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Metrics for Engagement and Impact

DCU Centre for Engaged Research
19th November 2020

Overview

- **THE ISSUES AND EXAMPLES (12.00 - 12.30)**
  - Ronnie Munck, Office of Civic Engagement
  - Aoibhéann Bird, Insight Centre
  - Eilish McLoughlin, CASTeL & School of Physical Sciences
  - Sarahjane Belton, School of Health & Human Performance
  - Caitriona Mordan, Adapt Centre

- **SHARING OF PRACTICES (Breakout Rooms, 12.30 - 13.00)**

- **REPORTING BACK and CONCLUSIONS (13.00 - 13.30)**

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Metrics for Engagement and Impact

Ronnie Munck

- Monitoring and evaluation of engaged research is not an easy task
- The creative aspect of engagement means that using standardised metrics to measure impact is not always possible
- Just measure outputs (direct, measurable results) of activities undertaken not enough (eg attendance)
- Need to capture the learning that occurred as a result of the event (the outcome) and the impact the event has had (i.e. if the audience learnt anything)
- The quality of impact cannot be read in a binary way (e.g. an increase/decrease in learning) but from people's experience.
- Think about how you can measure what is important, rather than making things that are easy to measure sound important
- Broaden research metrics to recognise and reward the impact of engagement in realising societal benefits

Quantitative Data

- Numeric data, figures, percentages, proportions
- Monetary amounts, funds, budgets
- Targets, projections, estimations
- Comparisons, benchmarks
- Data analytics
- Grants, awards
- Participant, audience, visitor involvement
- Test/exam results
- Workload/time allocation
- Attitudinal surveys

Qualitative Data

- Case studies, including impact
- Contextual information: what, where, why, who and how of engagement
- Demographic details: communities and audiences
- Institutional documentation: strategies, plans, policies, reports
- Partnership agreements/guidelines/compacts
- Resources/materials/toolkits/websites/templates
- Stories of impact from students, staff and communities
- Measures of Esteem/Feedback: Evaluations from students, staff, communities
- Attitudinal surveys
- Interviews/focus groups
- Blogs, video, audio, podcasts
- Awards, Reports, Process details and charts
- Participant stories and narratives, Reflective writings

Principles - Engaged research is/should be:

- **collaborative:** a quadruple helix approach where research takes place with the community as a full participant in shaping the research question, analysing the data and developing effective knowledge dissemination strategies
- **change-oriented:** it seeks to empower communities and local stakeholders through knowledge and to promote democratic values for positive social transformation in the way it conducts its research and manages its community and industry partnerships
- **inclusive:** it reflects the various types of knowledge, including experiential forms that are essential for a socially inclusive model of research, engaging citizens in research and innovation decision-making
- **creative:** it seeks to improve the interactions between the quadruple helix stakeholders by promoting public engagement with research to identify societal challenges, sharing expertise and research methodologies, disseminating knowledge in an inclusive, transdisciplinary manner
- **and:** Metrics need to be meaningful - not a blunt instrument

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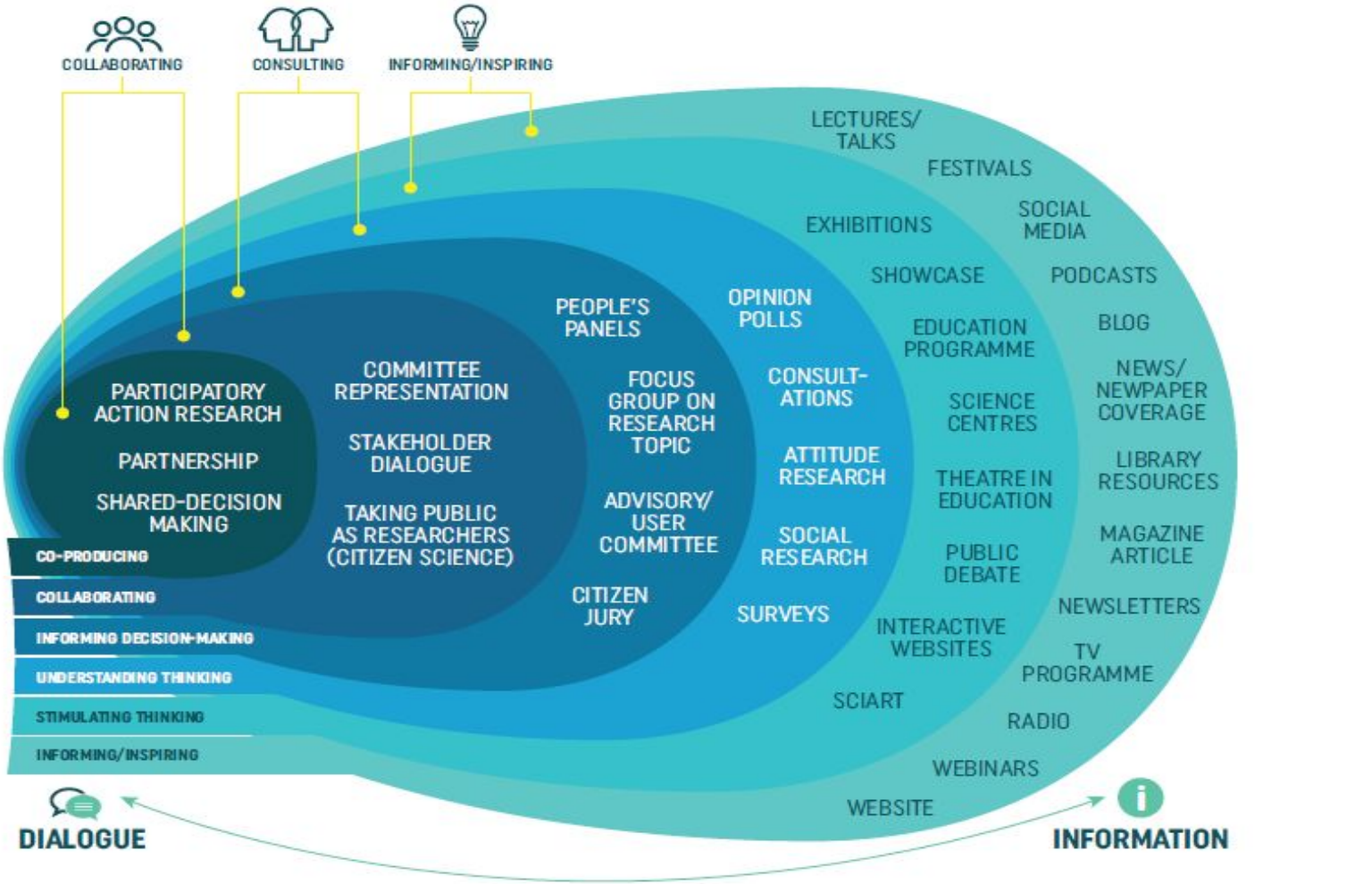
Wellcome Trust Public Engagement Onion

Aoibhéann Bird

Insight
SFI RESEARCH CENTRE FOR DATA ANALYTICS

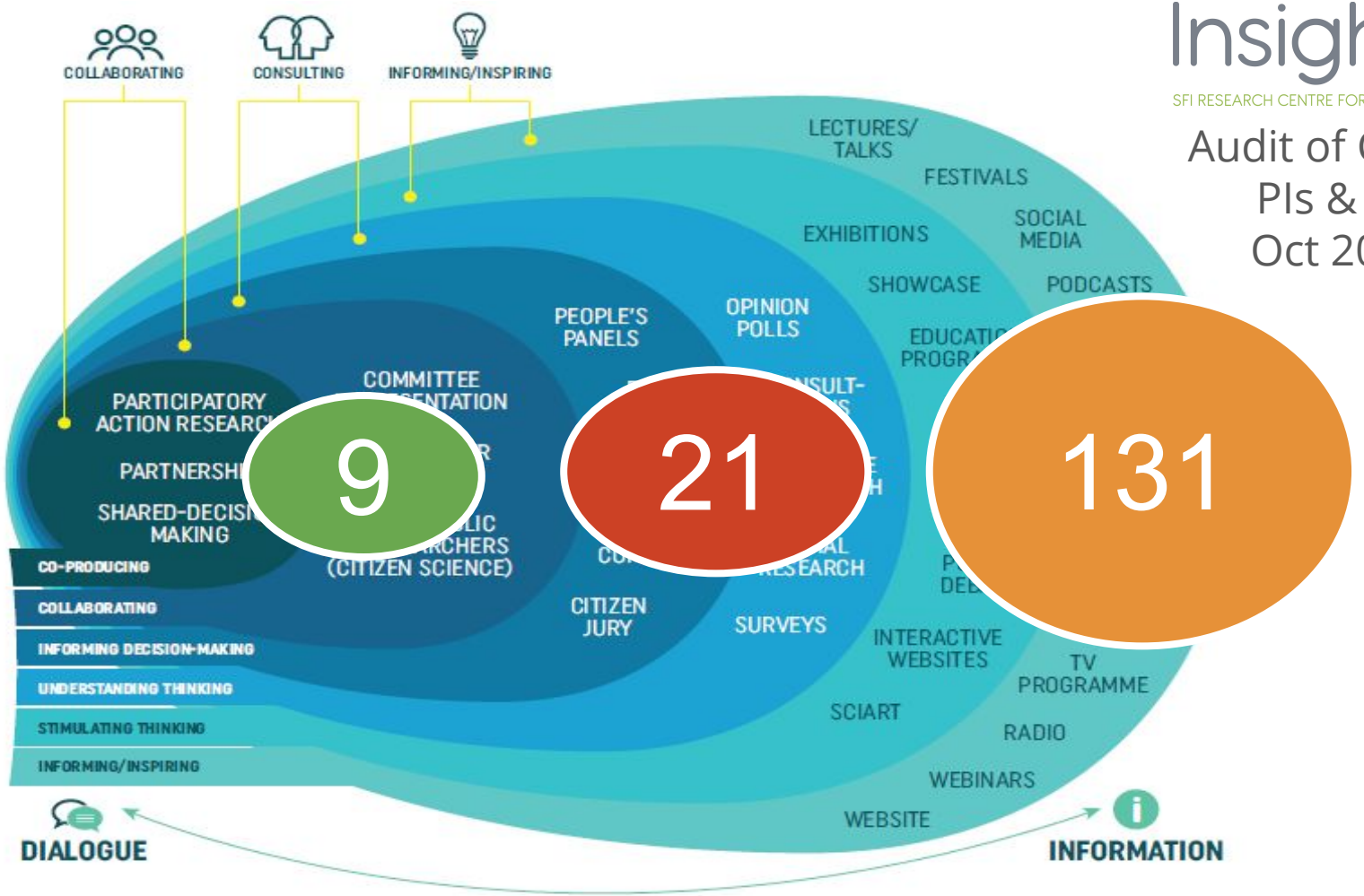


Based on Wellcome Trust Public Engagement 'Onion'

Framework of Public Engagement

Insight
SFI RESEARCH CENTRE FOR DATA ANALYTICS

Audit of Centre PIs & FIs Oct 2019



Framework of Public Engagement

Based on Wellcome Trust Public Engagement 'Onion'

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SFI tools to measure STEM engagement

Eilish McLoughlin

Guiding Questions

1. What metrics are measured?
2. Why are the metrics being measured?
3. How do the metrics measure engagement?
4. How do the metrics measure impact?
5. What are the challenges in measuring impact?

Science Foundation Ireland sfi For what's next

What?

Science in Ireland Barometer 2015, 2020

- Current levels of knowledge in the country about STEM and STEM research
- Science Foundation Ireland's role in this area
- Level of public trust in science and science related issues
- What value the public places on the role of science
- Comparative questions - based on previous international research both in the EU (Eurobarometer, 2013) and New Zealand (Neilson, 2014).

https://www.sfi.ie/resources/SFI-Science-in-Ireland-Barometer.pdf

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Why?

Science in Ireland Barometer 2015, 2020

- **perception of the general public.**
- **interest in** and **information/knowledge** of STEM.
- **role of STEM** and Science Foundation Ireland.
- **current concerns** of **STEM in society**
- understanding of the **scientific process, ethics in research, trust of scientists and scientific results**, etc.
- **sources of information on STEM**.
- Explore understanding, experiences and perceptions of **STEM education and careers**.

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How?

Science in Ireland Barometer 2015, 2020

Quantitative Survey

Qualitative Interviews, N=1008

- Adults aged 15+
- All interviews were conducted face-to-face in the respondents own homes in March 2015.
- Quotas set on Gender, Age, Social Class and Region.

Focus Groups, N=8

- Focus groups to understand further the public's perceptions and understanding of science.
- Conducted throughout Ireland with a strong representation across social class groups, gender and region.
- The focus group interviews were held in Dublin, Cork, Galway, Waterford, Portlaoise and Sligo.

https://www.sfi.ie/resources/SFI-Science-in-Ireland-Barometer.pdf

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What?

IMPROVING GENDER BALANCE IRELAND

1. **Numbers** of direct/indirect participants, activities/events
2. **School Profiles** – pre/post (quantitative)
3. **Student Physics Identity** - surveys (quantitative)
4. **Teacher beliefs** – pre/post surveys (quantitative)
5. **Teacher learning** - (posters, reflections, lesson plans) (qualitative)
6. **School Impact** - Teacher/Principal 1:1 Interviews (qualitative, conducted by independent)

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Why?

IMPROVING GENDER BALANCE IRELAND

Programme Objectives (2017-2019)

- Deepen science **teachers' confidence and content knowledge** for teaching physics.
- **Build confidence and resilience** for students, particularly girls, to continue with Physics.
- Adopt a whole school approach to **addressing unconscious bias and gender stereotyping**
- Increase **awareness of STEM** and **careers in STEM**.

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Metrics of Engagement

IMPROVING GENDER BALANCE IRELAND

1568 second level teachers engaged in unconscious bias workshops.

132 science teachers participated in unconscious bias and multiple science workshops.

240 second level teachers attending national conferences

300 second level students participating in unconscious workshops.

273 researchers and teachers at teacher education conferences

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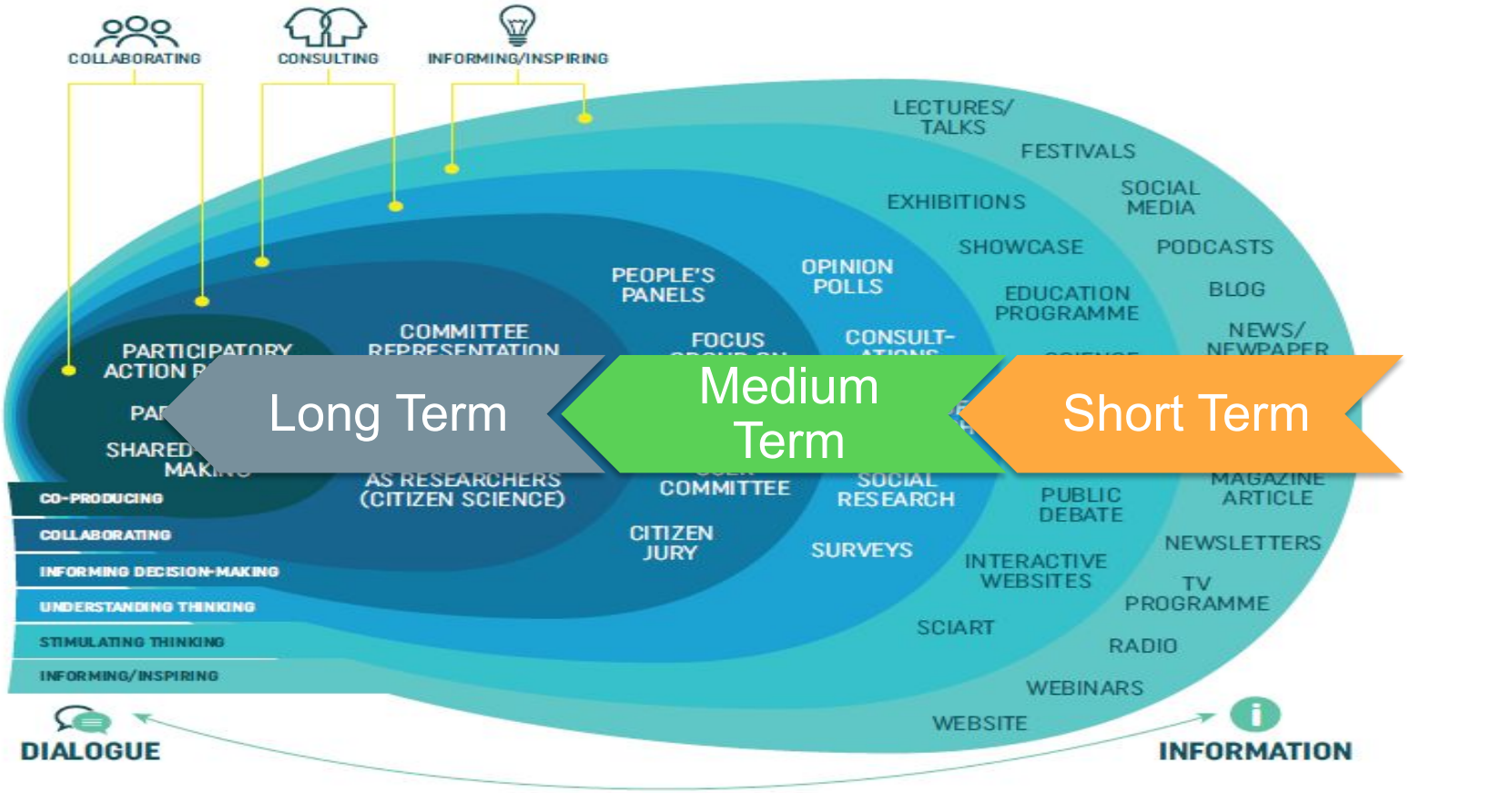
Metrics of Impact

IMPROVING GENDER BALANCE IRELAND

- Students/teachers **awareness of unconscious bias and resilience building**.
- **Student voice recognised** and promoted in changing school culture.
- School management value and **lead changes in school culture**.
- Teachers' **confidence and competence** in teaching physics at Junior Cycle.
- Teacher **collaboration** and **professional learning**.
- National teacher education providers **adopt programme learnings**.
- National **awareness of gender equity and inclusion** in STEM Education.

What are the challenges in measuring impact?



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‘LifeLab’

A current example of challenges and opportunities

Sarahjane Belton

Emma is 14.

Emma believes that if you want to be healthy an
favourite thing to do is go out with the girls. They
good because without even realizing it, they actu

Emma loves it when all her friends come around to her house because her Mam always order Dominos for them, and then they can go to McDonalds for a McFlurry after. Emma knows that if your parents are working all day and they're coming home late, they're wrecked so they don't always have time to cook. She doesn't mind, she loves pizza and ice cream. She loved the chipper around the corner where they used to live, but they had to move house and her Dad won't drive to get it after he's had a drink in the evening.

nake up influencer. She loves trying out
he's overweight compared to other
ng. Then after school, even if it's just
oose what to wear.

ed going. She used to do dance but the
ll has to do PE in school, but she tries to
ing to get changed in front of everyone
it just feels like they're staring

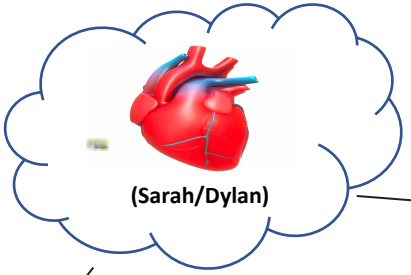
Step 1

9 Vignettes, informed by cross sectional research, and developed with students and teachers from DEIS school to represent 'Typical' teenagers that they know.

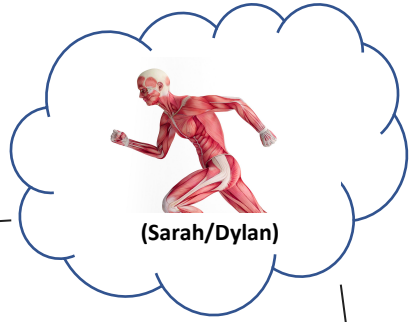
Step 2

Workshops held with students and teachers to consider the health issues faced by adolescents portrayed in the vignettes, and identify strategies which we could use to help these students

IRISH HEART FOUNDATION



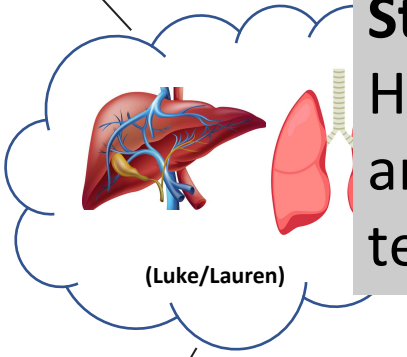
Physical Inactivity



Diet

Smoking/vaping

Social



Step 3

Health issues identified by students and teachers mapped by research team, across vignette characters

(Jay/Lauren/Emma)

Body Image

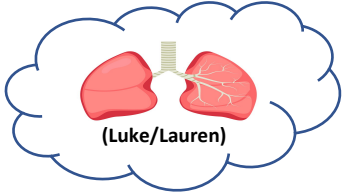
(Ryan/Amy/Luke)

Mental Health/
Self-management

Alcohol

Sleep

IRISH HEART FOUNDATION



Key Learning from Station

- The impact of smoking and vaping on the lungs
- How these behaviors impact appearance
- How e-cigarette companies are targeting youths

Prerequisite Learning in the School

- The function and importance of the lungs
- How smoking/vaping can damage the lungs
- Vignettes introduced and used to highlight lifestyle issues

1. Station Introduction

- Station explained to students
- Recap on school-based learning

Tech Solutions: *Short custom-made videos*

2. Vignette Discussion

- Major issues with vignettes lifestyle are highlighted e.g. Luke/Lauren – Smoking/Vaping.
- Students keep these issues in mind while completing each section

Tech Solutions*: Short videos of vignette to highlight lifestyle issues we want to explore at station – rather than story boards – more engaging*

Step 4

Potential 'LifeLab' stations drafted

3a. Lung capacity test

Task:

- Students carry out the lung function
  their score to the vignette's/chronic
- Normative values will be displayed

Key Learning:

- How poor lifestyle behaviors (smoki
  lung's ability to function

Tech Solutions:

- *While carrying out the test, students can see what is happening within the lungs on a screen (e.g. the lungs fill and expand as they inhale) – will make the test easier to carry out and a more tangible experience.*

3b. Straw exercise test – Mimic COPD

Task:

- How damaging your lungs limits your ability to exercise and to carry out daily activities

Tech Solutions:

- Fun exergame. Short 30 second game on an Xbox Kinect. Carry out game with and without straw/nose clip. Compare scores achieved and difficulty experienced.

3c. Ingredients of an (e)-cigarette

Task:

n a poster the ingredients contained
of cigarettes, and the alternative uses for
Ammonia – toilet cleaner)
ts would be in front of them

- The harmful chemicals contained in both cigarettes and e-cigarettes

Tech Solutions:

- Touchscreen to allow students to open the (e)-cigarette and look at the various harmful chemicals and the alternative uses for these.

3d. Smoker Face App – Appearance

Task:

- Students use the face morphing app to see what they might look like in years to come if they were to smoke.

Key Learning:

- How smoking can impact your appearance

3e. Marketing strategies of e-cigarette companies

Task:

- Students look at vape adverts and highlight the major issues associated – i.e. Flavors, colorful packaging, celebrity endorsement etc.

Key Learning:

- Highlight that youths are being targeted and the dangers associated

How to capture this engagement and impact?

1. **What metrics are you measuring?**
2. **Why are measuring this metric?**
3. **How do your metrics measure engagement?**
4. **How do your metrics measure impact?**
5. **What are your challenges in measuring impact?**

How to capture this engagement?

- **Number participants attending ideas generation workshops?**
- **Qualitative comments (teachers and students)**
- **Questionnaire data?**
- **Feedback on outcomes (vignettes)?**

How to capture future engagement?

	Really not engaged (1)	Slightly not engaged (2)	Slightly engaged (3)	Really engaged (4)	Instructor Behaviour[2] (Talk/ listen/ monitor /organize/ other)	Notes
Task Engagement Behaviours (frequency of eye contact with teacher or task, posture, time on task)	No activity related to task Refuses to do task Pushes task away No eye contact with teacher Deliberately tries to disturb class[4] Rude to others[4]	On task rarely Reluctantly complies with instructions Primary behaviour unrelated to task Looking towards teacher or activity, but not to engage	On task some of the time Complies with some instructions but gets distracted, fidgety Does not perform task readily Eyes frequently on teacher or activity	On task most of the time Performs task quickly and readily without interrupting Predominantly watching teach activity Concentrating[3]		
Affective Engagement Behaviours (facial expressions, showing emotion, persistence)	Sad, angry, frustrated Not enjoying self No attempt to complete focus activity when persistence required	Not upset, but lacks real interest Bored, expressionless Made some effort to complete focus activity with assistance when persistence required	Shows some momentary intense interest Smiling, looking pleased	Shows sustaine intense interes Laughing appropriately Looking to inte with teacher Looking to be p the group Persisted with activity independently Interested[3] Feels integrate group[4] Asks relevant questions[4]		

- **Numbers or schools and students participating?**
- **Observation tools?**
- **Questionnaire?**
- **Qualitative comments?**
  - **Co-design workshops**
  - **Focus groups**

How to capture this engagement and impact?

1. **What metrics are you measuring?** Participation (numbers), enjoyment, acceptability. Range - qual and quant measures
2. **Why are you measuring this metric?** Needs to work for both research and engagement - difficult to disassociate the two
3. **How do your metrics measure engagement?**
Variety of ways, captures active interest, participation and relevance
4. **How do your metrics measure impact?**
Haven't gotten there yet! - study timeline - likely qualitative
5. **What are your challenges in measuring impact?**
Challenge will be making sure that impact is measured, but impact measurement doesn't get in the way of organic co-design process

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Assessing RRI Institutional Change

Caitriona Mordan

ADAPT
Engaging Content
Engaging People

GRRIP

Why are we measuring RRI Institutional Change?

Responsible Research and Innovation is an inclusive approach to R&I. It means that societal actors work together during the whole research and innovation process in order to better align both the process and its outcomes, with the values

Source: RRItools project

What are we measuring?

Changes in structures, policies, initiatives related to RRI Dimensions

Examples of institutional changes

- Organisational structures or functions
- New norms, procedures, guidelines, agreements
- Trainings,protocols, funds, incentives

Changes in institutional culture in support of RRI practices

Examples of culture change

- Understanding, attitudes, behaviours
- Changes in mindset
- Perceived relevance/value of engaged research
- Increased levels of engaged research projects
- Engagement levels of multi-actor research projects

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Engaging People

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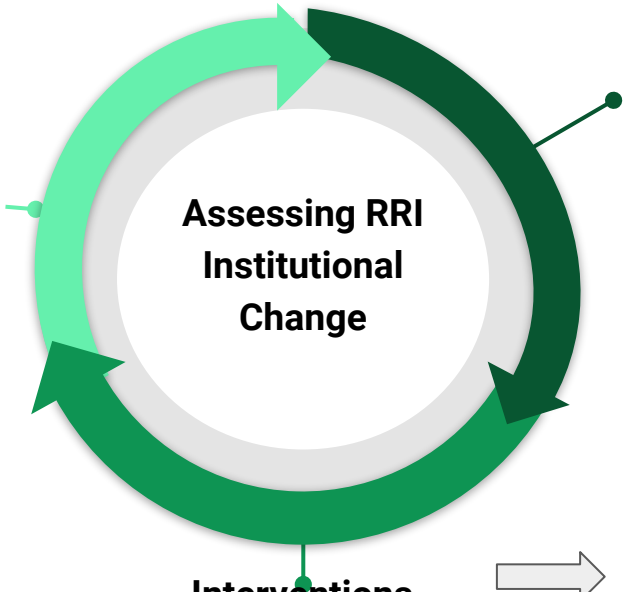
How are we measuring change?

Formative and Summative Evaluation

Monitor & Evaluate

-ongoing data collection related to planned interventions

-Interim assessment
-Re application of baseline audit with recommendations for sustainability



Conduct RRI Baseline Audit

Understanding of current gaps in RRI practices and procedures, barriers and challenges for engaging externally with stakeholders in research

Stakeholder & Organisation Surveys, Interviews, desk-based research

Interventions, Actimon Plans, Indicators

- List of 73 interventions, cross-cutting with RRI pillars

-6 main intervention groups

Indicators with data collection tool/ expected evidence

-**Mutual Learning**
-**Stakeholder engagement**

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How do these metrics measure impact?

Institutions will have:

- **demonstrated progress** in RRI Baseline Level,
- **systematic, co-created policies, practices and initiatives** for implementing RRI that is **sustained** beyond the lifespan of the project
- established structures to **facilitate, promote and maximise engagement** with societal stakeholders in the research process
- established a community to **support the continuance** of shared learning

Challenges: Assessing impact of RRI institutional change

- Institutional Culture Change takes time…..it is a journey...no one size fits all
- Existing evidence base on assessing impacts on RRI institutional change is still in its infancy
- Creative integrated approach to data collection and strategic implementation needed

Engaging Content
Engaging People

GRRIP

Breakout Session

Guiding Questions

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