



Principles & Practices of Open Research

An online module for
undergraduate and
Masters students

Module 6 – **Knowledge Dissemination**

What is the traditional approach to knowledge dissemination?

A

What is open knowledge dissemination?



How is research typically disseminated?



Step 1: Designing and conducting research



Step 2: Analysing data and generating results



Step 3: Writing up the research findings in the form of a journal article and submitting this for publication in an academic journal



Step 4: The study undergoes peer-review and a decision is made about whether the article can be accepted, needs to be revised, or is rejected

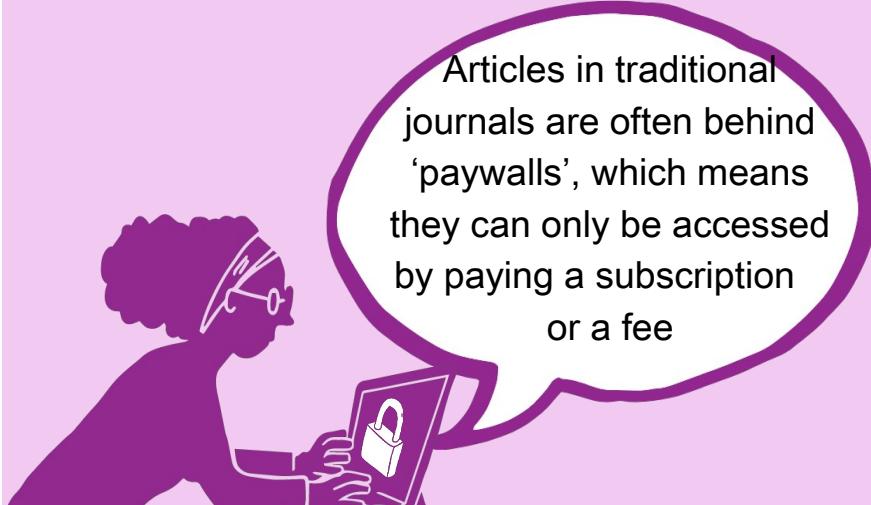


Step 5: Eventually the article will be published on the journal website and/or in print

What are some of the challenges of traditional knowledge dissemination?



It can take a long time for researchers to get their findings published and for anyone interested to be able to read them



Articles in traditional journals are often behind 'paywalls', which means they can only be accessed by paying a subscription or a fee



This makes it harder for people to access information



You have probably already encountered this as a student

What are some of the challenges of traditional knowledge dissemination?



In addition, institutions may subscribe to journals, but not all institutions can afford the same fees



This can create and reinforce inequalities in access to knowledge

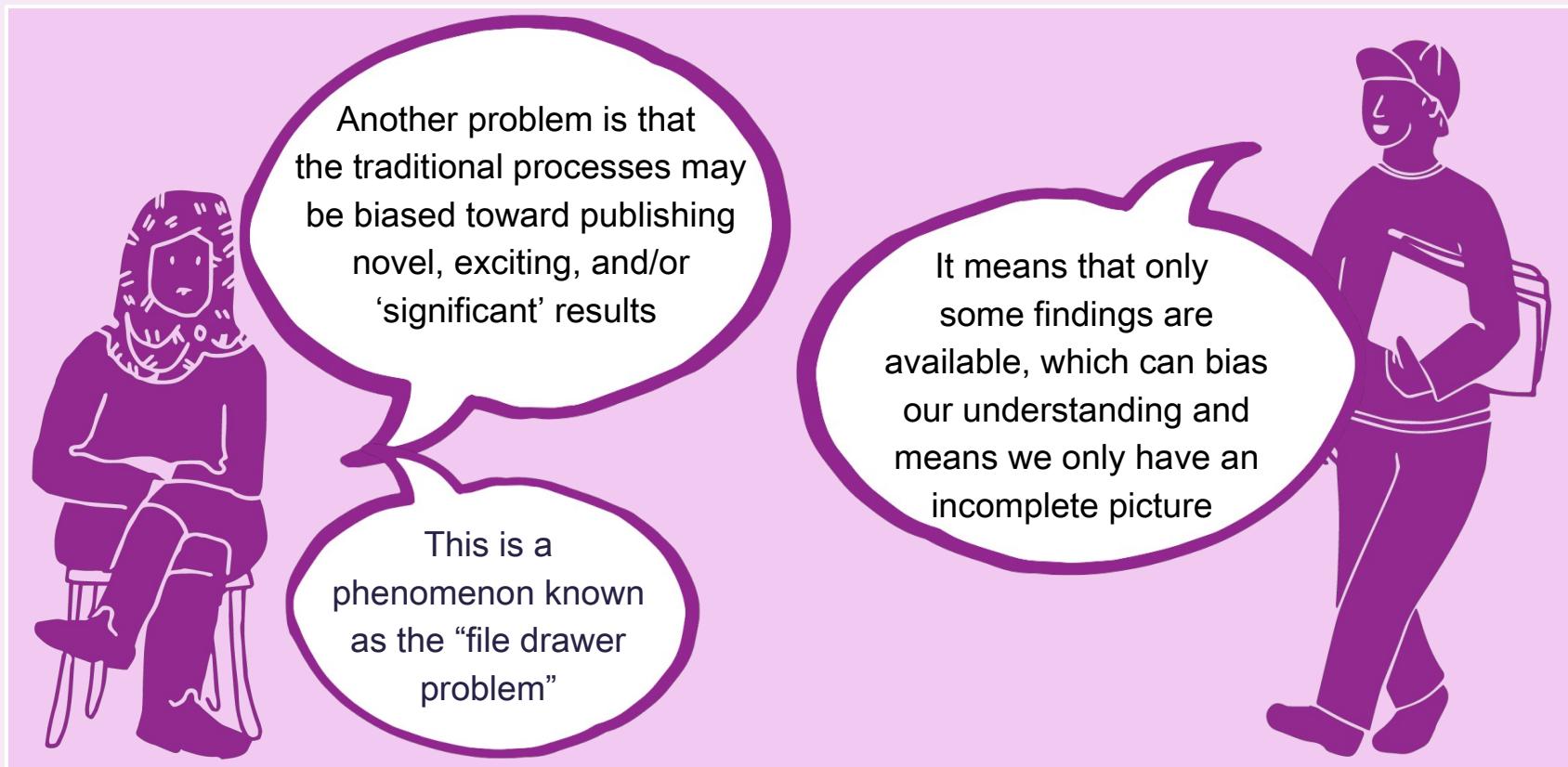


So paywalls and barriers to accessing knowledge also impact on transparency of research



and if research is not disseminated transparently, it can't be learnt from and/or built upon

What are some of the challenges of traditional knowledge dissemination?



What are some of the challenges of traditional knowledge dissemination?



It is also a big problem because it can influence which questions researchers choose to ask



So, research becomes focused on what researchers can get published, rather than on what we *should* be examining



It can also incentivise researchers to engage in questionable research or reporting practices to produce novel, exciting and/or 'significant' results



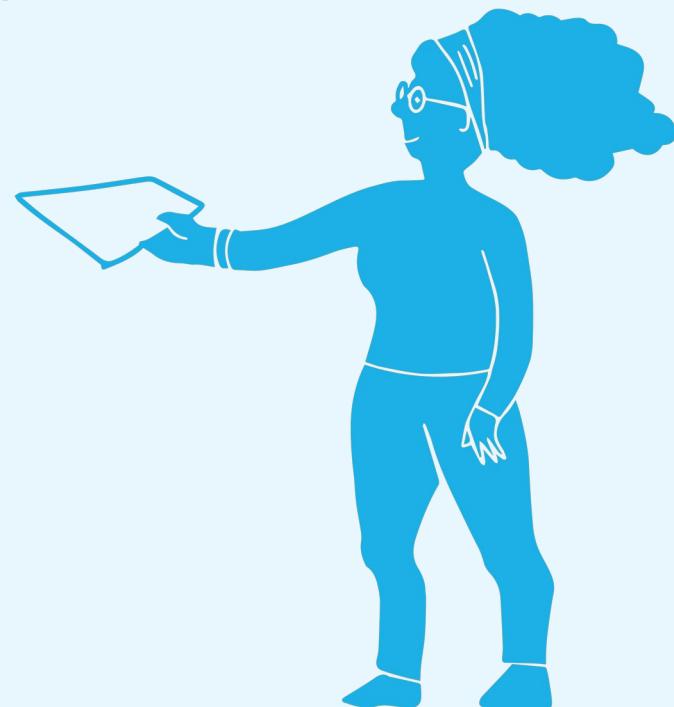




Principles & Practices of Open Research

An online module for
undergraduate and Masters
students

Open knowledge dissemination



Open Knowledge Dissemination

Open knowledge dissemination means communicating knowledge gained from research in open and accessible ways



This expands on the traditional approach to sharing research knowledge, which involves publishing it in an academic journal that often can only be accessed by paying a fee



Open Knowledge Dissemination

Approaches to open knowledge dissemination include:

Open access publishing

Anyone can access the published research, without paying a fee

Pre-prints

Versions of research papers made available online before being peer-reviewed and published

Repositories

Databases people can use to store and access research papers and/or datasets

Science communication

Sharing research in a way that increases appreciation, excitement, understanding and impact of research

Data visualisation

Representing data graphically or visually to increase its accessibility

Open Knowledge Dissemination



Why is open knowledge dissemination important?

1

It increases public access to and interest in research

2

It increases the transparency and openness of research

3

It helps reshape what is considered important in research and academia

Activity



Complete the activity on Canvas to reflect
on where in the research cycle different
open research practices are relevant





Principles & Practices of Open Research

An online module for
undergraduate and
Masters students

Module 6 – Knowledge Dissemination

Why is open
knowledge
dissemination
important?

C

Methods for Openly Disseminating Research

Open dissemination methods facilitate:

- | | | | |
|---|---|---|--|
| 1 | Transparency in research | 4 | Reshaping of how researchers are rewarded/incentivised to do research |
| 2 | Better access to knowledge for individuals and society | 5 | Rewarding methodological rigor and integrity, instead of just findings |
| 3 | Equity in access to knowledge | 6 | Quicker availability of research findings (compared to traditional routes) |
| 7 | Making research more easily accessible, with less/no cost | | |

Why is open knowledge dissemination important?







Principles & Practices of Open Research

An online module for
undergraduate and
Masters students

Module 6 – Knowledge Dissemination



What is open access publishing?



Open access publishing means publishing research in a format so that it is made openly available for anyone to read, without any cost to the reader.



There are many dedicated open access journals where people can publish their research openly.



There are also increasing numbers of journals offering an open access publishing option, in addition to the standard publishing approach.



Research funders are increasingly requiring funded researchers to publish their findings open access

What is open access publishing?



Open access publishing has costs for the researcher, though, who usually has to pay fees to make their research openly available



This is a barrier to open publishing



It also reflects a bigger problem of costs in publishing either way: that public money funds research but there are always costs involved for the public to be able to access it!

What is open access publishing?



There are other approaches,
like pre-prints, that can help
get around these issues- we'll
discuss these soon

Benefits of Open Access



Benefits of Open Access



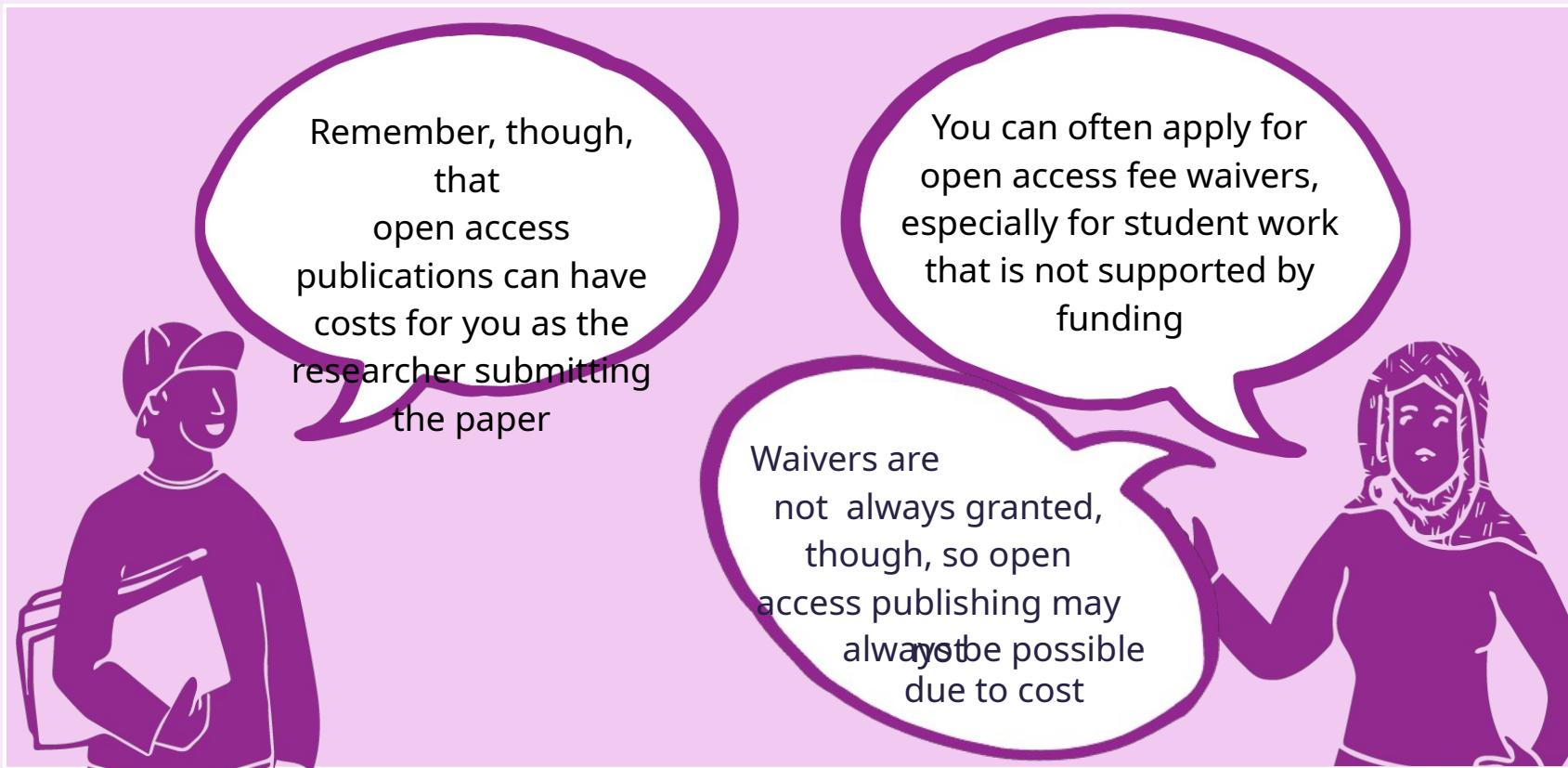
Benefits of Open Access



How do I make my research open access?



How do I make my research open access?







Principles & Practices of Open Research

An online module for
undergraduate and Masters
students

Module 6 – Knowledge Dissemination



What are repositories?



A repository is a database for storing datasets or research outputs (e.g. manuscripts).



Many universities have their own repositories for affiliated researchers to use (e.g. CORA in UCC).



Putting research outputs on repositories can make them more visible.



Researchers have control over what is made publicly available when putting data or outputs on repositories.

What are repositories?

- Repositories can be domain or discipline specific, or may be more general

Examples of domain specific repositories

- [Lenus \(health research\)](#)
- [MLA CORE \(Humanities\)](#)
- [Isidore \(Social Sciences and Humanities\)](#)

Examples of more general repositories

- [Open Science Framework](#)
- [Zenodo](#)

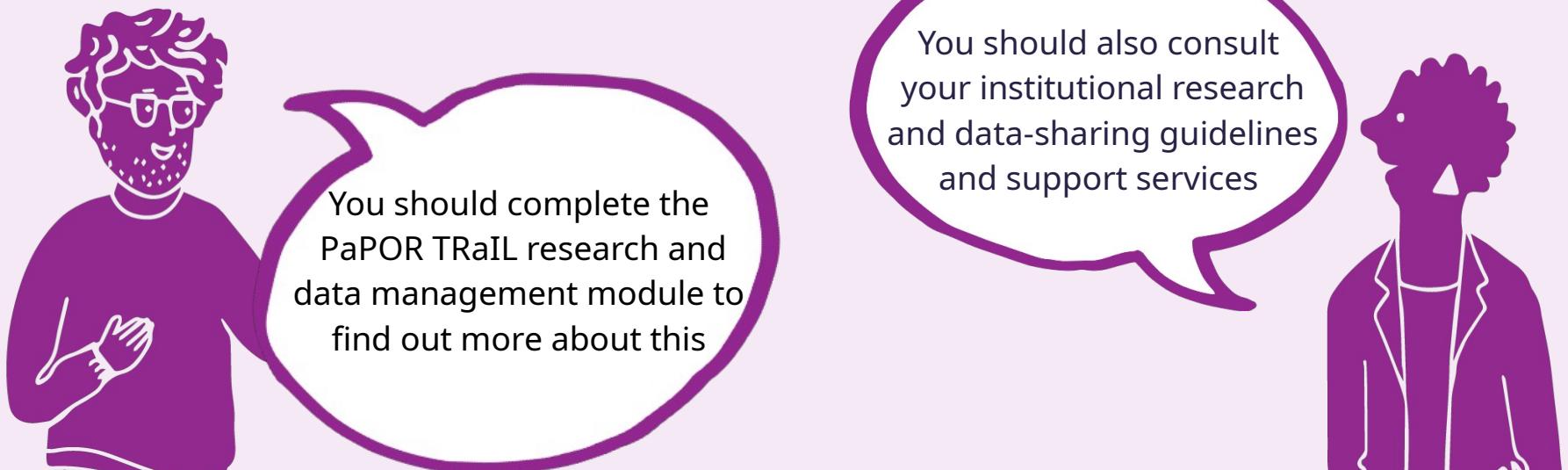
How do I use a repository?

- To upload your research paper/manuscript or data you must first identify an appropriate repository
 - See the previous slide



An important note on uploading data to a repository!

- If you are uploading data to an online repository, make sure you are adhering to ethical considerations and data sharing guidelines



Open Science Framework (OSF)

We previously introduced you to the OSF during the module on pre-registration.

The OSF allows researchers to:

- | | | | |
|---|--|---|--|
| 1 | Store and make available their research outputs | 4 | Assign a DOI (Digital Object Identifier) to their projects |
| 2 | Manage their workflows and keep projects organised | 5 | Link projects to ResearchGate/LinkedIn |
| 3 | Store data, analyses, and reports | | |





Principles & Practices of Open Research

An online module for
undergraduate and Masters
students

Module 6 – Knowledge Dissemination



What is science communication?

1

Sharing research ideas, methods and knowledge with non-expert audiences

2

Sharing these in ways which are useful, understandable, accessible and/or tailored

3

The goal is to inform the public

4

This is usually done in engaging ways to also increase interest in research and its outputs, and to influence people's opinions/behaviours

What is science communication?



Communicating the findings of your research is as important as conducting the research



Science communication is not limited to traditional academic approaches but can incorporate a range of different approaches

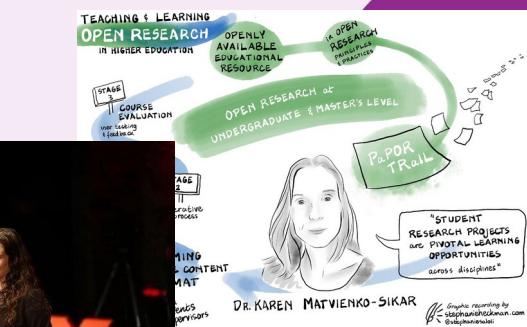


And science communication is not just for science!

What is science communication?

- It can incorporate a range of different approaches aimed at the target audience
 - Including the wider community or special interest groups (e.g. policy makers)

Blogs



Images

Public talks

What is science communication?

- Approaches can include things like:
 - Public talks (e.g. [PintofScience](#))
 - Social media, including using Gifs
 - Check out #bittacake for good examples of student research
 - Blog posts like this one about [personalised medicine](#)
 - Videos
 - Using visuals or infographics
 - Podcasts, like the [Orion Open Science Podcast](#)
 - [Newspapers and the media](#)

Benefits of Science Communication



What are the benefits of science communication?

1 It enhances the sharing of research findings

2 It increases public understanding of research

3 It increases public interest in science

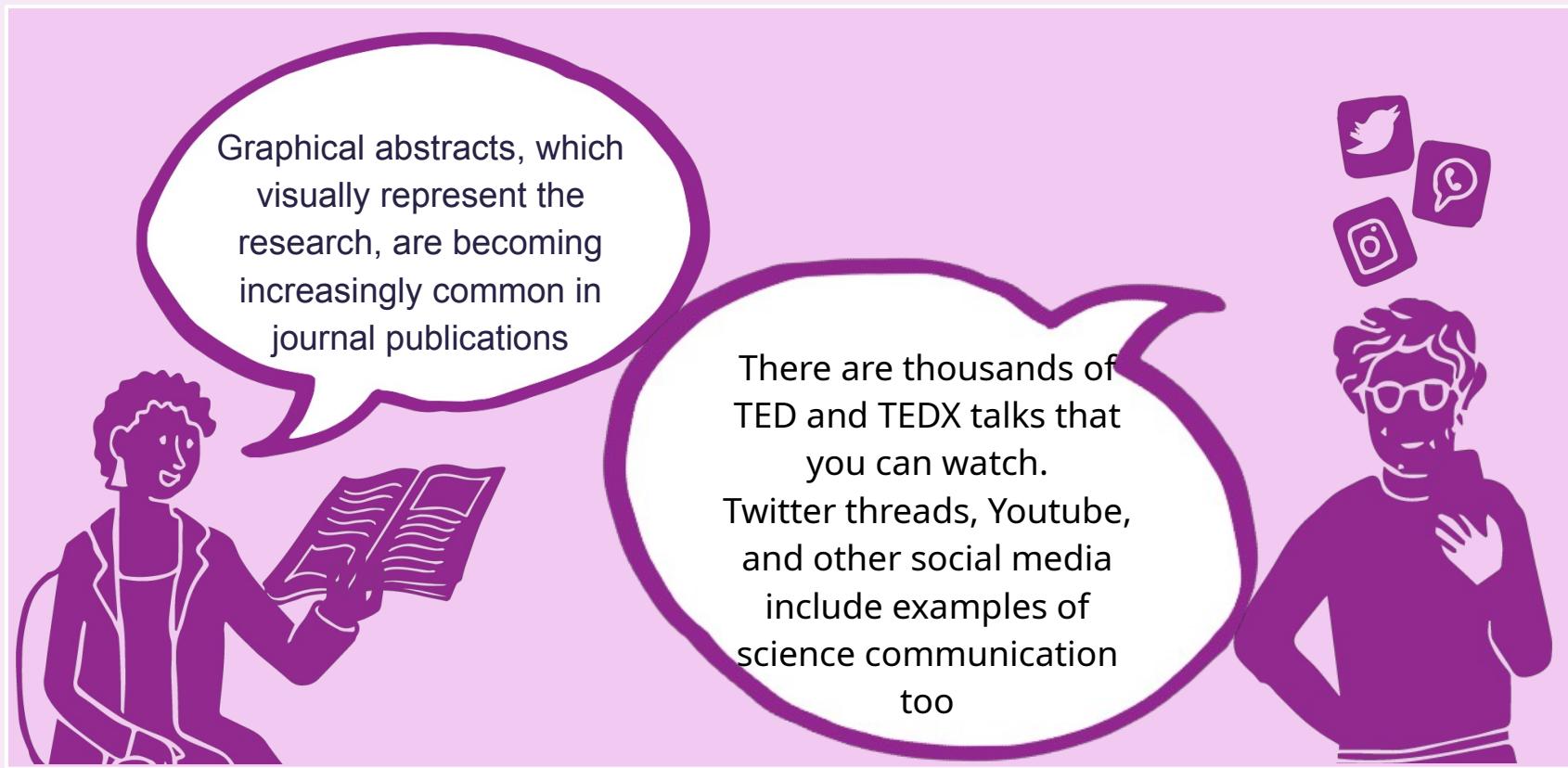
4 It can help research to make an impact by reaching target audiences

How do I do science communication?

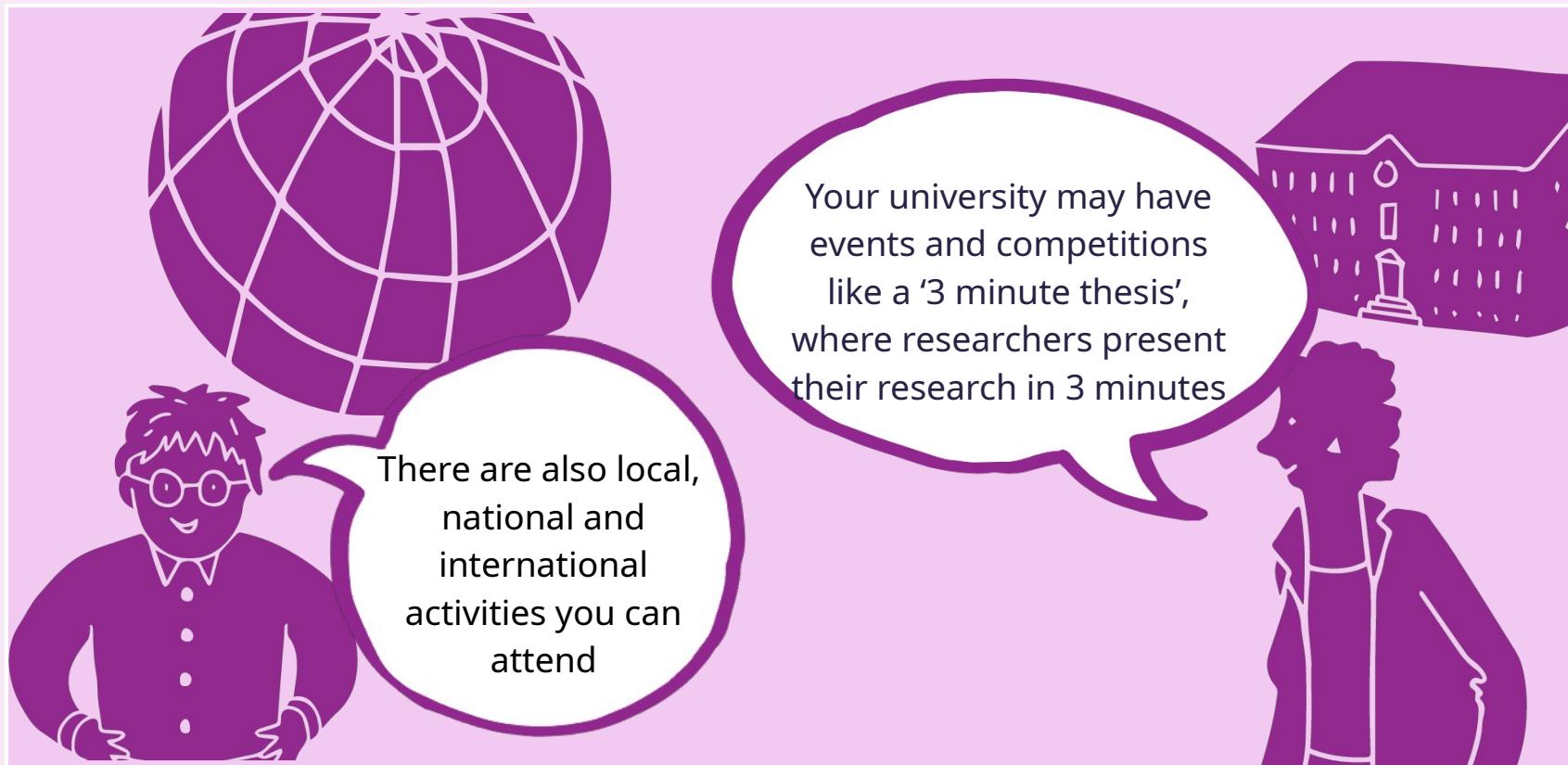
If you aren't ready to share your research with the public yet a good starting place with science communication is to see how other people are doing it.



How do I do science communication?



How do I do science communication?



How do I do science communication?

- Other activities include things like:
 - Pint of Science, where researchers present their research in a pub-setting
 - Famelab, which is an international science communication competition for researchers (including research students)



How do I do science communication?

- When you are ready to share your research with the public it is important to first identify who is your target audience
- Is it everyone, or is it a specific group that your research is most relevant to?



How do I do science communication?

- Think about what message(s) you want to share
 - What are the key findings, the things that are most important for your audience to know?
- Think about ways that you can share this information
 - There are lots of options, like in person talks, or using videos, visual representations, podcasts or blog posts



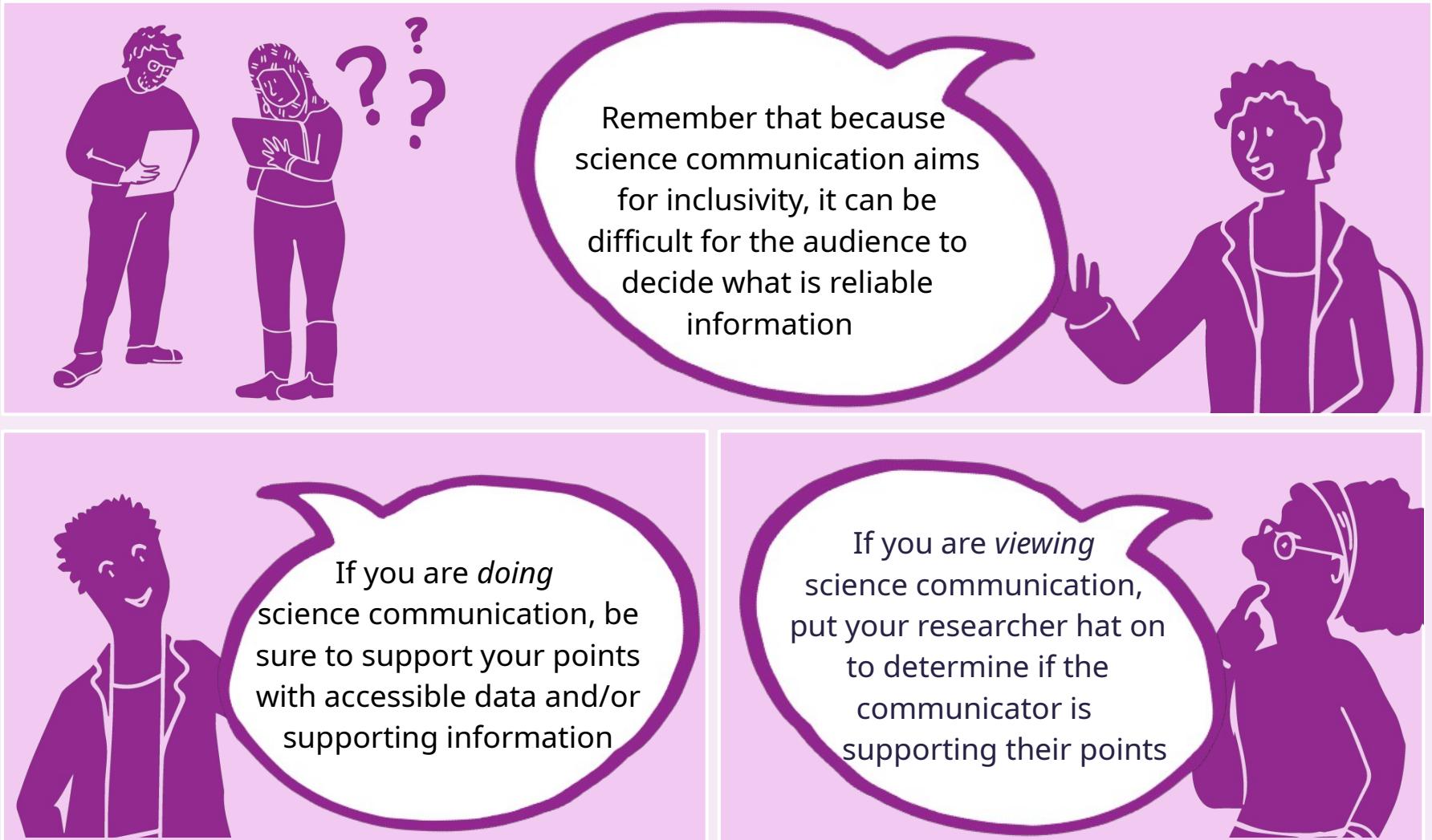
How do I do science communication?



How do I do science communication?



How do I do science communication?







Principles & Practices of Open Research

An online module for
undergraduate and Masters
students

Module 6 – Knowledge Dissemination



What is citizen science?



What is citizen science?

- 1 It is an open and inclusive approach to conducting research
- 2 It involves input from the public in the research process as observers, identifying images, or providing or analysing data
- 3 It is an aim of open research because open research works towards inclusivity
- 4 It is also an enabler of open research because including the public in research increases its openness
- 5 It is not simply having members of the public involved as participants, they are instead active research partners

Benefits of Citizen Science



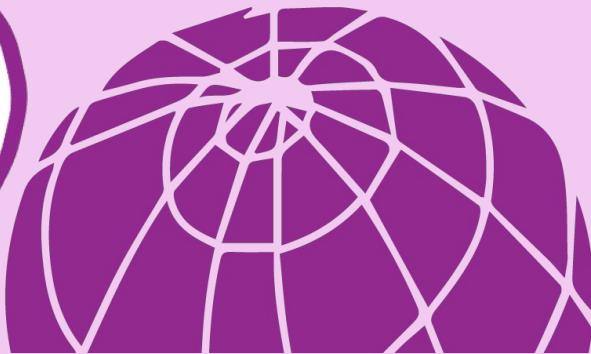
It promotes research
that is conducted for
the people and by the
people



It enhances public
engagement in and
with research



It nurtures public
investment in and
understanding of
scientific processes
and outputs



Case Study: The People's Trial

Check out [The People's Trial](#) for an excellent example of citizen science and science communication in action

The public were involved in all stages of the project, from deciding what research question to examine, to deciding how the findings should be shared



Case Study: The People's Trial

- For example, the public were asked to come up with possible research questions
 - They came up with 155 questions!



Case Study: The People's Trial

- The public then voted on which one they should examine
- The question they decided on was:
‘Does reading a book in bed make a difference to sleep in comparison to not reading a book in bed?’



THE PEOPLE'S TRIAL

Powered by the Public

Case Study: The People's Trial

- This video was used to explain the what, why and how of deciding a research question



Find out more about the people's trial by visiting their website:

<https://thepeoplestrial.ie/>



THE PEOPLE'S TRIAL

Powered by the Public

How do I do citizen science?

- Citizen science is a bit trickier to include in a student project
- You can get involved in ongoing citizen science projects that you come across
- For instance, projects like the [All Ireland Ladybird Survey](#) that involves the public in tracking Ireland's native ladybird population using a smartphone app





- Complete an activity on Canvas.
- There are 4 to choose from depending on what research stage you are currently at.
- You must complete at least one activity, but you can complete more if you like!

