUILDING TRUST

There are some basic principles for building trust**. For shared responsibilities** the focus in co-creation should be on the following elements:

- Acknowledge, respect and value the legitimacy of community knowledge as complimentary or potentially contrary to academic knowledge.
- Involve citizens in problem-solving as experts on their own experiences.
- Encourage citizens become an active part of the innovation process.
- Collaboratively create an open and flexible process that supports participation and exchange, welcoming a range of citizen groups.
- Create (long-term) outcomes by changing the relationships, positions and rules between traditional stakeholders and citizens.

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# TYPES OF QUESTIONS TO ASK RESEARCH PARTNERS

- **Sense checking, gathering more info:** What do you already know and what evidence have you already gathered? What do you know about cause and effect? What needs to be done? E.g. desk research, data analysis, data gathering, creation of business case, etc.

- **Future scoping:** How will you use the research? What kinds of solutions do you imagine? is it just about funding? Are there other potential solutions, such as use of different materials?

- **Expectation management:** Have you worked with universities and/or students before? Can you live with the limitations of the research? Is there scope for negotiation? What disciplines do you think might be most relevant?

- **Practicalities:** How much involvement they want in research design and implementation. Management of data, lone working, ethics (e.g. drone use). Costs of getting to and from sites. Support university can offer. How much the partner knows about research already.

*This is a co-learning process – you are a thought-partner for the organisation. Listen, hold space and be curious. Ask hard questions carefully.*

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# TYPES OF QUESTIONS

| | |
|---|---|
| Who? | Types of users, anyone other than walkers, what other stakeholders to involve in the discussion? What funders they are thinking of involving? |
| What? | What are the observed issues so far? What do they know and not know? Impact on soils, safety, health and wellbeing of walkers? What are the cost implications? |
| Where? | What particular geographic areas are affected? Is it the entire site or parts of it? |
| When? | Over what timescale? |
| Why? | What are their own best guesses of why this is happening now? E.g. types of users, numbers of users, weather conditions? |

*This process might enlarge the question and start to bring disciplinary focuses*

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# DISCIPLINES (EXAMPLES)

- **Physical Sciences** - Geography/planning/engineering – physical infrastructure issues. How paths are designed and managed. Materials used to maintain them.

  **Potential research questions:** Use observation/GIS/Google Earth/drone footage to assess current condition of paths / Examine changes in condition of paths over time / Assess current condition of paths and make recommendations on remediation / Carry out desk research on better materials and assess solutions implemented by other organisations.

- **Biological sciences** - Impact on biodiversity and soils

  **Potential research questions:** Carry out biodiversity surveys or survey particular plant species / Assess evidence already collected, e.g. by citizen scientists.

- **Social Sciences** - Education, Psychology, sociology – human behaviour change

  **Potential research questions:** Carry out desk research on how to influence behavioural change / Conduct visitor surveys/observation to assess current visitor behaviour / Assess user groups and devise targeted plans.

- **Business** - Economics, Management

  **Potential research questions:** Gather evidence of visitor numbers, visitor experiences, visitor demographics, potential economic impacts, etc. to inform business/funding case.

**Types of course:** Dissertations, research projects, embedded in a topic specific module…

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# PRINCIPLES FOR COLLABORATION

- Listen actively
- Give feedback respectfully
- Be honest
- Be helpful
- Have the courage to say no
- Honour your commitments and don’t make promises you can’t keep
- Be consistent
- Practice emotional intelligence
- Admit mistakes

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# PRINCIPLES FOR RESEARCH DESIGN

- Research must be achievable
- Methods must be clear
- Research must be ethical
- Clear access to participants
- Organisation willing to support student
- Student and Science Shop to be recognised when report is used

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# IDENTIFYING COMMUNITY RESEARCH QUESTIONS

- Check your **existing networks** (personal and professional)
- **Your university** – e.g. volunteering, work placement, careers, partnership offices?
- **Web research** – what organisations might be interested in partnering on research?
- **Crowd mapping** – has anyone done any previous mapping of research questions in your area? (See the LOESS Crowdmapping tool for information)

**TIPS:**

- Find a partner with an interest in the process of engaged research as well as the outcomes
- Get a feel for their approach and activities ahead of meeting them
- Be clear about non-negotiables

See: CIRCLET Guide for Lecturers Resources to Implement Community Engaged Research and Learning in University Teaching and Pedagogy

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# RESOURCES

Bates, C., McCann, S., and McGowan, C. (2022). CIRCLET Online Continuing Professional Development Module Guide for Facilitators. Available at: "CIRCLET Guide for Facilitators: Online Continuing Professional Develop" by Catherine Bates, Sinead McCann et al. . Accessed 02/10/2025.

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# THANK YOU

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