



D3.2 Report on trialling of RRI teaching strategies including an executive summary of the completed pilots including case studies and teaching materials for widespread dissemination

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Executive Summary

This report provides a critical review of 9 exemplar pilots conducted as part of the EnRRICH Horizon 2020 project to embed responsible research and innovation (RRI) in higher education curricula. Facilitative organisational elements are first identified such as linking with Science Shop entities and leveraging relevant policies. The 9 pilots are then interrogated to uncover common approaches and areas of divergence and to unpack the learning from the pilots. The review highlights the benefit of pedagogical approaches such as inquiry-based learning and community-based research to foster RRI competences in students. It also demonstrates that students’ understanding can be broadened beyond their discipline through the use of an RRI lens, and, conversely, that interdisciplinary programmes are particularly suited to the integration of RRI in curricula.

Introduction

EnRRICH is a Horizon 2020 project with 12 partners across 10 countries. The purpose of EnRRICH is to raise awareness of Responsible Research and Innovation (RRI) within higher education curricula and to assist academics, students, and researchers to become RRI proficient. RRI should be understood as:

A strategy of stakeholders to become mutually responsive to each other, anticipating research and innovation outcomes aimed at the ‘grand challenges’ of our time, for which they share responsibility (von Schomberg, 2013).

Moreover, Tassone and Eppink (2016), following their work on the EnRRICH project put forward a definition RRI more oriented to the higher education environment:

Fostering RRI in higher education curricula is about equipping learners to care for the future by means of responsive stewardship of scientific and innovation practices that address the grand challenges of our time in a collaborative, ethical, sustainable and socially desirable way (Tassone and Eppink, 2016: 9)

A key objective of the EnRRICH project is to improve the capacity of students and staff in higher education to develop knowledge, skills and attitudes to support the embedding of RRI in curricula by responding to the research needs of society as expressed by civil society organisations. This report provides a critical review of teaching strategies that were developed and piloted with students to embed RRI in curricula. It provides key insights into exemplar approaches that integrate RRI and have strong potential for becoming an embedded initiative or teaching approach. The pilots represent a ‘deep approach’ (see [Deliverable 2.3](#)) whereby students are engaged in “authentic learning processes at the cross-road between the classroom and society” where they “are engaged collaboratively with other actors in real-time and real-life applications in-between academia and the rest of the world” (Tassone and Eppink, 2016: 12).

This report is primarily targeted at educators seeking to reinvigorate their course or to reorient programmes towards RRI, and towards civil society actors who are interested in linking with staff and students in higher education on joint educational initiatives. The detailed case studies of exemplar pilots provide rich detail on the design, execution and evaluation of several curricular initiatives. These serve to inspire the reader as to what is possible, to illuminate potential pathways towards implementing similar approaches, and to identify the facilitative elements in ensuring their success of and key considerations prior to embarking on a pilot.

This work builds on other initiatives by EnRRICH partners and particularly the design of the [EnRRICH Tool for Educators](#) (Tassone and Eppink, 2016), which provides readers with an overview of RRI terminology and the development of the RRI policy agendas as well as introducing RRI in higher education design principles:

- Principle 1 Education *for* Society
- Principle 2 Education *with* Society
- Principle 3 Education *to* whole persons

The design principles and the EnRRICH curriculum design tool will be referred to in this report but a more detailed overview is provided in Tassone and Eppink (2016).

The report has been organised into 3 sections. The first section provides a broad overview of the pilots and shares insights into the supportive organisational elements and institutional contexts that enable the pilots to succeed. The second section is comprised of a critical review of the pilots in terms of key learning, and common and contrasting approaches. The third section draws conclusions from the various pilots and includes key recommendations for those wishing to emulate the pilots.

The overall aim of this report is to examine the approaches and strategies of EnRRICH members in attempting to sustainably embed RRI in their institutions so that others can benefit from our learnings and further integrate RRI in their own contexts. The exemplary pilots featured vary considerably in length, target audience, and design, therefore they offer a broad range of learnings for several different contexts.

EnRRICH members were involved in a few pilots but each member institution chose one pilot to showcase in this report. These pilots were chosen as they were the most substantial, had the most impact, and were likely to be sustainably embedded in their institutions. The entire collection of EnRRICH trials and pilots, many of which did not receive the same level of scrutiny as those discussed in this report, are featured on the Living Knowledge website and may provide additional information and inspiration for those seeking to implement RRI in their modules or programmes. Detailed information on initial interventions to engage students with RRI can be found in a previous report ([D3.1 Resources for enhancing RRI understanding and prompting debate on societal issues in the curriculum for early stage students](#)) by Hally *et al.* (2017), and may be more accessible for those who want to experiment with introducing RRI into the classroom as a first step.

1: Summary of exemplar pilots

Throughout the EnRRICH project, project members and their institutions were involved in approximately 150 RRI pilots. Project members drew on these extensive activities and their learnings from these initial interventions to develop and refine the activities that became the exemplary pilots. These 9 exemplary pilots (listed in table 1) are anchored in a broad range of disciplines and involve undergraduate and postgraduate students.

Table 1: Overview of pilots reviewed in report.

	Name of institution delivering exemplary pilot	Student Level	Disciplines
1	Dublin Institute of Technology (DIT)	Undergraduate Postgraduate (Masters)	Spatial Planning Environmental Management Local Development & Innovation, and Sustainable Development
Brief description of DIT pilot DIT Environment & Planning engaged with Northside Partnership in a Students Learning with Communities Initiative to research levels of mobility and the potential for sustainable transportation within the study area of North East Dublin. The Healthy Communities Pilot is an action-based research cooperation, since 2013, between Northside Partnership and DIT examining wellbeing and health inequalities in a disadvantaged part of Dublin. The project is about making the area more environmentally sustainable, and a healthy place to live, and providing people from disadvantaged areas with access to services and to employment, i.e. to a range of needs.			
2	IrsiCaixa, Living Lab for Health	Postgraduate (Masters)	Education, and Science Communication
Brief description of IrsiCaixa pilot			

<p>Co-ResponsHIVility is a pilot programme of governance of R&I, which is focused on participatory R&I agenda setting on the prevention of HIV and other sexually transmitted infections (STIs). It is being developed through the creation of a platform or ecosystem where different interested stakeholders come together through an open, reflexive and inclusive process to explore R&I priorities. The project has an interdisciplinary and transdisciplinary approach and comprises a wide range of academic disciplines and non-academic knowledge based on experience. The ecosystem gathers more than 670 social actors interested in the issue who represent different stakeholders: the research community, healthcare providers, civil society organizations, patients, policy makers and the education community (including master students and secondary school students and lecturers).</p>			
3	Vrije Universiteit Brussel (VUB)	Postgraduate (Masters) and Undergraduate	Interdisciplinary
<p>Brief description of VUB pilot A multilingual and interdisciplinary optional course for MA & 3rd BA students and a lectures and event cycle for the broader public, aiming for critical reflection about big societal issues. Each year there's another central topic: in 2016-2017 it was "migration", in 2017-2018 it's "opportunities and impact of new technologies". Reasonably Engaged wants to build bridges between academics, working field and the public. Students that have registered for the course are working in interdisciplinary teams on a research question from a Brussels civil society organisation (CSO).</p>			
4	Wageningen University (WU)	Postgraduate (Masters)	Interdisciplinary
<p>Brief description of WU pilot <i>WUcourse, S4RI</i> The purpose of the S4RI course is to foster an understanding about what RI entails and to support the cultivation of appropriate stewardship competencies. Students are engaged collaboratively, in a team of 3 to 4 students, in a 1-day RI project addressing a local social, economic or environmental challenge of their choice. Students are designing and implementing their RI project while receiving peer and coaching support. Through this exercise, students learn from their peers and in action about stewardship for responsible innovation.</p>			
5	Universita di Sassari (UNISS)	Postgraduate (Masters)	Social work and social policy, and Foreign languages and Cultural Mediation
<p>Brief description of UNISS pilot The main components of the development of CBR and action-research were dealt with, along with their guiding principles and methods. Certain issues were taken in relevant consideration such as those relating to power dynamics, relationships among different kinds of knowledge and epistemologies, trust, positive social change and theory of change, interests and capacities of stakeholders, inclusion and participation, asset based approach. The course was run alternating classical face to face classes with study visits, community walks and participation in community meetings.</p>			
6	Université de Lyon (UdL)	Undergraduate (final year)	Interdisciplinary
<p>Brief description of UdL pilot The director of Culture, Science and Society of University of Lyon, in collaboration with the School of Superior technology of Montréal alongside the National Institute of Applied Sciences of Lyon (Institut National des sciences appliquées de Lyon) participated on the scientific challenge of Evolutive Habitat, held on the 13 to 16th June 2016. The aim of this challenge is to set up an innovative formation, conducting students and researchers to suggest synergetic solutions to urban issues of two main metropolis around the question of evolutive habitat. The scientific challenge mobilised more than a hundred students from the National Institute of Applied Sciences of Lyon, the School of Superior Technologies of Montreal as well as the National School of Architecture of Lyon. At the end of the three day formation, the participants presented suggestions for evolutive habitat models for a single parent family in a newly constructed collective housing.</p>			
7	University College Cork (UCC)	Postgraduate (PhD)	Interdisciplinary
<p>Brief description of UCC pilot PhD researchers from multiple disciplines (e.g. psychology, public health, medicine, engineering, business) form a research partnership with a community group. Each year, during semester 2, a new cohort of students and community researchers work together to explore a societal challenge experienced by the community organisation. The societal challenge explored depends on who the community partner is and their area of work. Thus far, societal challenge(s) explored are health, demographic change and well-being, social justice, education and environmental. Students enrol on this module to gain 5 credits and their PhD research typically has no participatory or engaged research element. These students are interested in participatory approaches and where possible, particularly for early stage PhD students, can adapt particular elements of their PhD to account for their newly acquired participatory research skills and appreciation.</p>			
8	Universität Vechta (UoV)	Postgraduate (masters) and undergraduate	Interdisciplinary
<p>Brief description of UoV pilot</p>			

The course focusses on participatory research projects in student groups with regional actors. The course is open to all students from different study programmes and with different disciplinary backgrounds, as it belongs to the special profile module/key competence module (General Studies) and is transdisciplinary and interdisciplinary. The target audience are undergraduate students, but also some master students attend this course. In this course an examination of essential approaches and concepts of transdisciplinarity and "Responsible Research and Innovation" as well as participatory research and action fields take place. The course runs for 14 weeks with 4 hours per week. In the first sessions, the theoretical basis is created through inputs by the lecturers, readings and group work of the students in order to get every student to equal starting points for the projects. The regional actors (mainly CSOs) visit one of the first sessions and present their research needs, for the students to choose from and form groups upon those.

9	Queen's University Belfast (QUB)	Undergraduate	Social Sciences, Education and Social Work
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Brief description of QUB pilot
 The aim of this pilot was to test specific methods for promoting responsible research amongst second year undergraduate students in the School of Social Sciences, Education and Social Work, mostly studying Sociology. These methods were:

1. *An ethnographic approach* to research: understanding society better through interaction between social actors:
2. *Understanding social divisions*: specifically, by challenging a perception that the only division in Northern Irish society that matters is one between two blocks (Protestant/Unionist/Loyalist and Catholic/Nationalist, Republican) which are presumed to be internally homogeneous, externally differentiated and representative of the whole of Northern Irish society
2. *Promoting reflexivity*: not taking 'selfies' or looking in a mirror but encouraging students to think about other students and other people's (Family, friends, guides, interviewees) experience of events
3. *Understanding Ethics* through the practical application of principles in designing, carrying out, recording and interpreting research.

1.1 Facilitators of the pilots

There are several different factors that ensured the success of the various pilots and these are discussed below:

1: Flexibility of the curriculum

The ease with which EnRRICH members were able to integrate the pilots in various programmes differed according to the flexibility of the curriculum. In the case of University of Vechta, the curriculum includes a general studies area which made it easier, as reported by the EnRRICH member, to include new modules. For some higher education institutions, module approval processes and course credit restrictions may make this more difficult. This may explain why the majority of members reoriented an existing module rather than creating a module de novo, and will be discussed in more detail later.

2: Position of the EnRRICH member in the institution and proximity to students/classroom

The EnRRICH members vary considerably in terms of where they are based. Some project members are located solely in [Science Shops](#), others in academic units, others are in both Science Shops and academic units, and two EnRRICH members are located outside universities. A review of the pilots highlighted the importance of the position of EnRRICH members. EnRRICH members in non-academic roles may not have access to students and may need to partner with teaching staff. This is not necessarily a negative factor, but it does contribute to variation in how EnRRICH members introduced and explored RRI theory and domains with their students.

EnRRICH members who were directly involved in the delivery of their institution's exemplary RRI pilot had more control over what elements of RRI were explored and how students experienced and interacted with elements such as diversity and inclusion, and reflexivity. They could influence the assessment so that it explicitly addressed RRI components or it involved students uncovering RRI dimensions for themselves. For example, in the pilot at Wageningen University the students used the

competency framework of the EnRRICH tool to self-evaluate their engagement in a collaborative project with a community partner.

2: Link to Science shop

The presence of a Science Shop within the partner institution was a facilitative factor in ensuring the success of the pilot. A Science Shop is an entity which helps broker links between the university and civil society organisations for knowledge exchange and partnership. Each EnRRICH partner institution has a Science Shop with considerable expertise in engaging with CSOs and a ready database of potential partners. In some cases, the EnRRICH member worked in the Science Shop, in other cases they had a close working relationship with Science Shop staff. This connection to the Science Shop is important in the context of time and resource efficiency. Science Shops are also proposed as examples of *'organizational arrangements conducive to Responsible Higher Education'* (Tassone, 2017). It is argued that students participating in Science Shop projects learn across multiple domains and that Science Shops consequently are uniquely positioned to support the development of RRI competences in students.

3: Allocated time and resources

The pilots reviewed in this report reflect a considerable amount of time and resource commitment. EnRRICH members were encouraged to trial good practices that emerged in early scoping for the project, but also to tailor these to local institutional, and even disciplinary contexts. This earlier preparatory work uncovered a range of existing good practices in teaching and learning about RRI, called "Promising Practices" (Buckley and Clemens, 2016) which helped orientate the resulting pilots for embedding responsible research and innovation in the curricula. Similarly, each partner institution conducted a Swap Shop (Healey and Roberts, 2004) activity to share good practice approaches to embedding RRI in curricula between peers in their own institution. The ambition and scale of the pilots was possible because each partner had designated staff to support these activities and drew on a range of existing good practice approaches to inform their activities.

4: Pre-existing relationships with civil society organisations

Developing and implementing a new RRI pilot can be time consuming, particularly if one wants to partner with a civil society organisation in the 'deep' approach to integrating RRI. Having access to, or an existing relationship with, CSO partners is invaluable in terms of increased efficiency but an additional beneficial element is having established a relationship of trust. Many of the partners engaged in these pilots had previously engaged with the community partner. In the case of University of Sassari, the community partners involved in the pilot had a relationship going back to 2011. The pilot led to the subsequent formation of a Permanent Partnership Instrument forming a permanent link between the university and the community partner. Additionally, Dublin Institute of Technology provides an example where EnRRICH members leveraged pre-existing relationships with community organisations. DIT's long standing partnership with Northside Partnership provided a variety of linkages and access points for students from varying disciplines and levels of study to collaborate on. This means that a wide variety of topics and themes can be explored with one partner which also has a knock-on positive implication for sustainably embedding RRI in the curricula.

5: Leveraging institutional and higher education policy

The purpose of higher education, as referenced in EU policy papers, institutional strategic plans etc., has begun to move from a narrow focus on employability and economic prosperity to include broader goals such as civic engagement (Tassone *et al.*, 2017). EnRRICH members were able to leverage the relevant institutional, national and international policies to provide a strong argument for a pilot or initiative. The need for ‘policy literacy’ among project members is also relevant for ensuring the sustainability of pilots as the members could also provide inputs into key reports, audits and grey literature with a view to ensuring emerging policies were supportive of this kind of work. For a broader consideration of the policies environment see Tassone *et al.* (2017), and McKenna (2017).

1.2 Key Considerations

While the above facilitative elements are supportive of a successful pilot, there are additional factors that need careful consideration before embarking on a pilot.

1: Timing

RRI is an emergent idea and at the start of the EnRRICH project was only just beginning to resonate with higher education academic staff, researchers and senior management. The perceived ‘emerging’ status of RRI had an impact on the ease of design and implementation of EnRRICH pilots as much preliminary work had to be done to orientate colleagues to RRI concepts. Hence, a significant amount of time in the earlier phases of EnRRICH was directed towards sensitizing staff to the concept of RRI and finding opportunities to run pilots. As highlighted in the policy brief (McKenna, 2017), RRI is a concept more closely connected with research and its consideration within the frame of education is only just emerging, although it links well with recent policy for teaching and learning. The EnRRICH project, as demonstrated in the featured exemplary pilots, has made great strides in advancing these links between RRI and education, building upon the foundational work of the [RRI-Tools](#) project.

2: Terminology

Some institutions experienced significant resistance to the term RRI and were required to be creative in their approach to introducing and discussing it with colleagues. In some countries, the term RRI could be perceived as *just another term* in a series of EU imposed terms, or, an umbrella term to describe what many HE individuals were doing already, e.g. participatory research, service learning, public engagement etc. EnRRICH members and those wishing to explore RRI strategies in their own educational context should be aware of this. Those connected to EnRRICH pilots learned to practice anticipation and reflection in relation to the terminology and theory of RRI adopted, particularly when attempting to envision its development within higher education. In practice, this translated, in some cases, to EnRRICH members not explicitly mentioning the term RRI at the outset when running their pilots and instead referencing existing best practices that embody RRI principles within the particular discipline or area of study. The term ‘RRI’ could then be introduced later in the pilot once attendees had a grasp of the nuances and dimensions of RRI.

2: Analysis and key learnings from the pilots

The pilots were reviewed to uncover what they have in common, what is different between them and what is the key learning from their implementation. The purpose of the pilots was to facilitate the development and enactment of teaching approaches to integrate RRI in modules and programmes. Depending on the module or programme in which the pilot took place students could connect with a number of different keys (as put forward by the RRI-Tools project) such as public

engagement and gender equality, however, there was greater resonance among students with the process requirements (see RRI-Tools website).

A review of the pilots revealed common features and contrasting approaches, and these are discussed to uncover the learning from the pilots and to identify a number of recommendations for educators regarding their delivery.

1: Adapt an existing module or programme

The majority of the pilots featured in this report were adaptations of existing modules or programme of study; few were created from scratch. This may reflect the constraints of programme and module approval processes. It may also, as noted by Wageningen University, reflect the ease with which minor changes can be incorporated and the potential to integrate RRI in modules through small, purposeful modifications. EnRRICH ran for less than 3 years so the project partners had to be creative in finding ways to implement some of the good practices uncovered in the early scoping exercise. In Vrije Universiteit Brussel, the EnRRICH member linked with the new “Reasonably Engaged” course which had been developed to engage an interdisciplinary group of students in critical reflections on societal issues. Consequently, the course was reoriented to ensure students engaged in a deep approach and responded to a research question or challenge submitted by a civil society organisation.

Two pilots which feature in this report were new modules, thus the EnRRICH project was the spark for their creation. In the case of UCC’s pilot, the EnRRICH members developed a PhD module open to all students engaging in a structured PhD programme. Some of the ground work for the creation of the UCC module had occurred in the EU funded Framework 7 project (PERARES) which predated the EnRRICH project so it was possible to have a module proposal approved in sufficient time for it to be run in each year of the EnRRICH project.

2: Engage later-stage students or include capacity building for early-stage students

The students involved in the various pilots, particularly the exemplary pilots featured in this report, were primarily postgraduate or later year undergrad students. EnRRICH members and their colleagues may have been strategic in their choice to work with later stage undergraduate and postgraduate students in order for the pilots to practice a deep approach, where students collaborate with stakeholders on real-world issues. Students further along in their HE journeys may have more disciplinary knowledge, capacity and self-confidence to learn in this way. The Universite de Lyon appeared to leverage this capacity building characteristic and provided the opportunity for fourth year students, following their experience on the collaborative pilot, to consult with earlier stage students (3rd years) helping to inspire their future final year group projects.

An alternative explanation is that there is a tendency towards large size entry level classes in the first year of study which might make the pilots more difficult to roll out. However, the IrsiCaixa pilot made inroads in building capacity of non-third level students and worked with approximately 700 second level students and other stakeholders to engage in an agenda setting process relating to HIV/Aids prevention. The pilot includes capacity building for the students to develop particular research skills so that they are more empowered to engage fully in the pilot, and the design of the pilot helped to develop students’ reflexive and inquiry skills which would be of benefit for students who embark on further study.

3: Utilise inquiry-based learning and reflective journals

The need to engage the students across multiple domains of learning was highlighted in the EnRRICH tool under the principle “educating whole persons”. Students not only need to engage cognitively with the theories and practices being shared in the pilots. They also have to be given opportunities to: demonstrate that understanding through hands-on practice, be supported to internalise the principles and values that underpin this work, and exemplify holding a position that is attuned to RRI. The pilots differed somewhat in how this multiple domain learning was achieved. Many of the pilots engaged students in inquiry-based learning and a number went a step further to partner with a community organisation in a collaborative research or learning activity. Many pilots utilised reflective journals to support and document student learning. Queen’s University Belfast staff cautioned that students need considerable feedback to develop their reflective practice. This may require that additional time and suitable scaffolds be utilised to develop this ability. One EnRRICH member reflected that there can be a mismatch between the complexity of the projects or inquiry-based learning being enacted by the student and the complexity of projects for which the RRI framework was developed. Smaller projects, therefore, could benefit from focusing on a more limited number of process requirements to ensure that students get a deeper understanding of RRI.

4: Utilise real-world examples to make RRI more tangible to students e.g. Sustainable Development Goals (United Nations, 2015).

RRI can be an abstract idea so the various pilots identified a societal challenge or sustainable development goal to focus on in their pilot rather than explicitly focussing on RRI. This builds on the education for society principle which is the first pillar of the EnRRICH Tool. University of Vechta emphasised the need to make RRI more tangible to students and utilised some of the case studies developed in the EnRRICH project which sought to prompt debate on societal issues for early stage students. In other examples, the EnRRICH members utilised RRI competency framework for students to self-evaluate their work (Wageningen University) or they drew on policy papers relating to RRI in order to stimulate discussions on existing structures, practices and principles in research and innovation and the emergence of RRI (University College Cork).

5: Model good practice by embedding RRI principles in the coordination and delivery of the pilot

On reviewing the various pilots, it was clear that the RRI priorities are often interwoven in the enactment of the intervention. In the community-based participatory research module in University College Cork, students and community partners have input into the design and delivery of the module or activity. This helps to ensure the module is flexible in terms of the content shared and practices enacted in order to be responsive to student interests or the particular context or challenges that emerge. This mirrors a ‘students as producers/partners’ pedagogical approach and participatory research methods as it proposes that all partners in the learning or research approaches act as co-creators of knowledge.

One potential issue in trying to implement all facets of RRI in the enacting of the teaching strategy is that working on multiple levels may lead to a dilution of purpose. We could ask to what extent the pilots are inclusive, responsive, reflexive or anticipatory, and WU utilised this approach in their pilot when students used the EnRRICH competency framework to reflect on their projects. There can be a tension between the learning needs of the student and the requirements of the community partner.

Efforts need to be taken to ensure that students' needs are not prioritised over those of the CSO's, particularly as the pilots are happening in a higher education setting in the main.

6: Encourage interdisciplinary learning

There can be an imbalance in terms of disciplinary engagement with RRI. While RRI was originally linked to the hard sciences, the policy requirements and keys speak to expertise in the humanities and social sciences with its consideration of gender, reflexivity etc. The majority of the pilots reviewed here involve multidisciplinary groups of students. The disciplinary lens can be applied when asking students to reflect on their learning as it relates to their disciplinary understanding or disciplinary practices and norms. Conversely an RRI lens can be a way to support integrative learning across disciplines or to broaden students' understanding beyond their cognate discipline.

7: Consider the sustainability of the intervention from the outset

A key concern to emerge from the EnRRICH project, as members developed and implemented their RRI pilots, is the sustainability of the pilot in member institutions beyond the scope of the EnRRICH project. As identified earlier in the report, some facilitative factors in successful pilots include the position of the EnRRICH member and their proximity to the students/classroom. Working and maintaining strong relationships with institutional colleagues who value RRI and related concepts, e.g. participatory research, is crucial, as is advocating senior management to impress upon them the benefit of students learning in this way.

A further related observation is the level of capacity building within EnRRICH institutions to systemically embed RRI in the curriculum. An analysis of the exemplary pilots indicates that many EnRRICH members were responsible for the development and delivery of their exemplary pilot which has implications for the sustainability of exemplary pilots going forward. Designing and introducing a new pilot or element to an existing module/programme can be demanding and some efforts should be made to share good practice with peers. In second or third iterations of RRI pilots, it would be timely to invite colleagues to co-teach or to learn more about the pilot so that institutional capacity to embed RRI is increased and, subsequently, there is not an overreliance on the original EnRRICH individuals to advance RRI in their organisation.

3: Conclusions and recommendations

The nine pilots reviewed in this report were chosen by the EnRRICH project members as exemplars of how to embed RRI in higher education curricula. The elements that facilitated the success of the pilot are largely organisational and include the position of the pilot deliverer, allocation of time and resources, and the connection to Science Shop, but also related to other elements such as the flexibility of the curriculum, the timing of a pilot, the terminology used and the effective leveraging of policy.

There are key recommendations emerging from this review of the exemplar pilots:

- Adapt existing modules to include engagement with community partners and orient the module or teaching activity towards addressing a common, generative topic such as the Sustainable Development Goals

<ul style="list-style-type: none"> • Use an RRI lens to broaden students understanding beyond their discipline and to foster integrative learning in classes with students from multiple disciplines. Interdisciplinary programmes are particularly suited to developing RRI competences in students
<ul style="list-style-type: none"> • Design teaching activities and assessments that impact on multiple domains of learning, i.e. learning to know, learning to do and learning to be. Reflective journals or learning logs can be effectively utilised for formative and summative assessment purposes
<ul style="list-style-type: none"> • Utilise inquiry-based learning to integrate RRI in curricula. Extend this further by engaging students in community-based research, thereby adopting a 'deep' approach to RRI integration
<ul style="list-style-type: none"> • Employ these teaching approaches with students at all stages, but put scaffolding in place to ensure the students have the required skills to engage in the learning
<ul style="list-style-type: none"> • Consider sustainability from the outset of a pilot

The exemplar pilots contained in this report provide inspiration on how to design and deliver a curricular intervention, and, combined with the EnRRICH tool for educators (see Tassone and Eppink, 2016; McKenna, 2017), provide a very useful roadmap for how to integrate RRI in a module or programme. The ethos of peer learning and exchange is to the fore in the EnRRICH project and we invite you to reflect on your learning from trialling all or part of the pilots reviewed here through the Living Knowledge network and the EnRRICH project website.

Appendix: Exemplar Pilots

Dublin Institute of Technology: North East Dublin Healthy Communities Pilot

Description of the purpose and content of this pilot

DIT Environment & Planning engaged with Northside Partnership based on the Northside of Dublin in a Students Learning with Communities Initiative to research levels of mobility and the potential for sustainable transportation within the study area of North East Dublin. The Healthy Communities Pilot is an action-based research cooperation, since 2013, between Northside Partnership and DIT examining wellbeing and health inequalities in a disadvantaged part of Dublin. The project is about making the area more environmentally sustainable, and a healthy place to live, and also providing people from disadvantaged areas with access to services and to employment, to a range of needs. At the start of each academic year since beginning this project, the lecturer and community partner meet to agree a relevant research assignment that the students will undertake. For example, students on the Msc in Local Development & Innovation and the Msc in Sustainable Development programmes as part of the transport and mobility module did research on transport policy and how it effects the local area, and how that might be bettered. Since the beginning of the Healthy Communities project, 3rd year students on the Bsc in Spatial Planning and Bsc in Environmental Management programmes, as well as students in year two on the Msc in Sustainable Development, and the Msc in Local Development & Innovation have been involved. Since 2013, 41 undergraduate students and 39 postgraduate students have been engaged in this project. Over the course of the EnRRICH project 21 undergraduate and 21 postgraduate students engaged in this project.

Learning outcomes

The project enhances module Learning Outcomes across undergraduate and postgrad programmes mentioned above. At the end of the module, students are able to: -

- participate in a real-life, longitudinal planning project, assessing complex and often inter-related socio-economic and environmental issues
- work together with local development agencies designing appropriate sustainable solutions to systemic and long-term community challenges
- engage directly with community stakeholders and experts
- understand the principles of sustainable development in an applied context
- understand the wider context and implications of transport and mobility problems and potential solutions

Overview of teaching strategy

- a. Teaching approach used in the pilot: strong emphasis on problem-based learning and learning-in-the-community
- b. Number of credits: 5
- c. Who was involved in the delivery of the pilot (i.e. a teacher, facilitator?)
DIT Senior lecturer Dave O Connor, Dr Matthias Borscheid; Manager: Local Development and Social Inclusion Programme: Northside partnership & Odrian Reid; Strategy Development Manager, Northside partnership.
- d. What teaching activities took place? - lectures, seminars, workshops, field-trips
- e. What core reading(s) was drawn on?
"Shaping Neighbourhoods" by Barton, Grant & Guise (2010)
- f. What assessments did the participants complete? (list key assessment methods used)
Major group project with team and individual participation components

Context in which the pilot was implemented which allowed it to work

The module assessment is based on collaborative planning and Problem-based Learning. Students are required, where practical, to engage with stakeholders, going to the local area and meeting community partners. A very strong partnership with staff Reid and Borscheid at management level in the community organisation, which was supported at a senior executive level, is critical to the ongoing momentum and success of the project. Reid also works as a lecturer in the area of Spatial Planning in DIT and this connection with DIT and O'Connor facilitates on-going conversation and collaboration between O'Connor & Reid.

Main observations on the pilot

Students are required to engage directly with stakeholders and local experts; followed by primary research, survey and analysis; leading towards empirically supported policy and design recommendations.

- a. What was your/the educator's key learning from delivering the pilot?
The value of educators/academia working together with community organisations to champion the delivery of essential services and infrastructure. While the main object – delivery of an urban greenway connecting of the research project remains an aspiration – public and administrative awareness of the issue has been progressed, including the establishment of formal planning objectives and getting political support.
- b. What did you try that worked well? What was the learning from what worked well?
Getting the students to engage directly with stakeholders in the design of potential solutions was usually successful. Assistance from the community partner was probably key to matching students with stakeholders and creating the right context and environment for such engagement. Encouraging students (mainly at postgrad level) to utilise their own skillsets and disciplinary expertise was very positive, especially as it allowed them to push the boundaries and be explorative in coming up with ambitious and potentially exciting solutions
- c. What did you try that didn't work? What was the learning from what didn't work?
Expanding the project out into other disciplines and involving other modules, teachers and disciplines has been difficult in terms of timetabling and staff resources but is being pursued and hopefully will yield benefits.

What societal issue(s) did you engage students with? (education for society)

The module explores the relationships between transportation, human settlement patterns and quality of life while delivering an understanding of the requirements of policy makers in dealing with contemporary transport challenges. Every year at the start of each semester, the lecturer and community partner meet and agree on a relevant research assignment that the students will undertake within the scope of the broader Healthy Communities Pilot project objectives. Students look at an aspect of transport policy and how that affects the local area, and how that might be bettered. The mobility services in the subject area are generally poor, and a lot of people do not have access to a car, with fuel poverty issues, so sustainability and social justice are direct issues, and themes in the project.

Did you engage community partners/stakeholders within your pilot (education with society)?

Northside Partnership, a not-for-profit company, use DIT's research outputs as a basis for advocacy and strategic planning. As a result, Dublin City Council have adopted objectives to develop a greenway in the area, for which planning has already commenced. The partnership gives NSP access to research they couldn't carry out due to funding constraints, research outcomes that inform their planning, evidence to advocate for change and to increase the actual and perceptive profile of the area, cross-fertilisation of experience, knowledge & mutual learning with DIT students, and the ability to co-produce and co-design research projects using DIT as open forum and responsive space for exploring ideas.

How did you engage students with the RRI?

- a. Did you engage students in cognitive (knowledge/understanding), affective (being/attitudes/values), and psycho-motor (doing/skills) activities? Can you provide examples of at least one activity for each of those three development areas?
 - cognitive (knowledge/understanding) – conduct of interviews and travel diaries with selected stakeholders and individual within the subject area
 - affective (being/attitudes/values) – developing, in conjunction with local stakeholders, participatory projects for the promotion and development of project deliverables
 - psycho-motor (doing/skills) activities – designing a cycle network strategy for subject area
- b. Were students prompted to uncover issues such as diversity, inclusion, openness, responsiveness through engaging activities? Can you provide examples of activities?
The project is about sustainability in an urban context. Students are therefore challenged to provide solutions that are inclusive, collaborative and accessible. In many cases, principles of sustainable development are themselves aligned with the values of RRI and at a very applied level. For example, one group of students had to devise collaborative projects to promote community ownership and participation with the greenway infrastructure in place. To achieve this a multifaceted approach was

needed from the students, to emphasises the Santry River Greenway as a social and community amenity, accessible to everyone and enriching the lives of all those who live within its reach.

What surprised you about this pilot?

The enthusiasm for the student proposals both at a project partner level and at a socio-political level where the broad project objectives are now part of the public discourse and are seen as an accepted set of solutions and investments for the subject area. For example, The Northside partnership is using the research produced by the students to lobby for change regarding transport policy in this part of the city. As a direct result of the research collaboration, Dublin City Council have adopted the following Planning Objective as part of the Dublin City Development Plan 2016-2022: "to bring forward planning and design of the Santry River Greenway, incorporating strongly integrative social and community development initiatives." Dublin City Council have invited both DIT and Northside partnership to address two area Committees on the Santry River Greenway, and Northside Partnership are now in the early stages of assisting in the development of a city urban farm along the proposed Greenway.

What advice would you give to those wishing to replicate this example?

The project has potential to be expanded upon to include other appropriate disciplines to contribute towards the overall research project.

Attach relevant teaching resources, slides and reading list.

This on-going research partnership has resulted in several collaborative research outputs between O'Connor, Reid and Borscheid. Below are some of the direct project outputs: -

O'Connor, D., Borscheid, M., Reid, O., ni Lochlainn, M. "Santry River Greenway Feasibility Appraisal", DIT and Northside Partnership Students Learning with Communities Project, 2016 <http://arrow.dit.ie/beschsprep/1/>

O'Connor, D., Borscheid, M., Reid, O., Simon, W.. "Promoting Cycling and Health In a Disadvantaged Area Of North East Dublin City", Proceedings of Irish Transport Research Network, 2016 <http://arrow.dit.ie/cgi/preview.cgi?article=1022&context=beschspcon>

O'Connor, D., Borscheid, M., Reid, O. & Ni Lochlainn, M. (2015). Northside Partnership "Healthy Community" Pilot Area Walkability Audit. Proceedings of the Irish Transport Research Network, 2015. <http://arrow.dit.ie/beschspcon/12/>

O'Connor, D., Borscheid, M., Reid, O. An Assessment of Mobility among Key Disadvantaged Communities in North East Dublin, Proceedings of the AESOP-ACSP Joint Congress, Dublin 2013 <http://arrow.dit.ie/beschspcon/17/>

For further information contact DIT EnRRICH member Catherine Bates catherine.bates@dit.ie

Living Lab for Health, IrsiCaixa: Co-ResponsHIVility, a participatory R&I agenda setting on HIV prevention and other STI

Brief description of the purpose and content of this pilot

Co-ResponsHIVility is a pilot programme of governance of R&I, which is focused on participatory R&I agenda setting on the prevention of HIV and other sexually transmitted infections (STIs). It is being developed through the creation of a platform or ecosystem where different interested stakeholders come together through an open, reflexive and inclusive process to explore R&I priorities. The project has an interdisciplinary and transdisciplinary approach and comprises a wide range of academic disciplines and non-academic knowledge based on experience. The ecosystem gathers more than 670 social actors interested in the issue who represent different stakeholders: the research community, healthcare providers, civil society organizations, patients, policy makers and the education community (including master students and secondary school students and lecturers). The outcome will be a "R&I Agenda on HIV/AIDS Prevention" that will contemplate the priorities of

the different social actors. To respond to these priorities with an RRI and system approach, the Lab will offer RRI training in the near future and is recruiting more master students, among other actions. The RRI training workshops that will be offered have been implemented through the project EnRRICH in different universities and RPO.

It is developed in the framework of the Xplore Health, EnRRICH and INSPIRES projects with the assessment of the VU University of Amsterdam. Within the EnRRICH project the development of the Agenda was carried out with secondary school students and master students. The second part of its development is being implemented within Inspires and is involving other stakeholders such as researchers, healthcare providers and NGOs.

Learning outcomes

The stakeholders engaged in our Platform develop competences and skills to transform the R&I into more open and inclusive processes that are better adapted to the needs and expectations of the different stakeholders.

Main learning outcomes:

Content on RRI:

- Need to open the R&I process, RRI and Open Science
- Opportunities and obstacles to transform the R&I system
- Methodologies for Participatory R&I Agenda setting

Main skills:

- Priority setting of R&I topics
- Collaborative deliberation and reflection
- Responsiveness and adaptive change
- Communication

Other content to be introduced in future courses to be offered within this Platform:

- Methodologies for Participatory Research or Community Based Participatory Research
- Main lines of actions within the RRI policy agendas: ethics, science education, multistakeholder engagement, open access, gender.

Other skills to be introduced in future courses to be offered within this Platform:

- Scientific methodology with co-creation and stakeholder engagement
- Critical thinking and assessment of R&I processes
- Anticipation of social impact and analysis of risks and consequences

Overview of teaching strategy

The teaching approach was the so called within EnRRICH as the deep approach, where the stakeholders learned through the implementation of an authentic task, which was the development of the R&I Agenda. The implementation was coordinated by a facilitator who is the head of the Living Lab and who was in charge of organising meetings with workshops where the participants learned from each other while co-designing the different phases of the process.

The workshops facilitated co-creation processes to arrive to consensus on the overall work plan, and on the guidelines for the secondary school teachers on how to implement the activities in the classrooms. The workshops included lectures on RRI and co-creation sessions to co-design the process, focusing on aspects such as:

- the overall work plan
- the workshop to engage the secondary school students in the reflection on research and innovation needs
- the training needed for secondary school students to interview experts in the field and to produce videos. This part of the process was implemented before the reflection on R&I needs, as it was considered as a necessary phase to empower students with the necessary knowledge and skills. As each school was only in charge of interviewing one expert, the videos were later used by all the secondary school students to learn about the different lines of research that had been summarized by the different schools. For this training, the participants were engaged in the design of an instrument that would help students to interview the experts with an RRI criteria, by questioning them aspects

such as who decided on the priorities in their field of research, how much they engaged different stakeholders in the research process or to what extent they anticipated possible social impacts of their research results.

- The organisation of a final congress where the students could present their work and also attend lectures on the topic

Apart from the learning of the different stakeholders engaged, the process involved two master students who conducted research projects for their Master Thesis. One of them who was undertaking a master on science communication, focused her research on the analysis of the coverage of RRI criteria in some videos that were produced by secondary school students who interviewed experts during the process. Her research also involved the development of an instrument for interviewing researchers with an RRI approach. The other Master student focused her Master Thesis on the evaluation of educational resources for HIV prevention, as she was undertaking a Master on Education.

The facilitator also worked hand in hand with a communication officer who was in charge of the communication process and who was at the same time assisted by a master student doing an internship on science communication. This latter student also learned about communication skills, a part from RRI skills.

The master students conducting research were facilitated with background materials such as the RRI Tools website, or a paper on how to implement participatory research agendas.

Describe the context in which the pilot was implemented which allowed it to work

The project started by involving the secondary school students together with the master students. The context where it was implemented was within the project XploreHealth, which is an educational project on health promotion that aims to build the bridge between research and education, with funding from the “la Caixa” Foundation. Within this program, the Living Lab has consolidated a network of secondary school teachers willing to innovate in how they engage their students with research. They have already received previous training within our programme, on innovative education techniques and also on RRI. This facilitated the success of the process.

Main observations on the pilot

The pilot was a proof of concept on how to implement a participatory R&I agenda with the participation of different stakeholders and also including young people, i.e. secondary school and master students. So the learning was on this proof of concept. It was innovative to invite stakeholders which have traditionally been left outside of the decisionmaking process of the R&I system to participate and reflect on topics related with R&I.

Regarding the topic of the project: The fact that the involvement was in an authentic task was perceived as extremely motivating.

Regarding the process: The fact that the methodologies were discussed among all participants’ representatives during workshops and that they facilitated the engagement of the rest of participants, facilitated the sense of ownership of the process. On the other hand, the first phase of the process which was devoted to empowering the students by inviting them to do interviews and to disseminate them through videos was very effective.

Regarding the outcomes: The suggested R&I needs expressed by the secondary school students were more elaborated than expected thanks to the empowerment phase mentioned above. They came up with a list of 23 problems and needs for which they identified different research questions and innovations (in the shape of products, services and lines of action).

However, the most difficult part was to fulfil the timings. As the process was co-created among so many stakeholders (a total of 660 secondary school students), some schools did not reach the deadlines and this caused trouble for other ones that were waiting for the results. The students also expressed the need for more time of interaction with experts in future projects.

What societal issue(s) did you engage students with (sustainable development goals)? (education for society)

The pilot focused on the prevention of HIV and other STIs, which is under the 3rd Goal on Good health and well-being. By giving voice to stakeholders that had traditionally been left outside the decision making in the R&I of

such a prevention, topics focusing on reducing inequalities and on the need for partnerships to find better solutions for some of the problems identified were added to the agenda, therefore contributing to objectives 10 and 17. Finally, the schools and master students involved had the opportunity to learn through an innovative process, which contributed to the 4th goal on Quality education.

By the time being, working on this goals worked well as they are in the final agenda. However, the challenge is now how to make sure that they are implemented. During a second phase of the project, as mentioned above, we have worked also with other stakeholders such as CSOs, researchers and healthcare providers working in different specialities. We are now identifying their priorities. The following step will be to identify the research lines that are already being implemented and to offer training to the researchers for transformative change, to make sure the research will be more open and inclusive. For some of the lines or innovations that are not being implemented, the challenge will be to find resources and synergies to move forward and to identify master students who want to help in this direction, following the Science Shop methodologies. The final challenge will be to continue facilitating workshops within the platform to keep it alive, creating new partnerships and reflections at system level to further the promotion of the transformation of the R&I system with an RRI and system approach.

Did you engage community partners/stakeholders within your pilot (education with society)?

The learning process was implemented in coordination with community partners and stakeholders. The master students worked hand in hand with secondary school students and experts. As the master students were doing their internships, their activities did not happen in their classrooms, but for the secondary school students they did. However, as the interaction among stakeholders was perceived as very interesting for the learning process, the secondary school teachers asked for more time for interactions with stakeholders in future projects.

How did you engage students with the RRI?

The process of developing the R&I process involved psycho-motor activities, as they were participating in workshops, preparing instruments for doing the interviews and then doing them, producing videos, disseminating them, preparing presentations for the final congress... The creative deliberative reflection on R&I needs required previous knowledge and understanding on the topic, and then the integration and application of this knowledge through the creation of the R&I agenda. Finally, the fact that they were participating in an authentic task contributed to develop their responsible citizenship, therefore facilitating a reflection on different values and attitudes they have as citizens, especially regarding the topic related with HIV and STIs, involving issues such as stigma, inequalities, values related with decision making that affects access to prevention, or perception of night leisure, among others. Furthermore, during the final congress the students attended a conference by an HIV positive patient, which again facilitated the reflection on issues such as stigma and prevention.

Regarding diversity and inclusion: students highlighted a wide range of R&I topics related with those process dimensions, such as the need for more spaces of interaction among different stakeholders, such as families, psychologists, teachers, students... with possibilities to preserve the confidentiality. They also highlighted the need to do more research on the accessibility to prevention methods by different stakeholders, or on health inequalities.

Regarding responsiveness: being involved in the development of a R&I agenda facilitated the learning of the possibility for the R&I system to respond to the needs of different stakeholders, such as those of the students. Responsiveness was also present through the development process, as students had to co-create in each of the tasks and this requires the skill to respond to the needs of the peers.

Regarding openness. They disseminated every product of the process where they participated, so they learned how to be open and transparent, but, at the same time, in the outcomes in the Agenda some of the needs also referred to this process requirement. For instances, they highlighted the need to reduce social inequalities regarding access to knowledge and prevention methods and the need for a better access to knowledge and education.

Finally, all the process facilitated the reflection among the different stakeholders, therefore facilitating the latest process requirement to reflect and anticipate.

What surprised you about this pilot?

The importance of facilitating empowerment and participatory processes for those that have traditionally been left outside of the R&I decision making, as they can contribute to improve what is being done. Another aspect that I would highlight is the need to analyse the R&I agendas at system level, by looking at complex problems from different disciplines but also with the engagement of non-academic experts.

What advice would you give to those wishing to replicate this example?

I would advise to make sure that co-creation processes are facilitated to make sure all the stakeholders can participate in the decision making. This will facilitate the sense of ownership and also will help to deal with crisis when they arise. I would also make sure to have a risk assessment co-decided in advance to anticipate how to react when for instances some of the stakeholders do not fulfil deadlines. Finally I would also advice to start by asking the participants on which are their expectations, to make sure they will be fulfilled as far as possible.

Attach relevant teaching resources, slides and reading list

The slides of the different meetings, the workshops descriptions, the instrument for students to design interviews, the slides of the training on how to do videos, and the speech of the final congress are all in catalan. Some reading materials have already been included in question 4. The final Agenda will be published soon on the website of the project Co-ResponsHIVility.

For further information contact EnRRICH member Rosina Malagrida rmalagrida@irsicaixa.es

Vrije Universiteit Brussel: Redelijk Eigenzinnig (Reasonably Engaged)

Brief description of the purpose and content of this pilot:

It's a multilingual and interdisciplinary optional course for MA & 3rd BA students and a lectures and event cycle for the broader public, aiming for critical reflection about big societal issues. Each year there's another central topic: in 2016-2017 it was "migration", in 2017-2018 it's "opportunities and impact of new technologies". Reasonably Engaged wants to build bridges between academics, working field and the public. Students that have registered for the course are working in interdisciplinary teams on a research question from a Brussels CSO.

Learning outcomes

Academic learning outcomes:

- students distinguish, know and respect different positions in scientific debates on the topic
- students critically reflect on the arguments presented in the debates
- students can take their own position with regard to the debates
- students are able to independently collect scientific arguments to substantiate their viewpoints
- students can share their viewpoints with a wider audience
- students are able to collaborate in a group with interdisciplinary character

Social learning objectives:

- students have insight into social actors working on the topics covered
- students have insight into the needs of various target groups related to the topics covered
- Students have insight into possible forms of personal engagement with regard to the topics covered
- students involve the acquired knowledge on their own (study) expertise and environment

Personal learning outcomes

- students are able to draw up and use a personal development plan
- students are interpersonally competent: they use relevant conversation skills and techniques, enter into professional relationships with various actors, take responsibility for the group work and work according to the agreements and procedures agreed in the team.
- students are reflective: they reflect systematically on their own behavior and involve the feedback from others, know how to improve their own competence (development), work on their own development in a planned way and are open to other visions and ideas

- students are communicative: they are able to convey a clear, well-founded and debated position to a wider audience

Overview of teaching strategy

The course is built according to the principles of community service learning (CSL) and community based research (CBR). Students work together in multidisciplinary student teams on research questions submitted by CSOs. They are challenged to formulate an innovative solution or opinion. Information is provided on the one hand during public activities: lectures, debates and workshops, in which academics, researchers, professionals and citizens highlight the themes from a specific perspective and / or scientific domain. These activities take place at various locations outside the campus and are open to everyone. On the other hand, students must actively seek additional information in literature and by consulting experts. The second semester is concluded with an interactive exhibition on which the final products of the student teams are presented, which also is a jury moment.

The 'CSL/CBR' process consists of 2 modules of 8 weeks. At the start of the first module the students choose a project and are divided into teams by the supervisors. For each module there are 3 public activities (lectures) and 5 tutorials, in which the teams are assisted in processing the information provided during the public activities, the analysis and orientation of the project assigned to them, presenting their results and reflecting on the learning process. They collect and process information and formulate answers, findings, conclusions to the questions asked. At the end of the module, students submit a final report. Final findings are processed in an end product that is presented for the entire group. Students opting for the 6SP program will receive 2 SKILLSlabs on which they will receive substantive frameworks and workshops with regard to (a) the interdisciplinary group work and (b) opinion-forming communication. Starting from an initial situation analysis, the students formulate individual learning objectives and learning tasks. An individual portfolio is kept for the documentation of the learning process that has been completed.

Number of credits: 3/6

Who was involved in the delivery of the pilot (i.e. a teacher, facilitator?)

Two educational supervisors support the students in the orientation of the projects, the processing of the information provided and the interdisciplinary group work. The Science Shop is intermediary between the involved CSOs and the supervisors.

What core reading(s) was drawn on?

- Reader with introductory texts and other resources related to the topics that are covered in the course.
- Digital course material: slides, text material and video recordings of the lectures.

What assessments did the participants complete?

The evaluation is according to the pass / fail principle. Students are assessed both on process and product. Process evaluation includes participation in and individual input during lectures, group work, intervision moments, presence and active participation in workshops and coaching moments. Product evaluation includes the quality of the submitted assignments and executed tasks. A growth is envisaged through the modules for the different subcomponents of the student assessment. There is compulsory attendance for both lectures and seminars.

Describe the context in which the pilot was implemented which allowed it to work

Already during the proposal stage of EnRRICH I got in touch with the founder of the Reasonably Engaged course, because it was a totally new and innovative course at that time. In this way we could impact and co-develop the course, resulting in actual 'on demand' projects this academic year. The Science Shop now acts as an active partner between CSOs and course co-ordinators, who both are in direct touch with the student groups. What also helped was the fact that the new VUB rector is looking for more direct interaction with the city of Brussels (which made us focus on Brussels CSOs) and better preparation of students for the labour market.

Main observations on the pilot

- a. What was your/the educator's key learning from delivering the pilot?

Connecting students/lecturers with society through "on demand" group projects can be really rewarding but is not that simple.

- b. What did you try that worked well? What was the learning from what worked well?

Launching a call for CSOs to be involved in the course turned out to be really successful, so there definitely is a need.

- c. What did you try that didn't work? What was the learning from what didn't work?

On the other hand, due to a lack of students only a part of the interested CSOs could be helped... Furthermore the course might be too limited in time and ECTS to deliver big solutions to the CSOs and their questions, which is a pity.

What societal issue(s) did you engage students with (sustainable development goals)? (education for society)

- a. How did you do this?

In academic year 2016-2017 the main topic was migration and they dealt with issues like media representation of ethnic minorities, solidarity with illegal immigrants, highly educated migrants and discrimination... CSOs dealing with those topics were involved but not as much as they are now, during academic year 2017-2018, through community projects. This year the topic is "opportunities and impact of new technologies" including CSO projects on DIY-Biotech, misbehaviour in cyberspace, refugees their social media use and circular economy in Brussels. The Science Shop launched a call for research topics and almost 30 CSOs reacted with research questions.

- b. What worked and didn't work?

So the call worked, but it sometimes difficult to find a balance between answering the needs for CSOs (which was the main Science Shop focus) and increasing the competencies and personal development of the students (which is the main educational focus).

- c. How could you improve this?

We have had several meetings with the educators to improve the project goals and content, interacted with the CSOs etc. It wasn't always easy but let's hope the final results will be useful for CSOs while having contributed to the personal development and the knowledge of the students.

Did you engage community partners/stakeholders within your pilot (education with society)?

- a. Which type of stakeholders did you engage? CSOs – see above, but also other experts during the lecturers and events like researchers
- b. Did you engage students with stakeholders within the classroom, and how (guest lectures, interviews etc.)? Yes, through lectures for example, but also through inviting the CSOs to the classroom
- c. Did you engage students with stakeholders outside the classroom and how (e.g. field or project work)? Yes, through the other events and through giving them the opportunity to get in touch on their own, see course description above, which were open to the broader public as well
- d. If you didn't engage stakeholders, did you expose students to stakeholder challenges in other ways (e.g. case studies)?

How did you engage students with the RRI?

- a. Did you engage students in cognitive (knowledge/understanding), affective (being/attitudes/values), and psycho-motor (doing/skills) activities?

- i. Can you provide examples of at least one activity for each of those three development areas?

COGNITIVE: talks with and lectures of researchers and other experts from e.g. CSOs, reading on the topic e.g. scientific and other articles, group work on community topics

AFFECTIVE: interaction with the working field and target groups, stimulating them to form and express their own vision and opinion on the topic, discovering different points of views...

PSYCHO-MOTORIC: skills labs on interdisciplinary group work and opinion-forming communication, communicating with different stakeholders, interviewing experts etc.

- b. Were students prompted to uncover issues such as diversity, inclusion, openness, responsiveness through engaging activities?

- i. Can you provide examples of activities?

Yes, through the interdisciplinary groups for example, they needed to collaborate with students with other backgrounds and trying to find agreements.

Furthermore, they need to focus on needs of CSOs, which are related to the inclusion of certain target groups who they have to get in touch with.

Both their own work and the research question are 'under development' throughout the whole project duration.

What surprised you about this pilot?

The engagement of students today, the will to invest in young people from the CSO side and the wide variety of people in all kinds of CSOs working on 'a better world' :)

What advice would you give to those wishing to replicate this example?

Strong mediation between students-educators-CSOs is absolutely necessary and the Science Shop is in the perfect position to do this. Furthermore, clear communication on expected outcomes, risks and requirements that come along with student work also is crucial in order to not disappoint stakeholders.

Attach relevant teaching resources, slides and reading list

- Course website, programme etc. <http://www.vub.ac.be/redelijk-eigenzinnig/#programma>
- Student blog <http://blog.redelijkeigenzinnig.be/>
- Student brochure/manual
- Student slides
- Background material for the community projects

For further information contact VUB EnRRICH member Jozefien de Marree jozefien.de.marree@vub.be

Wageningen University: Stewardship for Responsible Innovation (S4RI)

Brief description of the purpose and content of this pilot

Introduction

We live in turbulent times characterized by pressing social, environmental and economic challenges. Responsible Innovation (RI) is an emergent concept, increasingly considered crucial in order to tackle our challenges and to identify innovative solutions that are sustainable, social desirable and ethical. RI is a normative approach that allows us to reflect on the purpose of innovation, to care for the future and to be responsive to the challenges of our time in spite of their complexity. In this endeavour, nurturing stewardship capacities to shape innovatively sustainable social and environmental systems under conditions of uncertainty is needed. A stewardship perspective is about moral leadership oriented towards collective well-being rather than self-serving behaviours.

Course S4RI

The purpose of the S4RI course is to foster an understanding about what RI entails and to support the cultivation of appropriate stewardship competencies. Students are engaged collaboratively, in a team of 3 to 4 students, in a 1-day RI project addressing a local social, economic or environmental challenge of their choice. Students are designing and implementing their RI project while receiving peer and coaching support. Through this exercise students learn from their peers and in action about stewardship for responsible innovation.

In the first week the teams are formed and the students are asked to share their first RI project ideas. In the second week the student present their project ideas in a 2-minute elevator pitch (they are presenting a quick synopsis of their project). The purpose of presenting it then is to get feedback (how it looks, feels, connect to other ideas) in order to refine their project design. In the same week students are asked to consider the four Responsible Innovation (RI) process dimensions (responsiveness, inclusiveness, reflection and anticipation) to design their projects in more detail. In this stage students are stimulated to include at least one stakeholder in their project design. After the refinements students are implementing their RI projects or at least part of it. In the final exam presentations students showcase their projects by offering an introduction, reflecting back on how they were tackling the four RI dimensions, why their project can be called a responsible innovation project and they reflect on the role of (steward) leadership in their projects.

Summary

This pilot was implemented threefold in the EnRRICH project period. In total approximately 40 students followed the course. They were all master students from quite a few disciplines namely; Master Forestry and

nature conservation; Master organic agriculture; Master International Development, Master Plant Sciences; Master Animal Sciences; Master Management of Economic and Consumer studies; Master biology and the Master Earth and Environment. As said before in the self-chosen RI projects students were stimulated to work together with at least one stakeholder. Hereby some examples of stakeholders the students engaged with in the three pilots; a local garden centre, Wageningen University canteen, a sustainable architectural firm and the Green Office (an organisation supporting sustainability of operations at Wageningen University).

Learning outcomes

After successful completion of this course students are expected to:

- be able to understand stewardship & responsible innovation concepts and features;
- be able to understand and have practiced stewardship and responsible innovation competencies;
- have initiated, implemented and evaluated a process of responsible innovation of their own choosing.

Overview of teaching strategy

a. Teaching approach used in the pilot

In this course we use an activating learning approach; students are actively and experientially involved in the learning process. Students are asked to learn by self-study, participate in the class sessions and to create new experience by designing and implementing a 1-day responsible innovation project.

b. Number of credits: 1.5 ECTS

c. Who was involved in the delivery of the pilot (i.e. a teacher, facilitator?)

Hansje Eppink (Skills teacher at education learning sciences, Wageningen university and member of the EnRRICH project). Her role was to be a facilitator; to support the students with appropriate resources and tools, and an open ear for their learning process.

d. What teaching activities took place?

Interactive lectures, dialogues, reflexivity exercises, feedback on peers and a 1-day action project.

What core reading(s) was drawn on?

- Greenleaf, R.K. Servant Leadership Chapter 4
- Joiner&Joseph Leadership agility chapter 3 and developing agile leaders
- Owen R., P. Macnaghten, J. Stilgoe, 2012. Responsible Research and innovation: From science in society to science for society, with society
- Stilgoe, J., Owen R., P. Macnaghten, 2013. Developing a framework for responsible innovation
- Tassone, V., C. O'Mahony, E. McKenna, H.J. Eppink, A.E.J. Wals, 2017. (Re-)Designing higher education curricula in times of systemic dysfunction: a responsible research and innovation perspective

What assessments did the participants complete? (list key assessment methods used)

Criteria

Depth of understanding of concepts and aspects shared in the course

- To what extent students are able to explain the concepts and aspects shared in the course borrowing insights from literature, discussions held in class and their own RI project

Application and critical assessment of the concepts and aspects shared in this course

- To what extent students are able to design and develop a project that is responsible and that incorporates RI dimensions and features.
- To what extent they are able to critically reflect on their RI project and the RI framework.

Application of skills and learning

- To what extent students are able to reflect on personal (steward) leadership abilities

Methods and deadlines

Final team presentations (60%)

Individual reflections (40%)

Extra points: 0.3 extra for the best elevator pitch, 0.3 extra for the best activity in the fish bowl activity.

Elevator pitch

In the second session student teams are presenting their initial RI project ideas. The aim of the elevator pitch is to share ideas and to receive input to explore further. In their elevator pitch students are asked to provide answers to the following questions:

- What - Project summary: What you will be doing in your one day RI project? What do you want to create? How do you define responsibility in the context of your project?
- Why - Addressing a sustainability need: Why is your project useful / why does it matter?
- Who – Team competencies: The roles and responsibilities of each team member. More specific, which of your leadership/stewardship qualities will you be using (individually)?
- Collaboration: Who is part of your RI project? How are you involving them in your project? How do they benefit?
- Envisioning: Why is it going to be a success?

Fish bowl

In the final session we use a fishbowl conversation to facilitate an in-depth dialog on the statements brought by the students. Those statements should be based on what they learned in this course related to the literature or the design/implementation of their RI project.

Four chairs are arranged in an inner circle. This is the fishbowl. The remaining chairs are arranged in a circle outside the fishbowl. The moderator introduces the statement and participants, who would like to talk about the statement, fill the fishbowl. One chair is left empty. The audience outside the fishbowl listen in on the discussion. Any member of the audience can, at any time, occupy the empty chair and join the fishbowl. When this happens, an existing member of the fishbowl must voluntarily leave the fishbowl and free a chair. The moderator facilitates the discussion in such a way that participants frequently enter and leave the fishbowl.

Describe the context in which the pilot was implemented which allowed it to work

At Wageningen University the yearly education modification cycle gives us the opportunity to quickly implement both content and policy changes. Every January we can adjust course content, learning outcomes and assessment methods, which after approval by the education institute gets integrated in the next academic year starting in September the same year. In this way the university can ensure that the courses and programmes remain up-to-date. This system gave us the opportunity to redesign an existing course (the name of the existing course was Integral Leadership for Sustainability) towards a RRI pilot course.

Main observations on the pilot

- a. What was your/the educator's key learning from delivering the pilot?

RRI is a complex and abstract framework which is not at all easy to grasp by the students. I also needed time to feel comfortable enough to explain the RRI approach and I had to search for real examples to make it more tangible for the students. The course needs some improvements still, currently many different concepts and topics are touched upon briefly. The course can become more strong by focussing on a selection of RRI competencies (i.e. stewardship, dialogue, inclusiveness etc.) and to explore those more in-depth. The RRI framework is an interesting tool in the design phase of a project.

- b. What did you try that worked well? What was the learning from what worked well?

The world café method (attached in PPT and additional word document) worked well for the students to use the RRI dimensions to design their own 1 day project. Students were challenged to consider ethical issues and alternative scenarios. They were also asked to consider the impact of their project on stakeholders.

- c. What did you try that didn't work? What was the learning from what didn't work?

Students appreciated that they were asked to design and implement a 1-day project of their own choosing. The linkage/alignment between this self-selected sustainability project and the RRI framework can be better and needs more thinking.

What societal issue(s) did you engage students with (sustainable development goals)? (education for society)

- a. How did you do this?

In the S4RI course this principle is reflected in the sense that students are encouraged to select a sustainability challenge and to reflect on the people, planet and prosperity aspects of their self-chosen real-life sustainability project. Students design and implement, in groups of 2 to 4 students, a responsible innovative project, a project that is aiming for sustainable innovation and positive change. Below the guiding questions for the students to select their project:

- What kind of social/sustainability challenges do you care about and/or are you passionate about?
- What problems or goals are particularly important to you? Why do they matter to you?

- Through what settings and context do you see yourself contributing? In what roles? Why these settings and roles?

b. What worked and didn't work?

All the students were able to select their projects in a short period of time. I am impressed about their creative mind-set. But there is a mismatch between the 1-day projects selected by the students and the complex and long-term innovation projects for which the RRI framework is developed. In the second week students are using the RI framework to design their 1-day project. When they use this framework they among others realise the importance of involving other stakeholders and they come up with alternative scenarios for the same project aim. The consequence was that the 1-day implementation period was too short for many of the students to implement their initial project ideas

c. How could you improve this?

Firstly, after the first pilot was able to share this experience with the students and stressed that although it would be great that students are able to actually implement their project the aim of the 1-day RI project is to explore the RI-framework. Secondly, we are brainstorming about the idea to adjust the 1-day RI project assignment into an assignment in which students need to design their project only (instead of designing and implementing the project).

Did you engage community partners/stakeholders within your pilot (education with society)?

d. Which type of stakeholders did you engage?

In the S4RI course students are encouraged, in the available time they have, to involve at least one stakeholder in their self-chosen real life sustainability project. So the type of stakeholder engaged with depends on the topic of the projects. Some examples; in the pilots students worked together with the green office Wageningen (linking, learning, innovating for sustainable Wageningen University and Research), Cormet Campscatering (Wageningen University catering), and a garden centre.

e. Did you engage students with stakeholders within the classroom, and how (guest lectures, interviews etc.)? No

f. Did you engage students with stakeholders outside the classroom and how (e.g. field or project work)?

Students organised this themselves.

g. If you didn't engage stakeholders, did you expose students to stakeholder challenges in other ways (e.g. case studies)?

How did you engage students with the RRI?

h. Did you engage students in cognitive (knowledge/understanding), affective (being/attitudes/values), and psycho-motor (doing/skills) activities?

In the S4RI course we are stimulating students to select a sustainability challenge they are passionate about and that is contributing to sustainable development (learning to do). The students are assessed by a final presentation in which they need to reflect on their project using the RRI related concepts and theories (learning to know). In the same presentation they also need to reflect back on their personal learning process and the application of their skills while implementing their real-life sustainability project (learning to be).

i. Can you provide examples of at least one activity for each of those three development areas?

Knowledge/understanding:

Lectures, short clips, world café for designing their one day project

Affective:

In this course we are using a variety of activating learning activities, in which students learn to engage themselves in a group dialogue (world café), we invite the students to take responsibility for what they care about, to reflect and learn and to stimulate each other to bring out the best in both the individuals and their team. We are using journal writing and a self-test on leadership agility to stimulate students to reflect on their own creativity and leadership competencies.

Psycho-motor:

Students are working together on their one day sustainability project. They are using the RRI framework and the four dimensions to design their project and they are asked to (partly) implement their project.

- i. Were students prompted to uncover issues such as diversity, inclusion, openness, responsiveness through engaging activities?
 - i. Can you provide examples of activities?

In the last session students explore inclusion. Inclusiveness is presented as an expression of willingness to embrace diverse variety of people, projects and possibilities. Being attentive to all people involved in the work. Being inclusive is something that we can practice by the way we sit and stand which influences the way we speak and think. In the last session we practice this by using exercises based on leadership embodiment developed by Wendy Palmer. For example students are asked to consciously expand their personal space and to include others in their personal space, followed by a reflection on what are things that prevent them to increase their personal space and what they can do to support themselves if they want to increase their personal space.

What surprised you about this pilot?

In a very short time, students are able to design and (partly) implement a sustainability project of their own choosing taking into account the 4 dimensions of RRI.

What advice would you give to those wishing to replicate this example?

In the course description it is made explicit that this course is intended for students who are passionate about learning how to respond to our current sustainability challenges from a responsible innovation perspective. In this course students are encouraged to think about the people, planet and prosperity aspects of potential innovations. We are making explicit that we are looking for students with an open mind, flexible and proactive attitude and keen to grow on a personal level. I think this is necessary since the students are asked in a very short period of time to design and implement a sustainability project.

For further information contact WU EnRRICH member Hansje Eppink Hansje.Eppink@wur.nl

Universita di Sassari: Community Based Action Research

Brief description of the purpose and content of this pilot

The course was based on explicit pedagogical principles:

- Orientation towards research ethics and values
- Development of a deep understanding of power and partnership
- Incorporation of multiple modes of enquiry
- Participation in actual CBR practice through a good balance between classroom (theory) and field (practice)
- Development of critical and reflexive research

The main components of the development of CBR and action-research were dealt with, along with their guiding principles and methods. Certain issues were taken in relevant consideration such as those relating to power dynamics, relationships among different kinds of knowledge and epistemologies, trust, positive social change and theory of change, interests and capacities of stakeholders, inclusion and participation, asset based approach.

Learning outcomes

The course aimed at stimulating students in taking action to promote social change and community empowerment for the common good using the instruments of participatory action research. It was conceived to equip students with the necessary sensibility, theoretical knowledge and practical skills to positively interact with people and communities, to stimulate active citizenship and to promote actions using the methodological and theoretical tools of participated social research.

According to questionnaires filled in at the end of pilot, students specifically appreciated their learning needs and capacities being seriously taken in consideration and being valued throughout class and field activities. They enjoyed community based learning, notably first hand collaboration with citizens and group work based on real-life situations.

Some of them affirm that the learning experience totally changed the way they see their future profession as well as their general approach to working collaboratively. As one student put it: “CBR was for me an interesting experience challenging my way of thinking, while notably improving my social awareness and ethical thinking.”

Overview of teaching strategy

Active participation of students was sought constantly by means of group work aimed at developing and writing community projects as a result of interactions with community partners. Work started from an assessment of students’ capacities and curiosities, rather than pre-established themes or subject. Teaching strategy and contents were then developed along the way on the basis of a general course layout, building on what emerged from students’ input, field experiences, observations and collective discussion. RRI Process Requirements (anticipation, reflexivity, responsiveness and inclusion) were a constant reference while designing and managing the pilot.

Number of credits: 6

The pilot was delivered by a Sociology Professor, with the help of CBR experts and facilitators from a CSO (see below, point 8). Furthermore, testimonials from CBPR experts as well as from community partners brought new perspectives during classes.

The course was run alternating classical face to face classes with study visits, community walks and participation in community meetings. Students were explicitly asked to actively participate in discussion and practical activities. They were also asked to write down short reflexive texts concerning their field experience and connections with the theoretical and methodological principles of CBR in order to facilitate discussion. They were assigned to work in group to write a community development project to be discussed during oral examination.

Learning was assessed as follows:

- Active participation: 20%
- Written text: 30%
- Oral examination: 50%

Describe the context in which the pilot was implemented which allowed it to work

The pilot was conceived within the MA Course in Social Work and Social Policies and eventually opened up to MA students in Foreign Languages and Cultural Mediation for the Valorisation of Territories for contingent reasons. The course was conceived as follow up of a similar 6 ECTS pilot run in first semester on Responsible Social Research and Innovation which set general theoretical framework for RRI practice. The actual activities students were involved in built on a Science Shop project run by a MA Student in Social Work and Social Policies in a disadvantaged neighbourhood, where Community Based Research (CBR) has been going on for the last three years.

Main observations on the pilot

Time is a crucial issue while planning activities that shall compose among university teaching schedule, real world practice and observation, expectations and time frames of community partners.

A challenge that CBR or CBL projects face is pulling together all partners within shared time frames and planning horizons that shape the research agenda.

In order to being able to tackle this issue, an overall and most significant outcome of the EnRRICH pilot activities must be pointed out: the development of a Participated Project Platform for Active Social Innovation and Inclusion (named PISA) which actually sets the agenda for future participated CBR/CBL projects. The agenda is based on a shared vision of future community development scenarios and the platform calls for new potential partners to actively join projects and activities. We are presently working on better conceptualizing such an outcome as a PPI – Permanent Partnership Instrument.

Another further learning concerns what actually listening to students means. They appreciated being seriously paid attention about their projects, needs, expectations, capacities and that all that was going to actually shape their (our) common learning experience. Teacher must be really serious about this approach and the sort of

engagement that it implies. Overall consistency of teacher's assertions and practices with guiding principles of Community Based Research and Community Based Learning are highly valued by students.

What societal issue(s) did you engage students with (sustainable development goals)? (education for society)

Students were engaged mainly on the grand challenge of Inclusive, innovative and reflective societies, most of all as to those aspects that relate to SDGs 10 and 11, i.e. Reduced inequalities and Sustainable cities and communities. This was done through direct involvement in real life situations emerging in a neighbourhood with high levels of unemployment and exclusion, by means of direct interaction with citizens, community partners, institutions and civil society organizations. Direct observation also included community walks.

Assignments for students included writing a project proposal building on community assets. Working only one semester with such a rich programme turned out to be constraining: as said above, real world experiences and evolution of meaningful relationships hardly match with internal organizational standards of academia. A two semester programme would certainly work better, although the modular articulation of this pilot with the previous one on RRI that was delivered on first semester certainly helped.

Did you engage community partners/stakeholders within your pilot (education with society)?

Engaged stakeholders were mainly citizens already actively involved in a Community Based Research process that is evolving into a Permanent Partnership (see above). That CBR process has been developed and put in practice with a CSO which is itself a Permanent Partnership Instrument (PPI) stemming from a previous EU funded project: PERARES – Public Engagement with Research and Research Engagement with Society. IntHum – this is the name of the CSO – was actually created by the FOIST Laboratory in cooperation with four local CSOs back in 2011 and is now a Social Promotion Association where representatives from those five organizations sit and that serves as a permanent link between community and university. IntHum was actively involved in the design and planning of the pilot and experts and practitioners from IntHum took an active role in running pilot.

Other stakeholders involved in pilot are a social worker from municipality along with other practitioners, as well as local school teachers. Students met with stakeholders in their neighbourhood, participating in community meetings, listening to citizens' stories, being guided in the neighbourhood by community partners. Students were assigned the writing of a community development project that can contribute to the stakeholders' action plan.

How did you engage students with the RRI?

During pilot students were engaged in several kinds of cognitive (knowledge/understanding), affective (being/attitudes/values), and psycho-motor (doing/skills) activities. Notably, the use of reflective journals concerning their very learning experience allowed for in depth understanding of issues being discussed in class. Connections with their own lived experiences (within as well as outside of professional contexts) eventually involved their affective sphere, therefore reinforcing the overall learning process. Direct observations and interactions with community stakeholders improved students' ability to actively listening to others. And writing and discussing an actual project connected with a real experience improved their practical abilities. Furthermore, group work and possibility to interact with different people with diverse points of view was highly appreciated along with first hand experience. In one student's words "To be part of a real community action" helps "to know how to act in different situations"; whereas another states that the learning activities changed the way she sees her future profession "Completely, because the practice helped me a lot".

Social awareness and empathy, ethical thinking, participatory abilities, collaboration skills, adaptability were among the most valued learning about RRI pointed out by students while filling in final evaluation questionnaires.

What surprised you about this pilot?

Students' willingness to open up and seriously get involved in all proposed activities.

What advice would you give to those wishing to replicate this example?

1. Always be consistent with what you teach and how you act with students and community partners. One cannot teach about mutual respect, inclusiveness, participation, ethical thinking while not incorporating those principles in own teaching and research practices.

2. Use RRI Process Requirements (anticipation, reflexivity, responsiveness and inclusion) while designing and managing your teaching experience.

For further information contact UNISS EnRRICH member Andrea Vargiu avargui@uniss.it

Université de Lyon: Challenge scientifique sur l'habitat évolutif

Brief description of the purpose and content of this pilot

The director of Culture, Science and Society of University of Lyon, in collaboration with the School of Superior technology of Montréal alongside the National Institute of Applied Sciences of Lyon (Institut National des sciences appliquées de Lyon) participated on the scientific challenge of Evolutive Habitat, held on the 13 to 16th June 2016 . This type of housing, studied in terms of spatial partitioning allows each inhabitant to give way to self-fulfillment (physiological needs, security, intimacy) ; The aim of this challenge is to set up an innovative formation, conducting students and researchers to suggest synergetic solutions to urban issues of two main metropolis around the question of evolutive habitat. This subject has been submitted by the french association Habitat et Humanisme which acts in favour of housing and inclusion of socially disadvantaged people. The mission is to provide access to decent living conditions with low rents for isolated persons as well as families with financial difficulties. The scientific challenge mobilised more than a hundred students from the National Institute of Applied Sciences of Lyon, the School of Superior Technologies of Montreal as well as the National School of Architecture of Lyon. At the end of the three day formation, the participants presented suggestions for evolutive habitat models for a single parent family in a newly constructed collective housing. With a maximum living space of 35m², the housing has been conceived with a precise construction load book. Participants gave oral presentations based only on the social responsibility aspect of the subject suggested by the association Habitat et Humanisme.

Learning outcomes

The challenge allowed participants to :

- Experience an intensive and challenging group work
- Bring together acquired scientific approaches to a social dimension: Social responsibilities of engineers, mankind's relational and ecological impacts...technological progress.
- To experience a creative approach based on real case studies
- To acknowledge group work as a diverse, rich and collective approach
- To bring forward participants' acquired knowledge for a practical and pragmatic approach, giving way to a reconceptualisation of innovation
- To value their role within society, as much as a community of engineers and on a broader level, in terms of a democracy and technology.
- To question the field of evolutive habitat and it's stakes on industries, the role of engineers in the social progress and society itself.

Overview of teaching strategy

a. Teaching approach used in the pilot

The theme of evolutive habitat from the perspective of societal change has been approached by two different subject matters in between Canada and France. From the School of Superior Technology of Montreal, students who participated in the project as an end of year evaluation came to Lyon to be part in the challenge with students from INSA and ENSAL. From the french side, the challenge was conceived based upon the process of design thinking as per the subject matter brought forward by Habitat et Humanisme. The challenge was evaluated by a group of observers with social responsibility as well as inter-cultural issues in terms of education. In order to gather the ideas and practical approaches launched forward by the challengers, the multi-disciplinary team of researchers (sociology, epistemology, pedagogical science) carried out a survey on on-going projects in the field of innovative habitat. The presence of the Saint-Gobain group composed of industrialists in the conception and distribution of construction materials for sustainable housing allowed to highlight an industrial echo in terms of social needs. The idea was to associate the activities of engineers and architects working in enterprises to a societal role.

Number of credits: To consult with third year students from the field of Mechanical Development of INSA having followed the module on **ECV-AST** on the theme of evolutive habitat during their first semester. No ECT, Final project at the end of the university year

Who was involved in the delivery of the pilot (i.e. a teacher, facilitator?)

University of Lyon, INSA, ENSAL, ETS, Habitat et Humanisme, Saint-Gobain, City of Design of Saint-Etienne.

What teaching activities took place?

Challenge type *hackathon* (group works), round tables, viva.

What core reading(s) was drawn on?

Bibliography of the study carried out on the scientific challenge in evolutive habitat :

AMIN (A.) et COHENDET (P.). – Architectures of knowledge. Firms, capabilities and communities. Oxford University Press (2004)

BRASSAC (C.). – « Une vision praxéologique des architectures de connaissances dans les organisations », Revue d'Anthropologie des connaissances 2007/1 (vol. 1, n°1)

CALLON Michel, « Des différentes formes de démocratie technique », Annales des Mines, 9 janvier 1998, p. 63-73

CALLON (M.), LASCOUMES (P.) et BARTHE (Y.). – Agir dans un monde incertain. Essai sur la démocratie technique. Le seuil (2001)

CHAIX (M. L.). – Former aux « humanités » ou former aux sciences humaines et sociales ? In recherche et formation. n°29 (1998)

CHOUTEAU Marianne, ESCUDIE Marie-Pierre, FOREST Joëlle, NGUYEN Céline, « L'ingénieur, au coeur de la démocratie technique ? », dans LEQUIN Y.-C., LAMARD P., Eléments de démocratie technique, Belfort-Montbéliard, Université de technologie de Belfort-Montbéliard, 2014, pp.239-253.

DIDIER (C.) et DEROUET (A.). – Social Responsibility in French Engineering Education: A Historical and Sociological Analysis. In Springer (2011)

FAUCHEUX (M.) et FOREST (J.). – Les recherches en sciences humaines et sociales dans les écoles d'ingénieurs. Petra (2007)

LAMARD (P.) et LEQUIN (Y-C). – La Technologie entre à l'Université : Compiègne, Troyes, Belfort-Montbéliard. Pôle éditorial de l'UTBM (2006)

Phronésis, La place de la recherche en sciences humaines, sociales et économiques dans les écoles d'ingénieurs : Bilans et perspectives. Vol.4, n°2 (2015)

LEMAÎTRE (D.). – Professionnalisation et modèles professionnels dans les grandes écoles françaises. In Recherche et formation. n°66 (2011)

SONNTAG (M.), LEMAÎTRE (D.), FRAYSSE (B.), BECERRIL (R.) et OGET (D.). – Les questions de formation dans les écoles d'ingénieurs. Un débat reconnu. Une place pour la recherche ? In Recherches et éducations. 1 (2008)

SHS Web of Conferences. - SHST 2013-UPEC : sciences humaines en sciences et techniques – Les sciences humaines dans les parcours scientifiques et techniques professionnalisants : quelles finalités et quelles modalités pratiques ? vol.13 (2014)

What assessments did the participants complete? (list key assessment methods used)

Explain the evaluative grill from members of the jury.

Describe the context in which the pilot was implemented which allowed it to work

The collaboration between different structures (University of Lyon, INSA, ETS, ENSAL) gives way to a new and multi-disciplinary approach to the subject, creating a dynamic, innovative and enriching training for students with diverse backgrounds. Furthermore, at the end of their third year, the subject of social responsibility of engineers came as a conclusion to the module of ECV-AST for students of INSA in mechanical development, giving way to a collective project for their fourth year. The scientific challenge on evolutive habitat is therefore naturally embedded in their engineering course.

Main observations on the pilot

- a. What was your/the educator's key learning from delivering the pilot?
To make different students (by their disciplines, by their origins...) to solve a real problem by team management
- b. What did you try that worked well? What was the learning from what worked well?

To work with a Canadian team was very positive because they are more used by this kind of teaching method.

- c. What did you try that didn't work? What was the learning from what didn't work?
To gather more different students because of its schedule of anyone.

What societal issue(s) did you engage students with (sustainable development goals)? (education for society)

According to the targets of sustainable development of the *Knowledge platform* : good health and well being, affordable and clean energy, industry innovation and infrastructure, reduced inequalities, sustainable cities and communities and partnerships for the goals.

How did you do this?

The load book for the conceptualisation of evolutive habitat, as presented by Habitat et Humanisme itself, evolved around the sustainable development goals. Students had to consider the well-being of future inhabitants. One of the conditions to be valued during the creation of such types of housing was the modest size and affordability in order to facilitate its access to single-parent families. Such spaces had to be built upon the entire regulations, particularly for dimensional constraints and conformity for disabled persons with restricted mobility, making the optimisation of living surfaces a challenge. The Saint-Gobain group laid an emphasis on the use of construction materials for sustainable housing.

What worked and didn't work?

According to experts having carried out a study on the scientific challenge on evolutive habitat, the following ideas could well function :

- Some students have developed their definition of innovation as a new approach while integrating how inhabitants might represent the evolution of their daily use of social housing.
- Technical and architectural choices in regards of responsibility came into the limelight of the debate
- Engineering students thought of their role in the society, in terms of their sense of belonging to the community of engineers as well as on a broader sense from democratical techniques.
- Students brought forward the importance of ethics : as an individual

What did not work:

- Representations of social justice from students were not forcibly well shared during group work
- Some students did not abide by the idea of being considered only as technical executives, especially when the enterprise's projects laid its foundations on ecological and humanist engagements, values which were not forcibly shared by the latter.
- Some of the participants could not speak up and make decisions based on the model of democratic techniques.

How could you improve this?

To prepare more the CSO to meet students and to present their problem

Did you engage community partners/stakeholders within your pilot (education with society)?

Which type of stakeholders did you engage?

The different stakeholders else from; the Direction of Culture Sciences and Society were:

- Multi-disciplinary and multi-cultural schools: INSA of Lyon, ENSAL of Lyon and Superior School of Technology of Montreal
- The city of Design to form students in design thinking
- The Saint-Gobain group sensitised students to sustainable construction materials
- The Fabrique de l'Innovation (Creation of innovation) hosted the scientific challenge on evolutive habitat.
- The association Habitat et Humanisme proposed the subject of social issues concerning access to all customized housings.

Did you engage students with stakeholders within the classroom, and how (guest lectures, interviews etc.)?

Students presented their construction models after the challenge and went for an viva in front of a jury. Among the hundreds of participants, twenty four students were formed in design thinking and had to bring forward this process in their group work. One student per group had to participate in one of the four round tables with

the stake holders (the use and the users, design thinking, architecture and social responsibility) to later report to his work group. The students were interviewed by a group of experts throughout the challenge.

Did you engage students with stakeholders outside the classroom and how (e.g. field or project work)?

No.

If you didn't engage stakeholders, did you expose students to stakeholder challenges in other ways (e.g. case studies)?

How did you engage students with the RRI?

Did you engage students in cognitive (knowledge/understanding), affective (being/attitudes/values), and psycho-motor (doing/skills) activities?

Students were solicited on their knowledge in mechanical engineering, sustainable development project management and architecture. They were asked to understand the proposals of case studies from the association Habitat et Humanisme with a precise load book. They could participate in round tables to embitter their knowledge, be sensitised to social issues and gain other competencies (especially in design thinking) Their expertise was solicited in the conception of the construction models. All the work has been done in group.

- Can you provide examples of at least one activity for each of those three development areas? Former question

Were students prompted to uncover issues such as diversity, inclusion, openness, responsiveness through engaging activities? Can you provide examples of activities?

Through the scientific challenge on evaluative habitat, students were confronted to questions on society, diversity and accessibility for all (single-parent families, disabled people with restricted mobility, low income families) As such, they had to develop an open-minded approach to understand the different issues and to make it concrete via the conception of customised housing.

1. What surprised you about this pilot?

The way of certain student to become a leader and another appeared like destabilized by this training

2. What advice would you give to those wishing to replicate this example?

To use more this way of teaching

For more information contact UdL EnRRICH member Forence Belaen Florence.belaen@universite-lyon.fr

University College Cork: Community-based Participatory Research Module for PhD Students

Provide a brief description of the purpose and content of this pilot

PhD researchers from multiple disciplines (e.g. psychology, public health, medicine, engineering, business) form a research partnership with a community group. Each year, during semester 2, a new cohort of students and community researchers work together to explore a societal challenge experienced by the community organisation. The societal challenge explored depends on who the community partner is and their area of work. Thus far, societal challenge(s) explored are health, demographic change and well-being, social justice, education and environmental. Students enrol on this module to gain 5 credits and their PhD research typically has no participatory or engaged research element. These students are interested in participatory approaches and where possible, particularly for early stage PhD students, can adapt particular elements of their PhD to account for their newly acquired participatory research skills and appreciation.

Learning outcomes

- Recognise the principles of community-based participatory research and identify strategies for applying these.
- Outline the key steps involved in developing and sustaining community-based participatory research partnerships with civil society organisations.
- Synthesize the principles of community-based participatory research and apply in students' research/research design/dissemination/policy-making.

- Discuss the relevance of research in society and the potential impact of research on individuals, groups, communities and society.
- Identify common challenges faced by University/student(s) and civil society organisation partnerships, and recommend strategies and resources for overcoming them.
- List participatory methods for including the voices of multiple stakeholders in decision-making processes. Critique the role of the University in society and civic engagement in HEIs.

Overview of teaching strategy

- a. Teaching approach used in the pilot
Experiential learning whereby student learning about CBPR through participating in a CBPR project. Flipped classroom. Students-as partners pedagogical approach. 5 credits
- b. Who was involved in the delivery of the pilot (i.e. a teacher, facilitator?)
1 academic from the social work discipline, 1 manager from Teaching and Learning, an EnRRICH local coordinator/academic – all three are part of EnRRICH and integral drivers of the science shop. The module needs a lot of administration and coordination skills. Effort is made to recruit students from a broad range of disciplines in the university so the coordinator of the module spoke at several events and circulated materials to key outreach personnel to reach a diverse range of students keeping in mind gender and cultural balances.

What teaching activities took place?

Students are provided with key readings each week and lead the discussion, supported by staff members. As they progress through the module, students take more of a leadership role in planning and delivering each interaction with community participants and learn essential facilitation skills. Some slides are used to guide students through key theoretical areas but not over relied on.

What core reading(s) was drawn on?

Meredith Minkler and Nina Wallerstein, Community-based Participatory Research for Health

Jenny Moon, Reflective Learning and Learning Journals

Paulo Freire, Pedagogy of the Oppressed

Richard Owen, Responsible Research and Innovation: Options for Research and Innovation Policy in the EU

Sarah Banks, Everyday Ethics in Community based Participatory Research

How did you engage students with the RRI?

Overall students experience and engage with RRI through actively participating in a CBPR project with a community partner. Students from the outset are encouraged to talk about their PhD research topic and how it potentially connects to the SDGs or grand societal challenges. They are encouraged to reflect on the practises, decisions and processes that could support them in connecting their research to the SDGs and grand challenges; these thoughts are shared and solutions problematized. Case studies of existing engaged research occurring in UCC are presented to students; students hear from community partners about their organisation's desire for HE research and knowledge and from students who benefited from directly engaging with community organisations facing complex, real-world challenges.

In one session based in the community, two students introduced an exercise called chic-pics. Chic-pics is a series of images of a chick hatching from an egg and then retreating back into the egg, with no accompanying text. Participants were invited to say what they saw in each picture and then to reflect on how they personally connected with the imagery or elements of the images. This exercise provided a platform for all participants to share and exchange their perspective. It subtly showcased the position of individuals and the challenges or insecurities they harboured in relation to the partnership, the future development of the community organisation or other areas. The exercise and the careful facilitation of the exercise supported students to experience key RRI process requirements such as openness and transparency, diversity and inclusion, reflexivity, and anticipation.

Students are assessed on the basis of their participation on the module and by keeping a reflective journal throughout the project. Students must submit their completed reflective journal at the end of the module. Formative assessment is given throughout the module and students are encouraged to read journal entries aloud to each other in groups of two.

Describe the context in which the pilot was implemented which allowed it to work

We have an academic on our team which made it easier to create the module and have it associated with him, so that it's registered on our university website as a postgraduate module. Postgraduate modules are easier to develop and implement than undergraduate modules in our university. Although our three community partners had never engaged in such a partnership with UCC before, they were relatively familiar with efforts made by the university to more effectively work with community groups. This made reaching out to potential partners slightly easier but even before the module begins, there is a significant amount of preparation put into the promotion and relationship building with our community liaison person. The liaison person, usually a coordinator or manager of a community group, has a body of work to do to encourage their service users/members to be part of the project and once members are onboard all parties work hard to support the development of the partnership.

All three teachers on the module have experience working with community groups and are connected to their university's science shop. This prior knowledge, helps us identify the right partner (size, capacity, willingness) for a CBPR project and ensure expectations are properly managed.

Main observations on the pilot

There is a constant push for outcomes over process from students and community members. Work needs to be done to emphasise the importance of the process, e.g. dialogue techniques and discussion to uncover the rich knowledge and perspectives of the community partner. It takes a few interactions and a few weeks of exchanging information and uncovering nuanced experiences before we can start thinking about outcomes, otherwise the authenticity of participatory research is lost. The emphasis on outcomes is something that we are all used to so it feels a bit unnatural to forego outcomes in favour of process but it's essential to the partnership's success.

A further key learning is to push for a community partner from a markedly different area of interest each time and not to get too comfortable in one area.

What worked well is leaning on students and community participants to direct and deliver elements of the participatory research process. Sharing out the responsibility for the partnership's growth and development empowered all members to take control of the project's development. It redistributed the power dynamic that can sometimes be there between teachers and students, and community managers and service users/members.

Providing students with too much theory did not work well. We learned that students learn about RRI through doing it e.g. through conversations and interactions with community members they are experiencing inclusivity, diversity, openness and transparency etc. It's better to facilitate this experience rather than to give students theory on what RRI might look like. Presenting the theory and factoring in time to discuss the theory took away from the time that students could be sharing and exchanging knowledge among themselves and practising reflexivity. We learned from this and scaled back the theory given in class, although the theory is still available for them to access via Blackboard.

What societal issue(s) did you engage students with (sustainable development goals)? (education for society)

Because our partner is different each year, the students engage with the societal issue(s) connected to the community partner of that particular year. Students are introduced to the theory of RRI in class and the connection is made between research and grand challenges and SDGs. This year, our community partner is knowledgeable about the individual SDGs and reference them quite a lot in interactions with the students. Through doing, students get an enhanced understanding of the complexity of, and key actions taking place to address, SDGs such as good health and well-being, reduced inequalities, life below water, life on land etc. The module is designed in such a way that students naturally explore SDGs and grand challenges but we could be better at linking their own PhD research to the SDGs throughout the module.

Did you engage community partners/stakeholders within your pilot (education with society)?

Yes. This pilot works with 1 community organisation per semester. Throughout the course of the EnRRICH project, we have had three community partners from markedly different backgrounds. Our first partner (2016) was a registered charity which advocates for the rights of older adults, the second partner is a city-based

community centre which offers nurse and after school programmes, and the third partner is an environmental group which brings together the interests of Cork based environmental groups.

The module is designed in a way that there is one week on campus (classroom session) and one week off-campus (in the community setting or premises). For the most part, the classroom based session is students only, as the students are doing this module for credits. In the classroom sessions students, for example, discuss a key reading provided to them the previous week, read aloud their reflective journal entries, are presented with key theory, and plan for the next community-based session. In the community based sessions, the group engage with a particular teaching strategy e.g. community mapping or appreciative enquiry to facilitate dialogue and the emergence of key themes. Each week, participants build on the work done in previous weeks so that there are some key signposts or actionable tasks for the future from the partnerships.

What surprised you about this pilot?

Its success. How willing all participants were to just 'roll with it' and see what comes out of the participatory process. I was also surprised at how important skilled facilitation is for the success of the module. We have built in facilitation skills into the classroom sessions so that students learn to be both participants and facilitators.

What advice would you give to those wishing to replicate this example?

1. Be prepared for the workload as it is not just teaching preparation, a huge amount of work goes into sourcing and managing the relationship with the partner. Students generally are new to CBPR so they need quite a lot of support too.
2. We learned through experience not to overly rely on theory and powerpoint slides during the classroom sessions. This module is very different for students as, unique to other credited modules, it is student led and is designed to provide students with an opportunity to exchange experiences and viewpoints; a content heavy approach would encroach on this characteristic. We would advise educators to factor in much time for reflection and discussion.
3. If this is your first experience with working with a community partner, connect with your Science Shop (or a Science Shop in your region) for valuable learning curve advice.

Attach relevant teaching resources, slides and reading list

All material for this module is available online here: <https://www.ucc.ie/en/scishop/resources/module/>

For further information contact UCC EnRRICH member Ruth Hally ruth.hally@ucc.ie

Universität Vechta: "Out of the Box – Participatory Research with People from the Region"

Brief description of the purpose and content of this pilot

The course focusses on participatory research projects in student groups with regional actors. The course is open to all students from different study programmes and with different disciplinary backgrounds, as it belongs to the special profile module/key competence module (General Studies) and is transdisciplinary and interdisciplinary. The target audience are undergraduate students, but also some master students attend this course. For example, students from the master's programme of social work can be in a student research group with others doing their bachelors in business and ethics, educational studies or social sciences.

In this course an examination of essential approaches and concepts of transdisciplinarity and "Responsible Research and Innovation" as well as participatory research and action fields (science shops, community-based research, etc.) take place. It is important to introduce the students to concepts of mixed research groups and participatory research, since this is what they will be doing in the practical part of the course. Because of this the subjects such as participation and Citizen Science are processed in a way that is relevant to the practice of doing their own participatory research projects. The course runs for 14 weeks with 4 hours per week. In the first sessions, the theoretical basis is created through inputs by the lecturers, readings and group work of the students in order to get every student to equal starting points for the projects. The regional actors (mainly

CSOs) visit one of the first sessions and present their research needs, for the students to choose from and form groups upon those.

Against the background of the theories and concepts, participatory research projects are developed and implemented by the students together with regional partners bringing the practical knowledge into the research process, since the students are mostly new to the topics and bring in the theoretical knowledge on research.

Learning outcomes

The students...

- gain basic knowledge of transdisciplinary research approaches.
- gain basic knowledge of community-based research, participatory research methods and science shop work.
- can open up complex practice-relevant topics and thereby recognise and understand connections and deal with contradictions and uncertainty.
- have the ability to develop their own research project together with civil society and other practice partners (research question, research design, data collection and evaluation).
- can work together with students from different disciplines and practice partners and relate different disciplinary perspectives to each other.
- apply theoretical knowledge gained in scientific or practical contexts in projects.
- are able to reflect, analyse and solve arising problems.
- communicate with the general public and various stakeholders, and are able to use different perspectives on solutions.
- use integrative and interdisciplinary approaches and tools, and incorporate effects of current and future scientific practice and innovation into the process.

Overview of teaching strategy

The teaching of the courses followed the philosophy of competence orientation, self-responsibility of the students, and learning and researching together with regional partners. The teachers acted as learning guides and used a constructivist understanding of teaching and learning. The course equates 6 Credit Points and 4 hours in classroom per week.

The course was facilitated by two lecturers in order to be able to support each student group working on the different topics. One of the lecturers took mainly part as a co-teacher and facilitator between regional partners and students. This person is also employed in the University's Science Shop and therefore has a strong link to civil society organisations which participated as regional partners. The other lecturer has a background in teaching at the university in the general studies area and the subject of educational sciences with a focus on university teaching, competence development and education for sustainable development.

The regional partners were partly involved. They came to two course meetings (one time to present the research need and one time at the end of the semester to listen to the presentation of the research results). Additionally, the regional partners were the centre of expertise for the students in the specific topics (they knew best where to get data and which data they needed).

Teaching activities used were inputs by lecturers, readings and own research, group work (with participatory methods), plenary discussions and mainly project work (research) in cooperation with the partners from practice.

We used the following core readings:

(English)

European Commission (2012): Responsible Research and Innovation, Europe's ability to respond to societal challenges, Brussels.

Leydesdorffer, Loet/ Ward, Janelle (2005): Science shops: a kaleidoscope of science–society collaborations in Europe, In: Public Understanding of Science, 14, pp. 353–372.

Wong, Julia Carrie (2016): 'This is awful'. Robot can keep children occupied for hours without supervision. <https://www.theguardian.com/technology/2016/sep/29/ipal-robot-childcare-robobusiness-san-jose>

(German)

Bergold, Jarg B.: Partizipative Forschung und Forschungsstrategien. In: eNewsletter Wegweiser Bürgergesellschaft 08/2013.

Helmig, Katharina; Ferretti, Johanna; Daedlow, Katrin; Podhora, Aranka; Kopfmüller, Jürgen; Winkelmann, Markus; Bertling, Jürgen; Walz, Rainer (2016): Forschen für nachhaltige Entwicklung. In: GAIA 25/3. pp. 161-165.

Michelsen, Gerd; Adomßent, Maik; Barth, Matthias; Danner, Michael; Hetze, Katharina; Marwege, Robin; Otte, Insa; Rieckmann, Marco; Storck, Felix; Seitz, Nicola (2012): Grundlagen einer Nachhaltigen Entwicklung. Studienbrief. Lüneburg, pp. 59–83.

Steinhaus, Norbert: Wissenschaftsläden vielerorts In: Finke, Peter (2015): Freie Bürger, Freie Forschung, Die Wissenschaft verlässt den Elfenbeinturm, oekom, pp. 185-189.

The course was assessed by:

Presentation:

40% content and logical stringency (topic, question, methodical approach, presentation of results, discussion of results and conclusion, reflection; meaningful focus; argumentation), 20% scientific approach (scientific, factual style; references; clear use of terms), 30% format (degree of motivation: language, speech, body language, innovative design; targeted media use; coordinated division, teamwork; time management; clarity and readability of the slides, text on slides is free of spelling and grammatical errors), 10% reflection (comprehensible reflection of the research process and group work)

Research report:

40% content (complete and relevant content; meaningful focus; argumentation; depth of engagement with the topic/theoretical basics), 30% scientific approach (scientific, factual style; references; statements are justified; clear use of terms), 20% format (formal design of the document / compliance with formal requirements; precise and objective language; consistent and correct citation; text is free from spelling errors and grammatical mistakes), 10% reflection (comprehensible individual reflection, level of abstraction, independent analysis, judgment)

Describe the context in which the pilot was implemented which allowed it to work

The course was implemented in the special profile module/key competence module (General Studies) and is therefore transdisciplinary and interdisciplinary, as it is open to students from all study programmes and disciplines. The main target audience of the module are undergraduates. The course equates 6 ECTS and runs 4 hours a week for one semester (14 weeks).

Since there was a lack of offers in the general studies area and one of the persons offering the pilot already was a lecturer at the university, it was quite easy to implement the course. Additionally, the fact that by including regional partners a form of research-based learning outside the classroom took place, resonated quite well with our universities teaching approach. The lack of offers in the general studies area as well as the students already being familiar with one of the lecturers made it quite easy to access students. The other lecturer being part of the science shop made it quite easy to access regional CSOs and find research topics, which were not too difficult for the students to answer and also fitted for the overall aim of the course – to do research with a purpose and for society/societal actors.

Main observations on the pilot

The difficulty of participatory research from the students' side is not particularly the research itself, but how to communicate with people outside the university and how to design participatory research. Each group is different and so is each partner from practice. It is also important to be open to the students about the workload from the start of the course. It is quite an intensive module compared to others and it should be assured, that the students know what they sign up for before they meet the partners from practice for the first time. The expectations of the partners have to be limited by the lecturer, since most of the students are still undergraduates and are not really experienced with doing research.

The RRI concept resonated quite well with the students, when examples or case studies such as the story about the robot for childcare were used. As soon as a specific topic was discussed with the RRI elements in mind, it

made sense to the students why RRI is or should be important. The students were additionally highly motivated to work in their research projects when they found out that the research, they would provide, was not just something to gather credit points, but it would be useful for the partners from practice who really need and want answers to the research questions. This was a huge motivation for the students. The fact that they were quite free in designing the research process themselves – of course in agreement with the partners – worked also quite well and most of the results were satisfying for the partners.

What societal issue(s) did you engage students with (sustainable development goals)? (education for society)

The students engaged with societal issues such as good health and well-being, sustainable cities and communities, and responsible consumption and production. Those issues were dealt with indirectly, since the research questions and/or problems the partners from practice introduced to the students all belonged to one societal issue. This was considered, when choosing the partners for the course.

The students did in depth research on their particular societal challenge, but mostly did not grasp the bigger concept of the societal challenge. It would be great if there would be a possibility to include something more in depth on societal challenges in general. This way the students would be able to grasp that they do not just do research for a societal partner, but for society in general by working on (parts of) a societal challenge.

One example of this from our course would be that a research group gathered data on local consumption behaviour with a focus on the origin of products and labelling of food products (animal friendly, organic,...) and got the data the regional partner needed, but they did not quite get the bigger picture of why buying products with certain characteristics (regional produced, cruelty free products,...) would help tackling the societal challenge of sustainable agriculture or resource efficiency.

In the next run of the seminar, the focus on societal challenges should be made clearer and maybe a task should be added to find the societal challenge behind the research question. The students are working on societal issues, but it is not clear if they are aware of that. This should be improved.

Did you engage community partners/stakeholders within your pilot (education with society)?

As stakeholders, we included mainly CSOs as partners from practice, such as: Kreislandvolk Vechta e.V. – a regional farmers association of the District of Vechta, Heimatverein Cloppenburg e.V. – a club devoted to maintaining regional history and traditions of the City of Cloppenburg, the economic promotion department of the City of Vechta, the enterprise “Evergreen Food” and the senior citizens and care support point of the District of Cloppenburg. We chose these partners because they had a strong interest in working with the student groups and were able to put some time aside to support the students’ research process. Additionally, we checked their questions before inviting them to the course and the topics the combination of the different partners offered quite a variety for the students to choose from. Since the focus of our university is on teacher education, cultural studies, social work and agriculture it made sense to choose partners fitting to the subjects, which were most likely to participate in our course. This way we were able to not just provide a research question from a CSO, but also a topic the students were already familiar with (be it because of their subjects, the region where the university is located or simply an interest of them). There were previous relationships between the partners and the lecturers. Because of that we were able to foresee if the partners would be satisfied with the results, or if the generally would expect too much from the student groups and therefore would not be fitting partners.

The stakeholders participated in two lessons of the course. One at the beginning were they presented themselves/their organisations and their research needs and one lesson at the end of the semester, in which the students presented the results and the partners were able to ask questions.

Most groups used the open design of the course to meet their partners from practice “at their place” and met outside the classroom in the scope of the seminar. Some also did research outside the classroom by doing surveys, qualitative interviews or focus groups. Those actions always took part in the community itself.

How did you engage students with RRI?

Cognitive activities: Discussions with each other or in groups, plenary discussions – on topics such as “tasks of universities” and “tasks of research”; “Which different understandings of sustainable development do exist?”; “Where did you already get in contact with RRI or elements of it during your studies?”;

Affective activities: Discussions with each other or in groups, plenary discussions on questions such as: “What is your own understanding of sustainable development?”; “What advantages and obstacles could participatory research projects have?”;

Psycho-motor activities: “Do research on a science shop of your choice, present the results via Flip Chart to the plenum”;

Since the pilot focussed on CBPR and was interdisciplinary, our main aim was to get every student to the same starting point and do the actual research. Therefore we mainly used discussions instead of activities.

To have success and get results for their research projects, they needed to engage with their partners from practice and with their group members in a diverse, inclusive, open and responsive way. For example, diversity was dealt with because of the groups consisting of different students with different disciplinary backgrounds, knowledge, abilities and expectations. The research needed to be open because the groups had to negotiate with their partners about the research questions and the research designs. They had to be responsive in order to overcome obstacles, e.g. by changing the way of communication with the partners (phoning instead of mailing lead to quicker responses) or adapting the way they wanted to collect data (changing time and place for questionnaires). The partners of practice were included in the research process, to different extents (some groups mainly informed on what they wanted to do, others needed more support and guidance through the practitioners).

What surprised you about this pilot?

Some students had big problems in communicating with the partners from practice and expected them to be available 24/7. However, answers to e-mails could take up to one week.

We were positively surprised by the drive of the students to work on the projects and how motivated they were to overcome obstacles and help their partners out.

What advice would you give to those wishing to replicate this example?

Our main advice would be to choose the regional partners quite well and be open with them from the beginning on the expected outcomes. It is very helpful to have research topics fitting to the research interests of the students or aimed at a societal challenge to get the students even more motivated to work on the projects. This way every student can work in the participatory research project and also work on a topic they are interested in. Additionally, they get a link to practice, which could be useful in their later life. On the other side a variety of different partners will get support regarding their research need and will have links to students, which could be beneficial for both sides afterwards.

For further information contact UoV EnRRICH member Marco Rieckmann marco.rieckmann@uni-vechta.de

Queen’s University Belfast: Violence, Identity and Peace

Prof Tony Gallagher and Dr John Eversley science.shop@qub.ac.uk

Brief description of the purpose and content of this pilot

The aim of this pilot was to test specific methods for promoting responsible research amongst second year undergraduate students in the School of Social Sciences, Education and Social Work, mostly studying Sociology. These methods were:

1. *An ethnographic approach* to research: understanding society better through interaction between social actors:
2. *Understanding social divisions*: specifically, by challenging a perception that the only division in Northern Irish society that matters is one between two blocks (Protestant/Unionist/Loyalist and Catholic/Nationalist, Republican) which are presumed to be internally homogeneous, externally differentiated and representative of the whole of Northern Irish society
2. *Promoting reflexivity*: not taking ‘selfies’ or looking in a mirror but encouraging students to think about other students and other people’s (Family, friends, guides, interviewees) experience of events
3. *Understanding Ethics* through the practical application of principles in designing, carrying out, recording and interpreting research

Learning outcomes

The formal statement of Learning Outcomes is that by the end of this module, students will be:

- Familiar with sociological debates about Northern Ireland as a 'society in transition'
- Capable of critiquing different analyses of the causes of conflict in Northern Ireland, understanding multiple perspectives and complexity
- Able to engage in systematic, critical and reflexive reasoning about change in Northern Ireland society
- Confident in using different types and sources of data to analyse contemporary society
- Students will know how to interact ethically and inclusively with social actors in order to enhance their own learning and contribute to society's understanding of conflict
- Students will have enhanced appreciation of the importance of their own values and those of others
- Students will have enhanced awareness of the value of appropriate collaboration in learning

Overview of teaching strategy

Teaching approach and activities used in the pilot

Didactic: A series of lectures, mainly by visiting speakers e.g. the experience of a Transgender woman before, during and after "The Troubles": a view of the varieties and significance of evangelical Protestantism; flags, parades and symbols

Experiential: visits to exhibitions about "The Troubles" at the Ulster Museum; a Black Taxi tour of Belfast and a (voluntary) visit to the theatre to see a relevant play

Learning from peers

Preparation for designing, carrying out and reporting on semi-structured interviews with societal actors

Feedback on learning journals completed by students each week

Number of credits

The module is one of six that full-time second year undergraduates take as part of their degree programme and is worth 10 ECTS

Delivery of the pilot

Course Convenor, Tutor, visiting lecturers, tour guides, Interviewees

Core reading

Colin Coulter and Michael Murray (eds) (2008) *Northern Ireland after the Troubles. A society in transition*. Manchester: Manchester University Press

This was supplemented by many readings on the themes of the course and encouragement to the students to find sources for themselves on Violence, Identity and Peace, Research Methods, the background of interviewees and reflexivity

Assessments

- 50% of the marks for a 2500-word essay on one of five topics, assessed after the course
- 25% of the marks for a learning journal of 400-500 words per week to include elements of further exploration (Reading appropriate sources); reflexivity and application to studies, career or activism. The students were given formative feedback during the course and a summative assessment at the end
- 25% of the marks for presentations based on the interviews – a group mark assessed by the other students with an invitation to students to mark their own presentation, marked at the time of the presentations

Context in which the pilot was implemented which allowed it to work

The course had been running for some years, but it was refreshed and remodelled to meet the requirements of the ENRRICH programme

The course convenor and tutor had a wide range of contacts to draw on to find interviewees

The course convenor had extensive experience of promoting experiential learning and reflective practice with students

The additional resources of ENRRICH paid for the Black Taxi tour, theatre visits, ex gratia payments to the interviewees and the tutor

Main observations on the pilot

Key learning from delivering the pilot

The students who engaged clearly enjoyed going outside their comfort zone and learned a lot -see Extracts from learning journals.

Five students out of 21 did not engage and dropped out. Two of the students who did not engage with the course were home students while the other three were international students.

Results

Over half the course got First class marks. This reflected the high quality of the learning journals and the presentations which were peer marked generously.

What worked well

Reflective practice: the students needed a lot of feedback to get the hang of it but most of them did
Field visits: for many of the students, including the local ones, they learned a lot from the Ulster Museum and Black taxi tour about Northern Ireland, but they also learned to observe critically, mainly from each other
Staff choosing the interviewees and randomly allocating them to students took them out of their comfort zones and made them aware of unfamiliar perspectives

Fieldwork and presentations: the students needed a lot of preparation, in order to carry out the research ethically (E.g. learning not to ask leading and closed questions) but a certain lack of confidence and fear of doing it wrong, meant that they were willing to learn, and they were often elated when the interview and/or presentation went well

What did didn't work?

University rules and practice meant that attendance at classes was not mandatory and there was no follow-up of non-attenders. That meant that half way through the term students with a poor attendance record were expecting to do the assignments. The course staff did not think it would be ethical for these students to carry out fieldwork if they had not been prepared adequately. Attempts to liaise with Personal Tutors were unsuccessful. The students withdrew. If the situation had been understood earlier, the students could have been made aware of the relationship between attendance and outcomes.

The marking scheme did not specifically cover the production of a Topic Guide for and Transcript and from the interviews.

There was insufficient integration with other modules which the students had done or were doing because the course staff had not been involved in undergraduate Sociology teaching or any of the other courses students were on.

Engaging students with education for society

Clearly a course in Northern Ireland on Violence, Identity and Peace has potential to engage with social issues but what was crucial was that the experiential learning and reflective practice forced students to think about how their identities had been formed and reinforced and how this relates to violence and peace e.g. their experience of segregation in education, where they live and their social lives - including ongoing experience at QUB.

Engagement of community partners/stakeholders within pilot

Students were expected to carry out a semi structured interview with a societal actor as part of the module. The interviewees were carefully selected to reflect diversity of class, gender, sexuality, religion, political affiliation and migration but this was limited by the fact only 8 interviewees were required. They were mostly older people because we wanted people with experience of the Troubles.

The course was very demanding for the students because it required them to expand their cognitive knowledge (of Northern Irish society), their skills (Research, presentation) and their self-awareness (Identity, ethical standards) and awareness of others (Fellow students, family, social actors). This was possible because ethnographic research does all three things.

One example is having a Transgender woman as a speaker. Many of the students said that this was the first Trans person they had met (though this was probably not true) and they learned a lot about the vocabulary around identity and the experiences of Trans people, but they also learned about how highly personal topics can be discussed and about their own attitudes and those of others.

Surprises

Class attendance not being required

Limited knowledge of the Troubles – the period of political violence in Northern Ireland between 1969 and 1997: the background before 1969; events; who was killed, by whom; terminology; who key players were and what they did

Limited knowledge of social theory - many claimed not to know what *intersectionality* and *social capital* are; unfamiliarity with concepts of race and ethnicity etc.

The reluctance to speak in a class of less than 20, except in small groups, to advance arguments rather than simply give either opinions or look for a right answer

There was no Code of Conduct and Safety for carrying out fieldwork. We had to devise one

Advice on replication

In Queen's, in other UK universities and across Europe this kind of work needs to be located within existing provision rather than added on. Curricula are already overloaded, particularly if they have to meet professional or vocational requirements. It is about learning more rather than teaching more. and four sites suggest themselves:

1. Research principles and practice

<http://www.qaa.ac.uk/en/Publications/Documents/qualifications-frameworks.pdf> - which reflect the EU wide frameworks of the Bologna process and Dublin descriptors

...through designing, executing and reporting on research projects

This is applicable to STEM subjects, Law, Humanities, Planning and Architecture etc. as well as social sciences.

2. Application of theory to practice including employability, service learning, engagement with the community and citizenship

<http://www.qaa.ac.uk/assuring-standards-and-quality/the-quality-code/subject-benchmark-statements/honours-degree-subjects>

...through reflective practice or through projects undertaken with or for societal actors such as civil society organisations.

The principle is relevant to all disciplines but the form of application needs to be tailored for each subject. Queen's' recently launched a Social Charter includes a commitment to encourage civic culture and intercultural dialogue. The experiential elements of this course provided students with an opportunity to engage with people who played an active role in Northern Irish society, including ex-combatants and people who have played a key role in promoting social cohesion, political stability and equality during the period of the peace process. The Social Charter can be found here: <https://www.qub.ac.uk/social-charter/> . It provides the basis for further innovation in teaching methodologies to provide students more opportunities to engage with stakeholder groups in the wider society.

3. Modules on the social context of disciplines

...with the stress on experiential learning e.g. critical observation of museums, tours around relevant localities

The methods can be used for all subjects, but experiences and forms need to be tailored for individual subjects. A key part of public engagement lies in engagement with other civic institutions, including museums. Given the topic of this module, critical engagement with the way the past is represented and understood is an important part of the ongoing dialogue within society on maintaining the peace, so it was important for the course to use the resource provided by the Ulster Museum exhibition on "The Troubles" as a foundation for a critical discussion on representing the past and understanding the future.

4. Interdisciplinary studies

A number of courses specifically include interdisciplinary studies, for instance, because of professional requirements (Health and social care and education), because methodologies are common to a number of disciplines or as part of a Joint Honours programme

...practice-based methods such as Cooperative Inquiry, (Hard or soft) modelling or simulation can be used

The interdisciplinary Liberal Arts programme recently launched by the university and plans to launch an interdisciplinary Social Science programme are also potential vehicles for diffusing the methods and materials from the module. The experiential approach used provides students with a wider range of perspectives on political aspects of the past and present, seems particularly appropriate for the proposed Social Science programme.

Relevant teaching resources

Students (And staff!) can test their own level of knowledge about Northern Ireland society through the quizzes which the students did at the beginning and end of the course:

<https://create.kahoot.it/details/northern-ireland-identity-behaviour-and-attitudes/e84ddfd8-a8a5-446c-b862-32aaa8ee0e12> (Use a nick name to save yourself any embarrassment)
<https://docs.google.com/forms/d/e/1FAIpQLSd7ZnJPb7IEYkuHg7JrgugUds7GG4wKUgJ5WJEJeVXJ2Vp-tg/viewform?c=0&w=1>

By looking at the sources for the answers, students can learn by themselves or can study the context as part of a structured programme. Much more material of this kind is available. In addition to these resources there are also presentations on subjects specifically relating to Violence, Identity and Peace and development of research skills and knowledge such as Research Ethics in practice and designing and carrying out qualitative research.

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This report is dedicated to the memory of John O’Connell, community participant in UCC’s first pilot of the Community Based Participatory Research module.

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