

8th WCRI, Athens 2024

Programa de Pós-graduação em Enfermagem, Universidade de Brasília



# EDGES – Evidence Directions for Generation of Equity in Science

## Assessment of Equity in Open Science

DOCTORAL FORUM

PHD STUDENT  
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MENTOR  
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Universidade de Brasília

I am... 



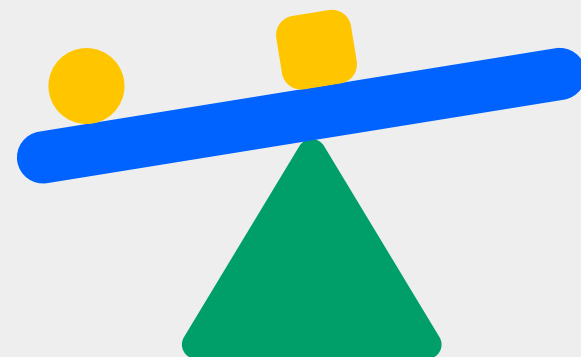
# The history behind my interest for RI and Ethics

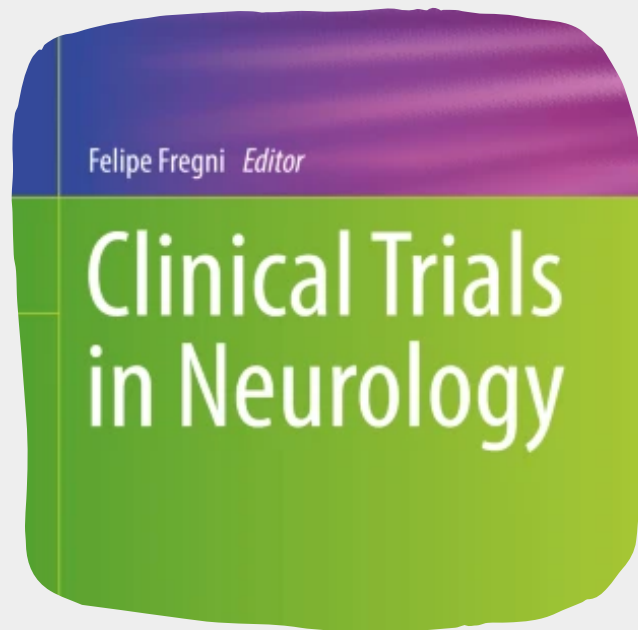
2009

- Information is power;
- The role of reliable and unreliable info and its direct Impact;
- Nurse, Educator, Researcher



- One rule for all - not efficient





RESEARCH ARTICLE

### Research misconduct in health and life sciences research: A systematic review of retracted literature from Brazilian institutions

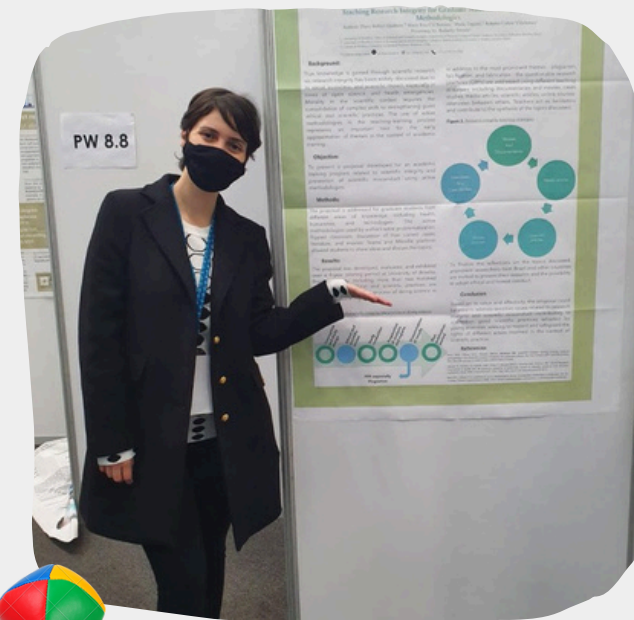
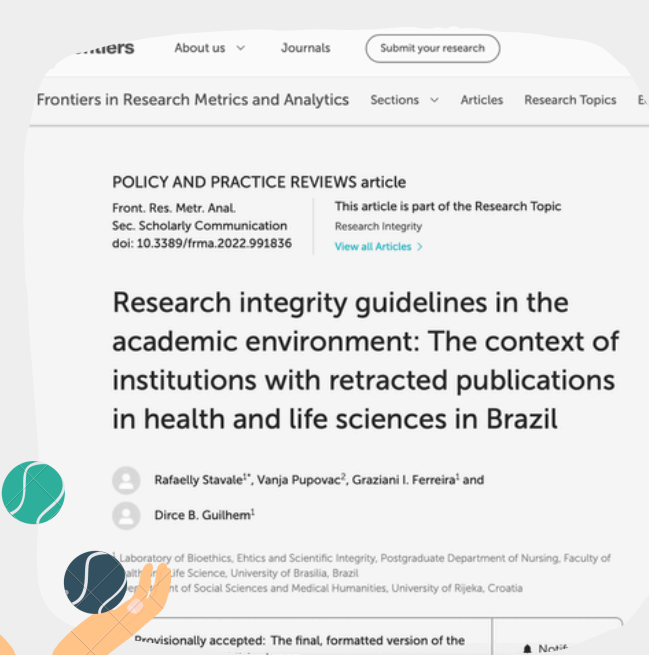
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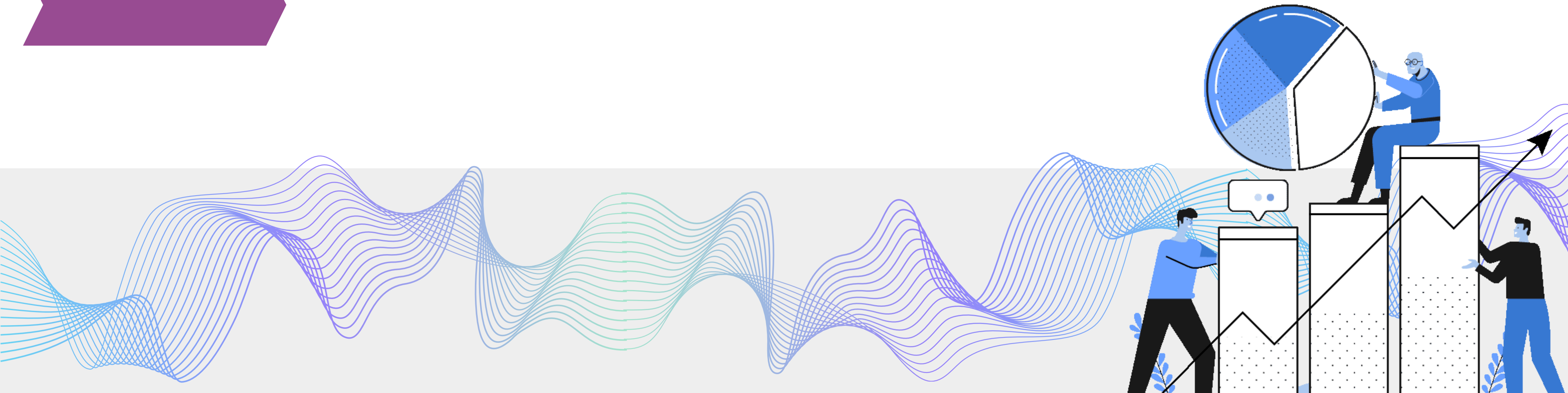
Abstract



## Future perspectives and expectations of the forum

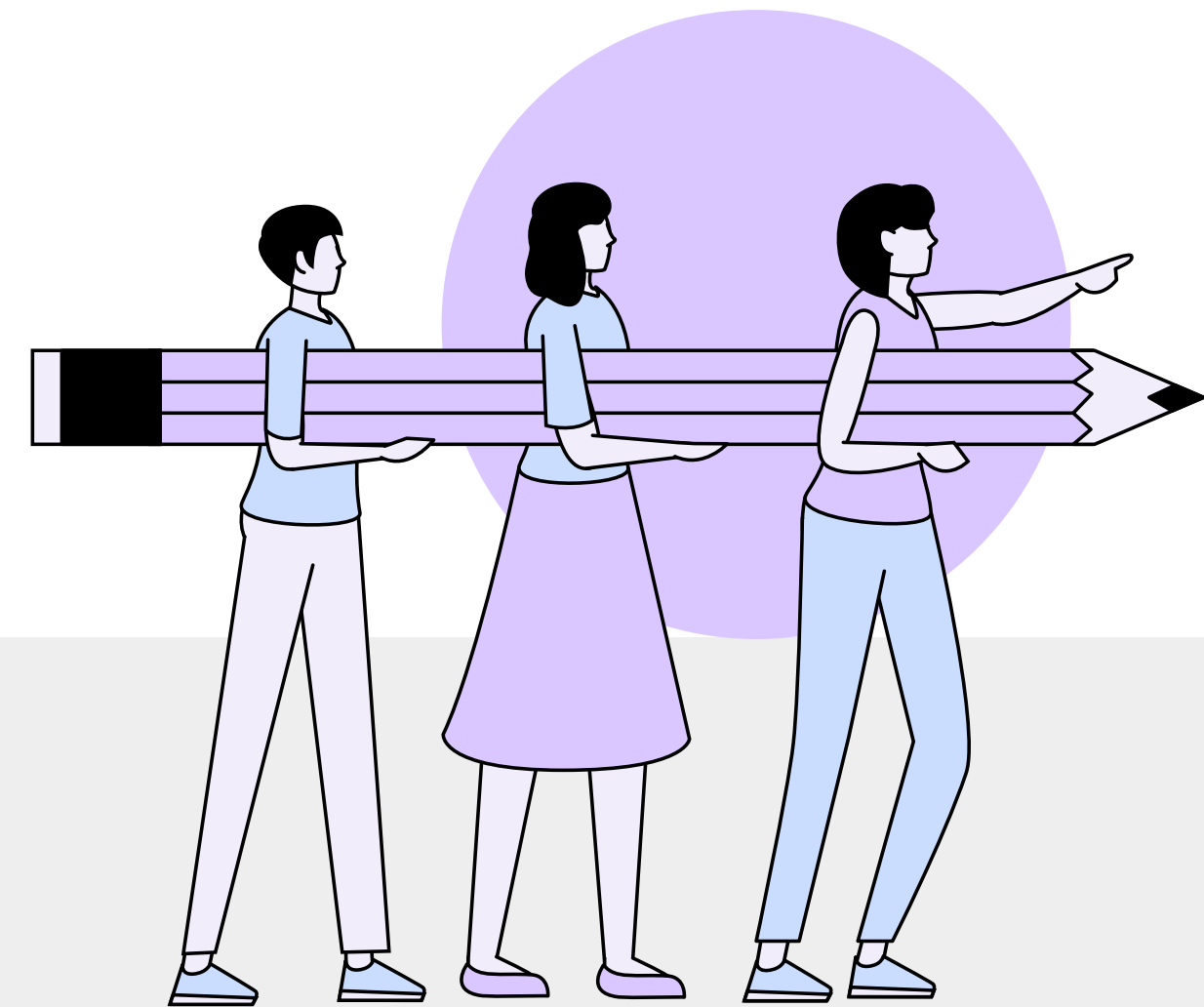
2024

- Advocate for research integrity, equity and (open) science;
- Connect and build network;
- Stimulate different stakeholders to engage in research about equity and OS;
- Learn from different experiences, the critics from brainstorm with others.



## The role of science

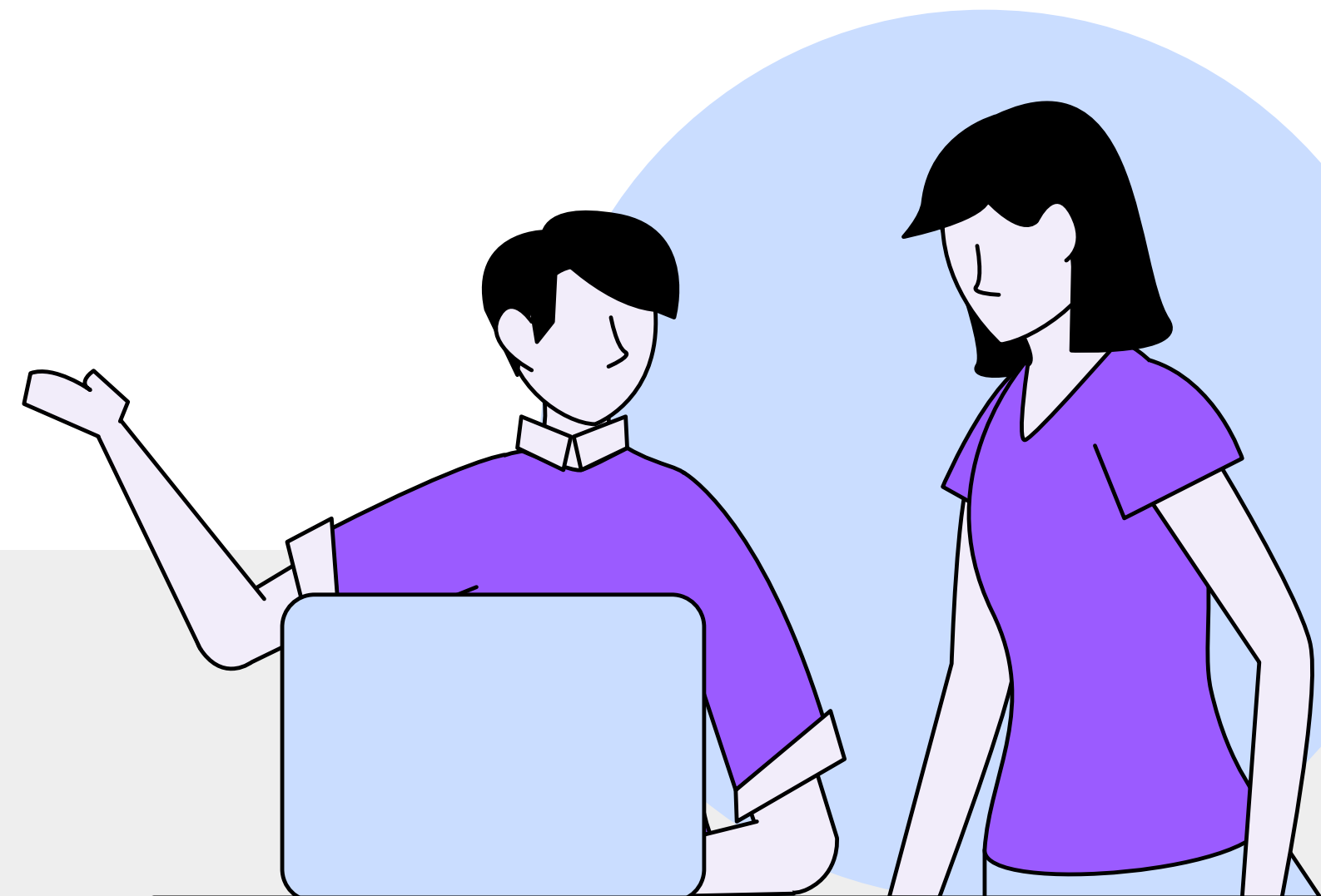
- Innovation and prosperity in different areas, nationally and internationally;
- Collaborative process (government, industry, scientists, public);
- Researchers responsible for producing knowledge and its implications.



## The challenges of production and dissemination of scientific knowledge

- Uneven process: human resources, materials, training;
- Disparity in collaborations
- Reward system that reinforce inequality and misbehavior

“(…) countries with fewer resources have their research less valued or neglected.” –  
ALBORNOZ et al, 2020



## Is science for all?

- Access to information is challenging;
- Disclosure of results may imply additional costs;
- Language barriers;
- Funding availability inequitable.

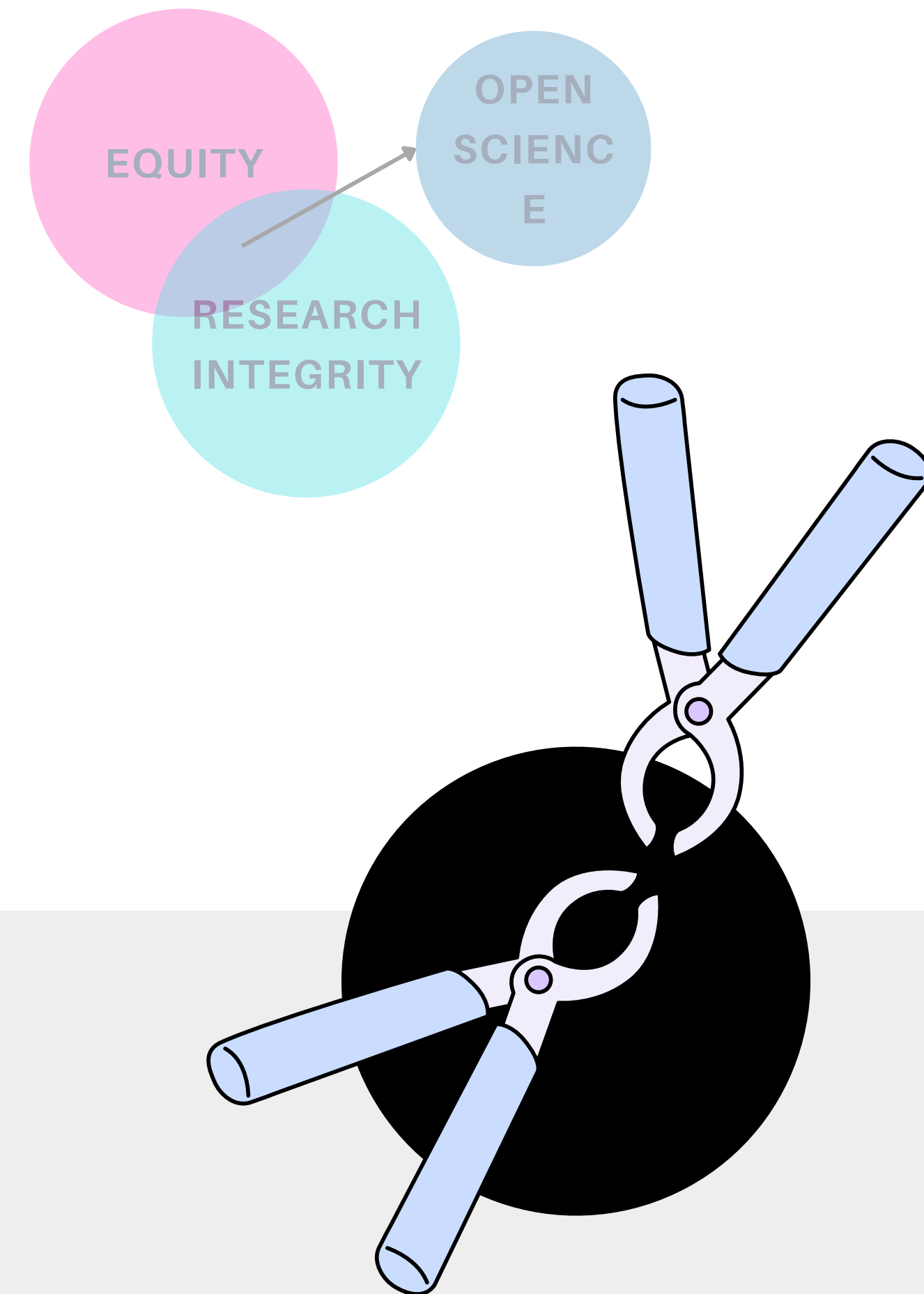


"Brazil is among the countries that publish in newspapers with the lowest average APCs."

(KLEBEL et al,2023)

## The Open Science

- Addresses the global challenges of access, production and dissemination of scientific knowledge;
- Movement that seeks to mitigate disparities in science;
- Equity, efficiency, rigor, transparency and trust through multiple initiatives (collaborative network, engagement of different stakeholders, accessibility and etc)



## What is Open Science?

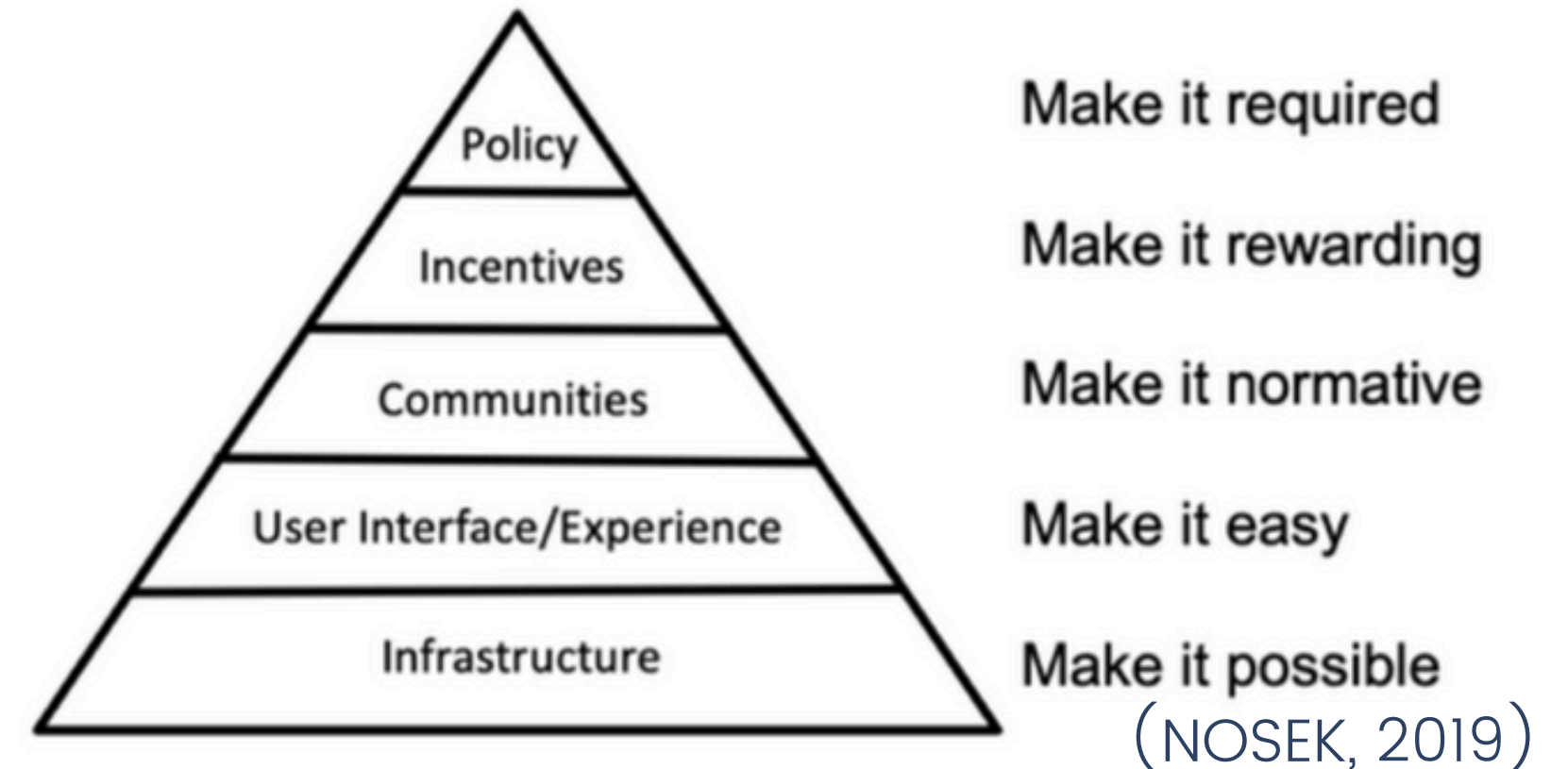
"(...) an inclusive construct that combines various movements and practices aiming to make **multilingual** scientific knowledge **openly available**, **accessible** and **reusable** for everyone, **to increase scientific collaborations** and sharing of information for the benefits of science and society, and to **open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community**. (...) it builds on the following key pillars: open scientific knowledge, open science infrastructures, science communication, open engagement of societal actors and **open dialogue** with other knowledge systems."

UNESCO, 2021

## Open Science beyond transparency

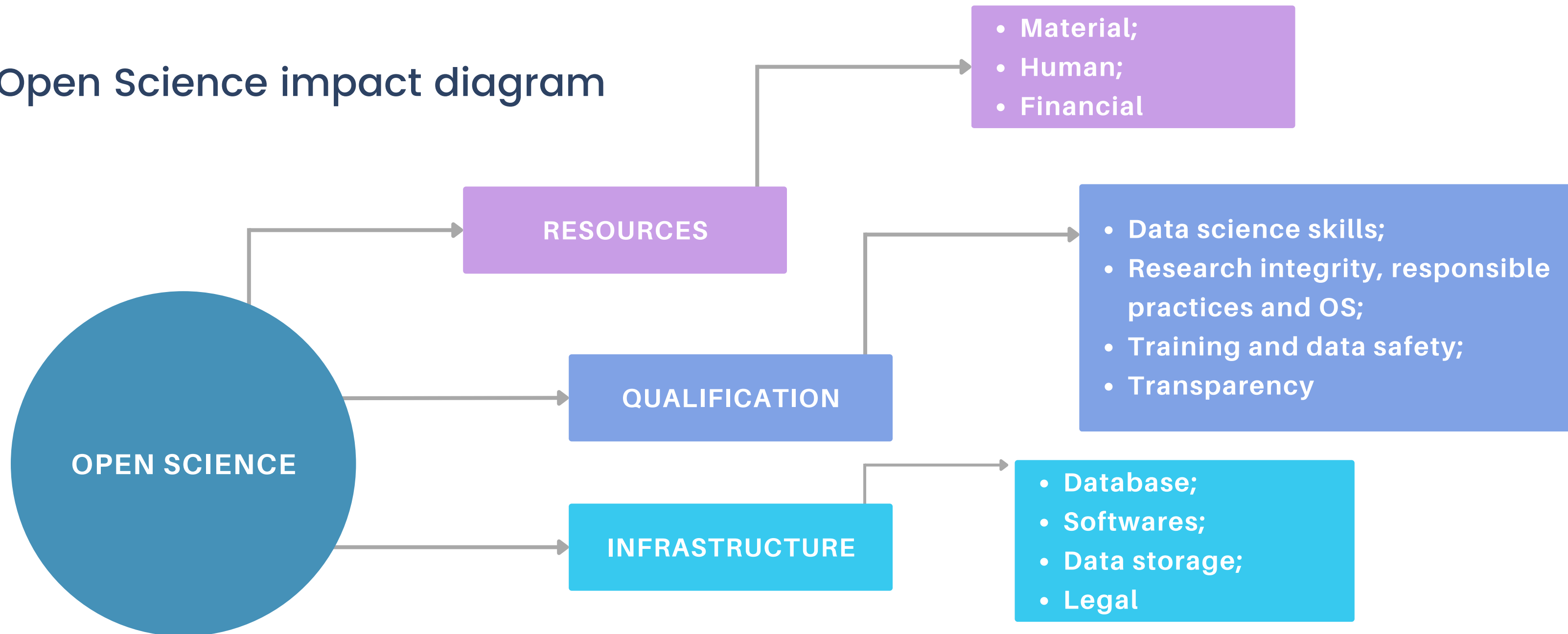
- Breaking down barriers and improving communication between different stakeholders in science;
- Started with an already inequitable foundation.

## How to change culture?



**OPEN SCIENCES PRESSURE AN EXISTANT STRUCTURE TO EMBRACE CHANGE  
CITIZENS, RESEARCHERS, ACADEMICS, INDUSTRY, EDITORS, PUBLISHERS, GOV**

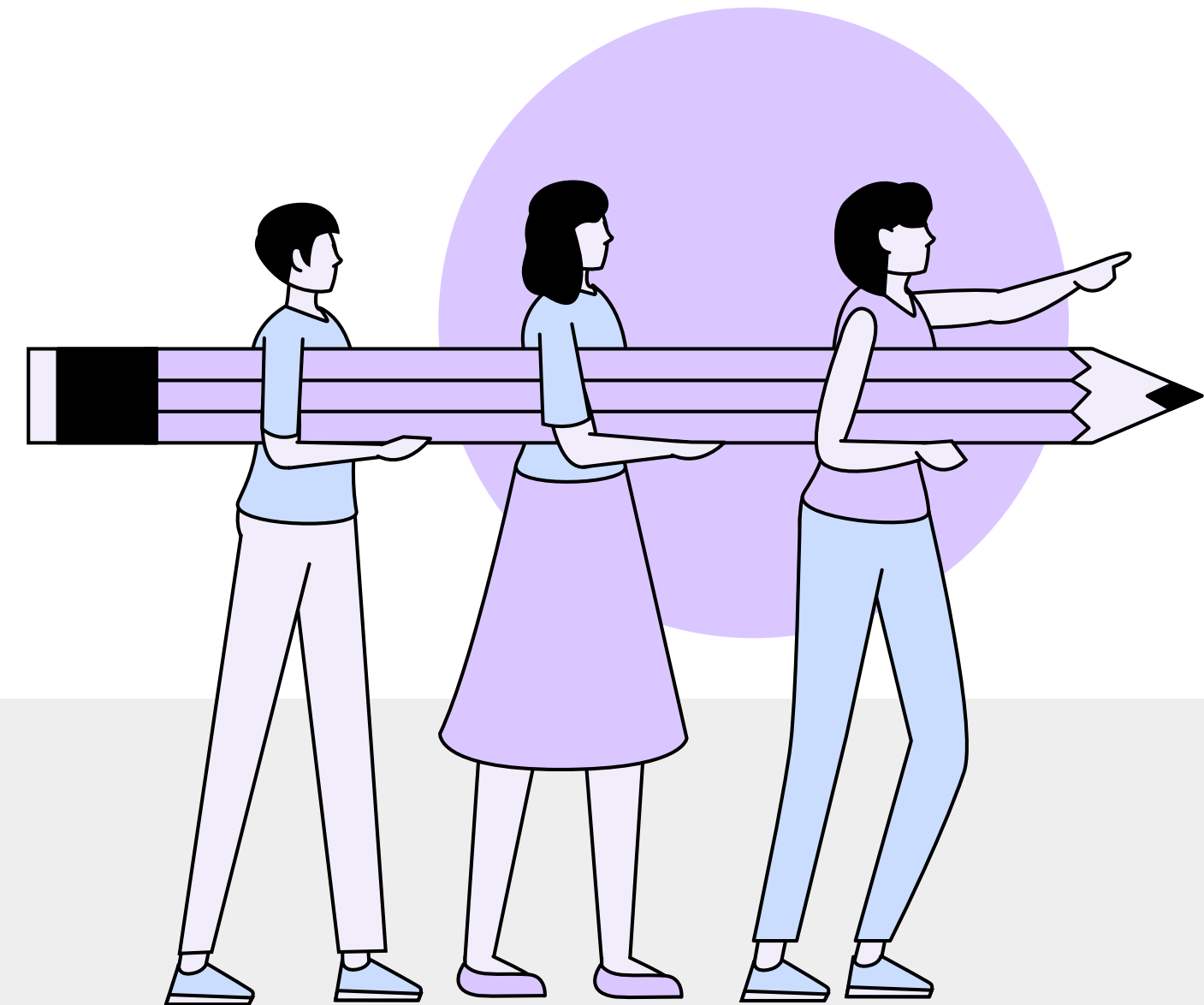
## Open Science impact diagram



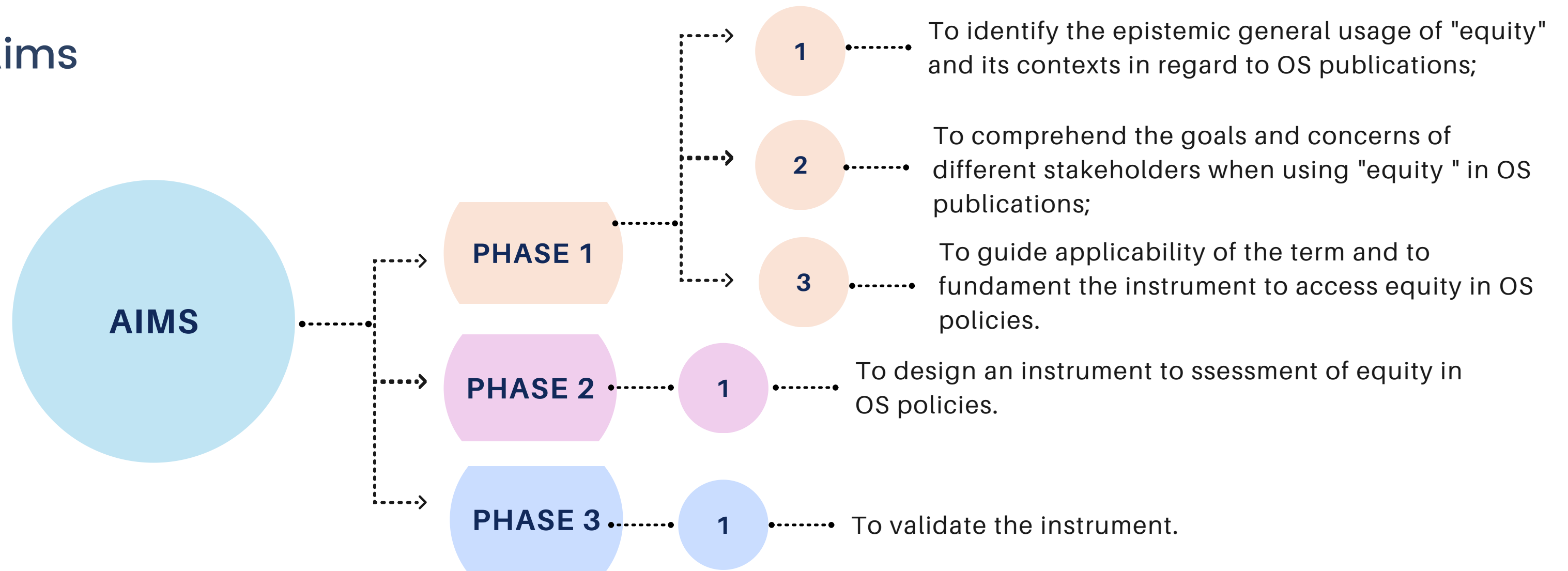
**HOW TO TACKLE OS IMPACTS TOWARDS INEQUALITY?**

## Research Aim

To understand the impact of Open Science on the different dimensions of equity in science through the creation and validation of an instrument to assess equity in Open Science.



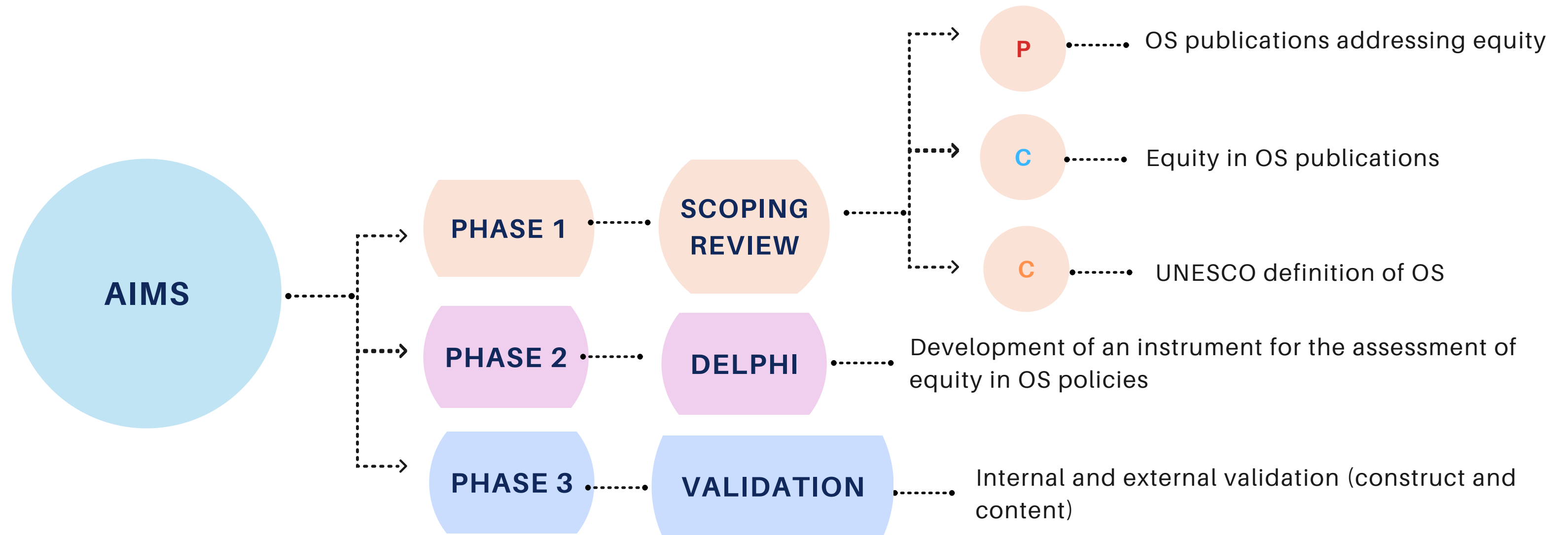
## Specific Aims



- Importance of OS and research integrity for scientific development;
- Non-equalitarian basis for OS implementation;
- Ideal to mitigate inequality and guide policies;
- There is no validated instrument to assess the impact of OS vs equity.



## Methods



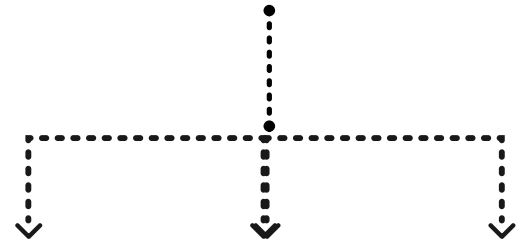
- **Problem:/ population:** equity epistemological diversity

(equity = equality vs equity = fairness = justice)

- **Context:** open science publications
- **Concept:** open science according to UNESCO equity – will be investigated

## ScR questions

### PHASE 1



1

2

3



What are the different concepts of equity in Open Science?

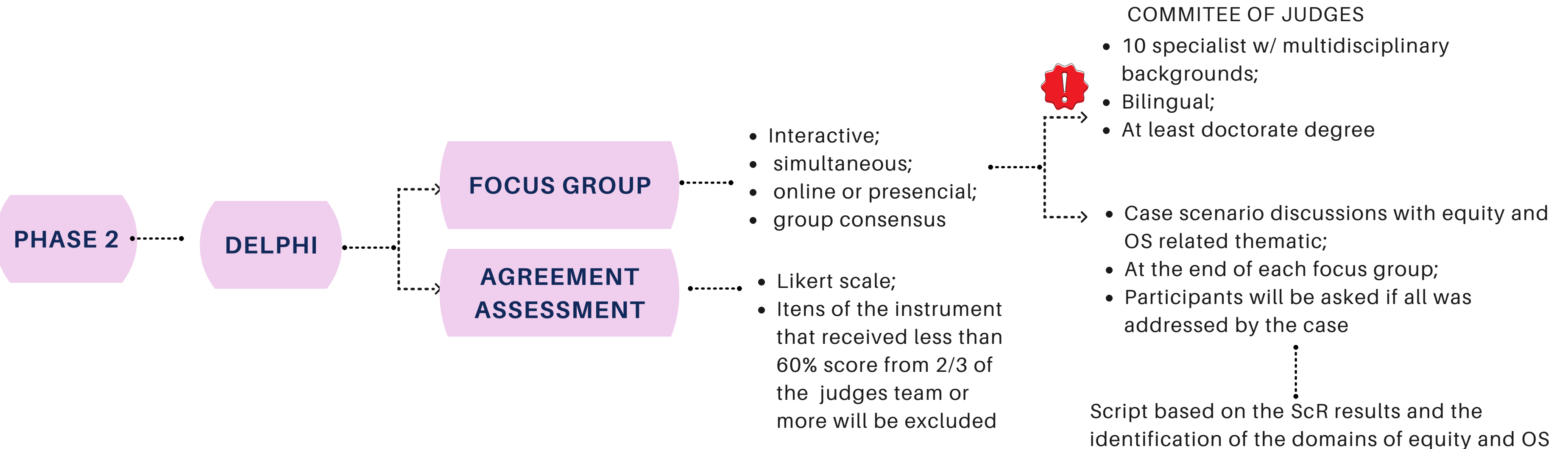
What are the contexts in which the term is used?

What are the authors' aims and concerns when using the term?

What are the challenges, limitations and potential for equity in Open Science?

What influences equity in Open Science? (gender, infrastructure, resources, etc.)

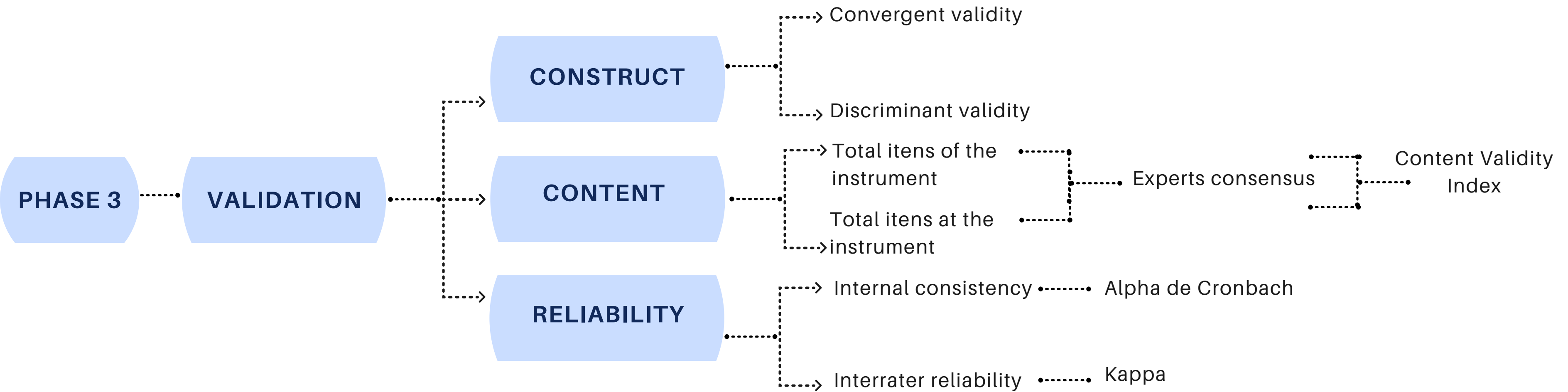
**Current evidence: Is there a need for a ScR?**

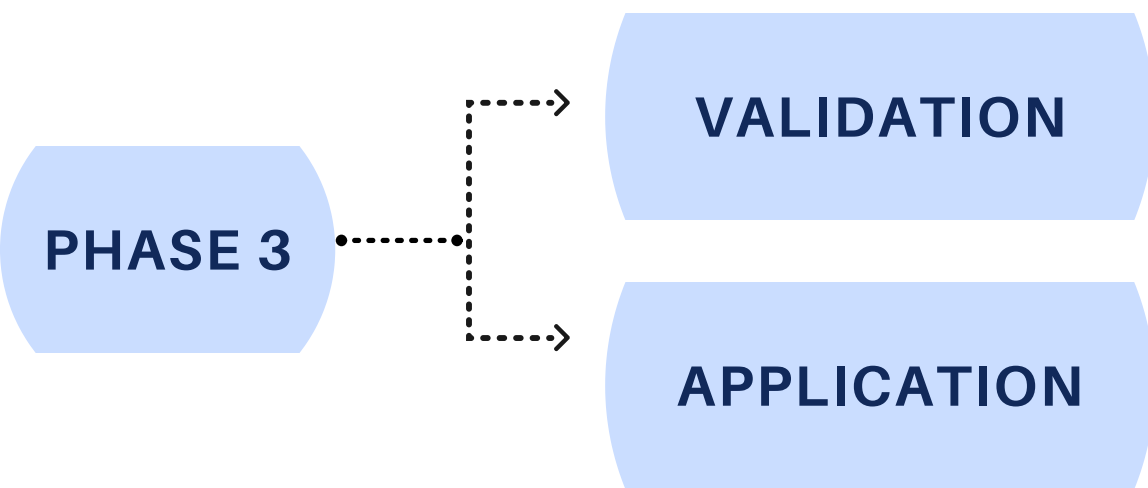


**THE FIRST QUESTIONNAIRE WILL CONTAIN THE PRE-PREPARED INSTRUMENT AND SEMI-STRUCTURED QUESTIONS SO THAT THE COMMITTEE OF JUDGES CAN EXPRESS THEMSELVES FREELY ON THE TOPIC**



**Bilingual experts – idioms to do validation of the instrument (Portuguese, Spanish, English);  
Who should be the experts?**





- Application of the instrument;

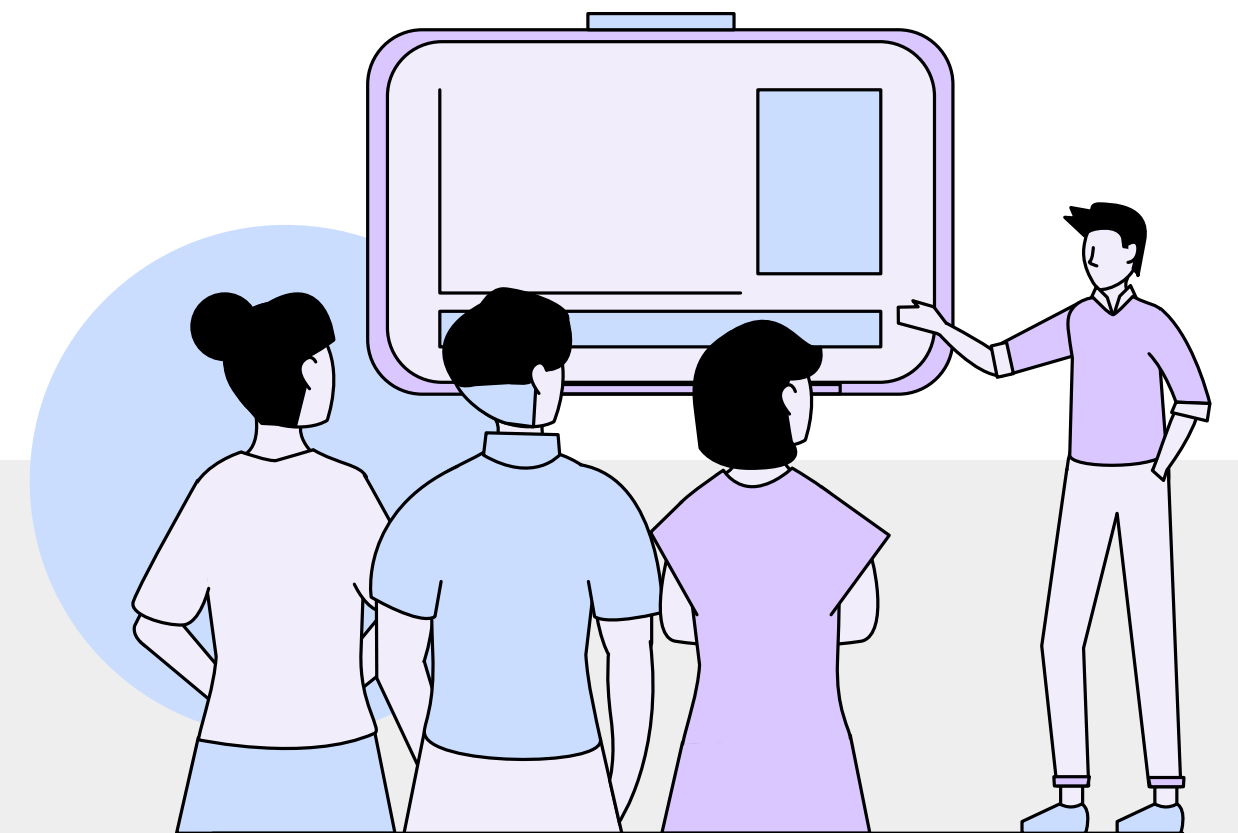


Invitation will be sent to researchers registered with CNPq;



Students enrolled in postgraduate programs at the University of

Brasília



Generalizability of results

PHASE 1

SCOPING  
REVIEW

High publication bias;



Most publications from countries leading OS discussions;



Lack of inclusivity locally and internationally;



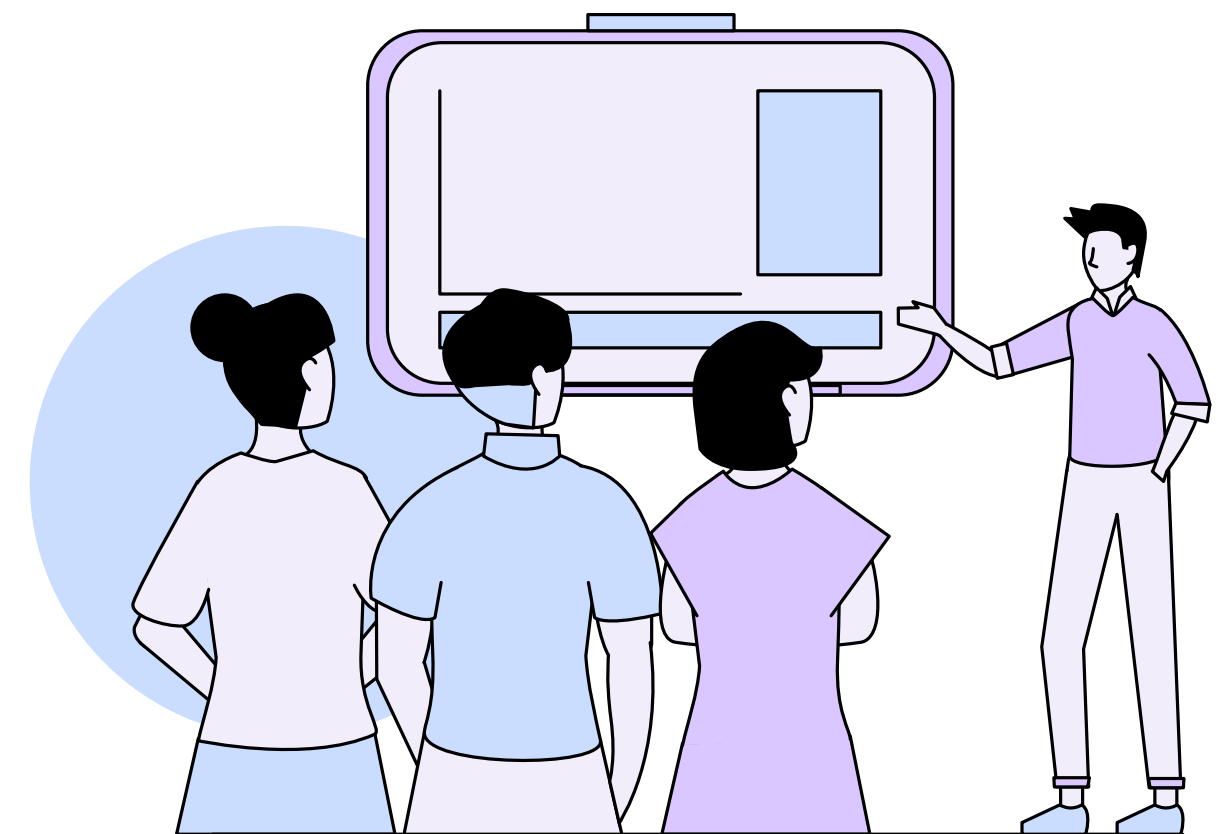
Science communication challenges - science literacy and translation; APC's;



Reward system flawed and legal threats to OS.



- APC OF U\$1500 considered LOW;
- LOW/MIDDLE INCOME MORE LIKELY TO PUBLISH AT PREDATORY JOURNALS;
- DATA SHARING BUT WHAT ABOUT THE PRODUCTS OF IT? (covid-19 lessons)



PHASE 2

DELPHI

PHASE 3

VALIDATION



Phase 1 justified phase 2 and 3;



This research is expected to create and validate an instrument to assess dimensions related to equity in Open Science;

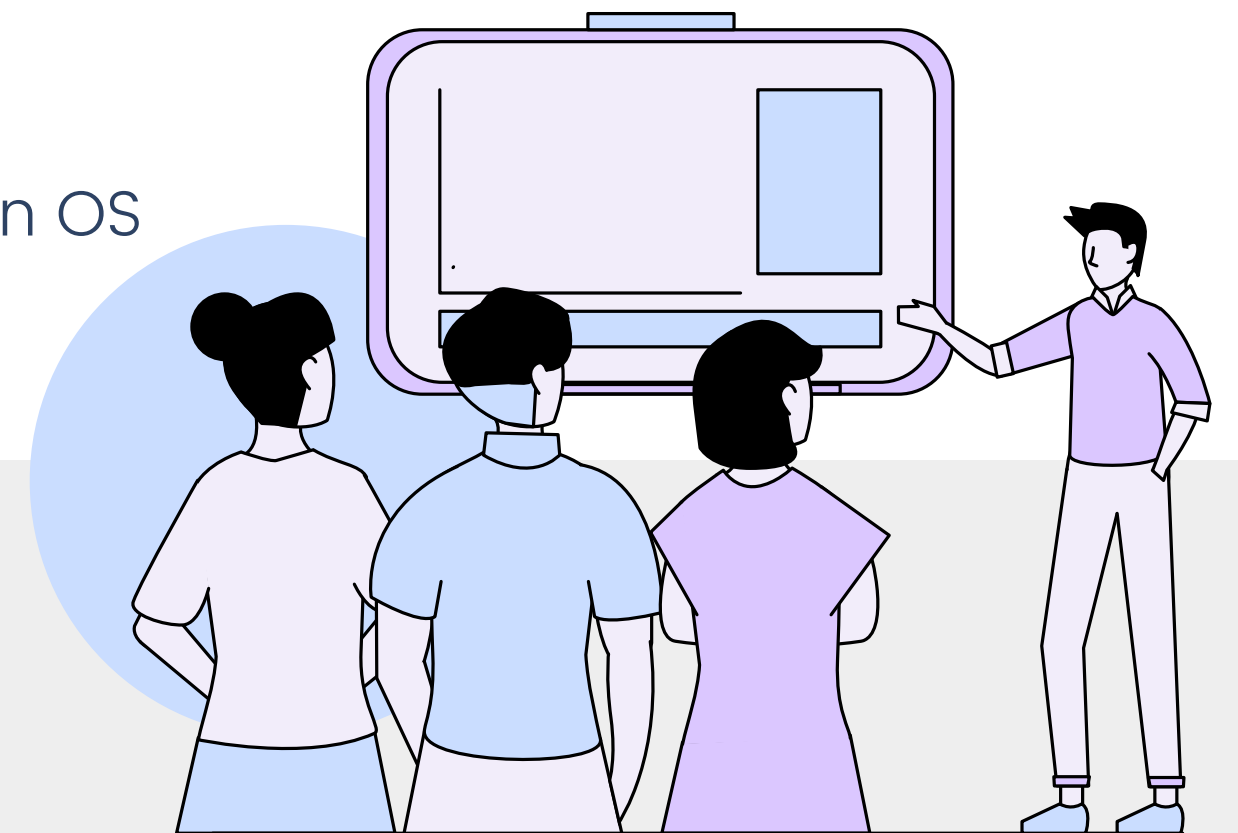


The products of this research will guide actions to promote equity in OS practices and policies objectively.



Generalizability of results

1. different stakeholders, different interests behind OS;
2. publication bias from phase 1

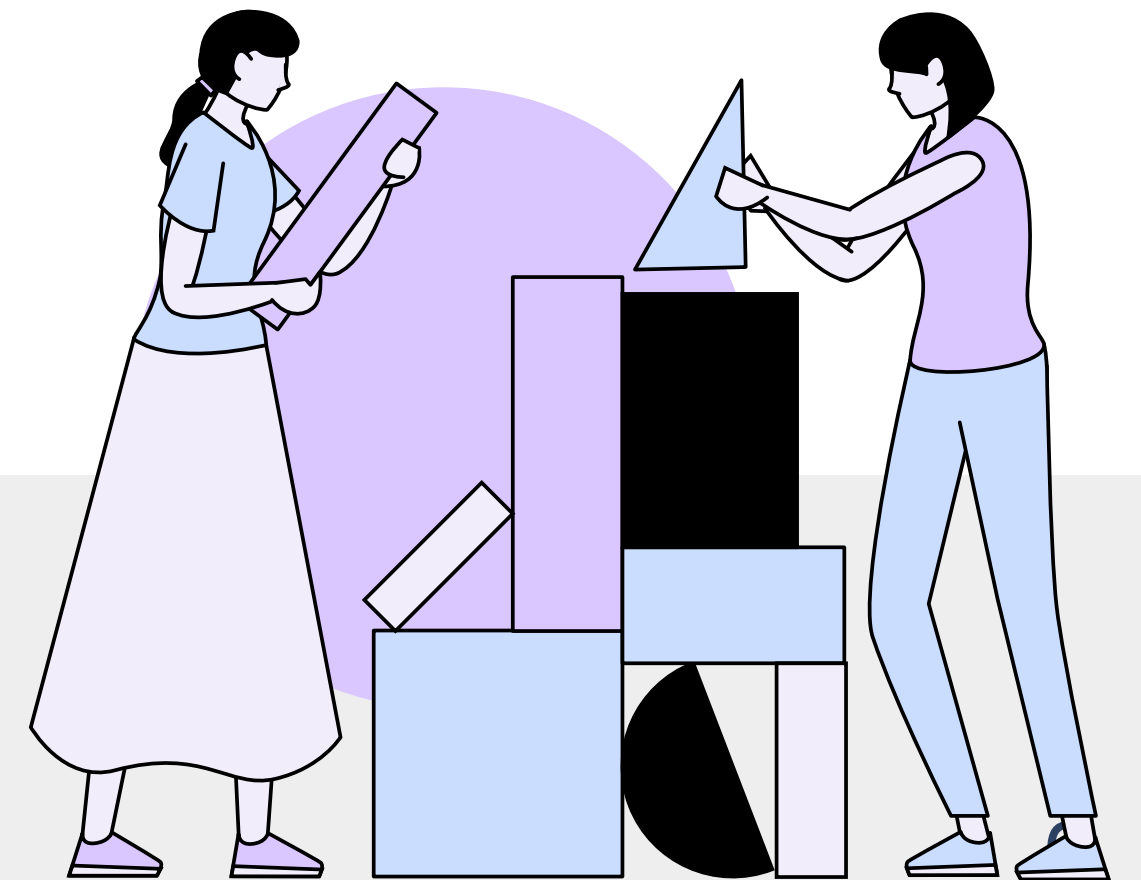


## Is the challenge of a research proportional to its limitations?

- Ambitious project to measure equity;
- Selection of the main domains related to equity – not to develop an extensive instrument;
- Bilingual committee of judges can be both an advantage and a barrier;
- Publication bias from the ScR can reduce generalizability of results

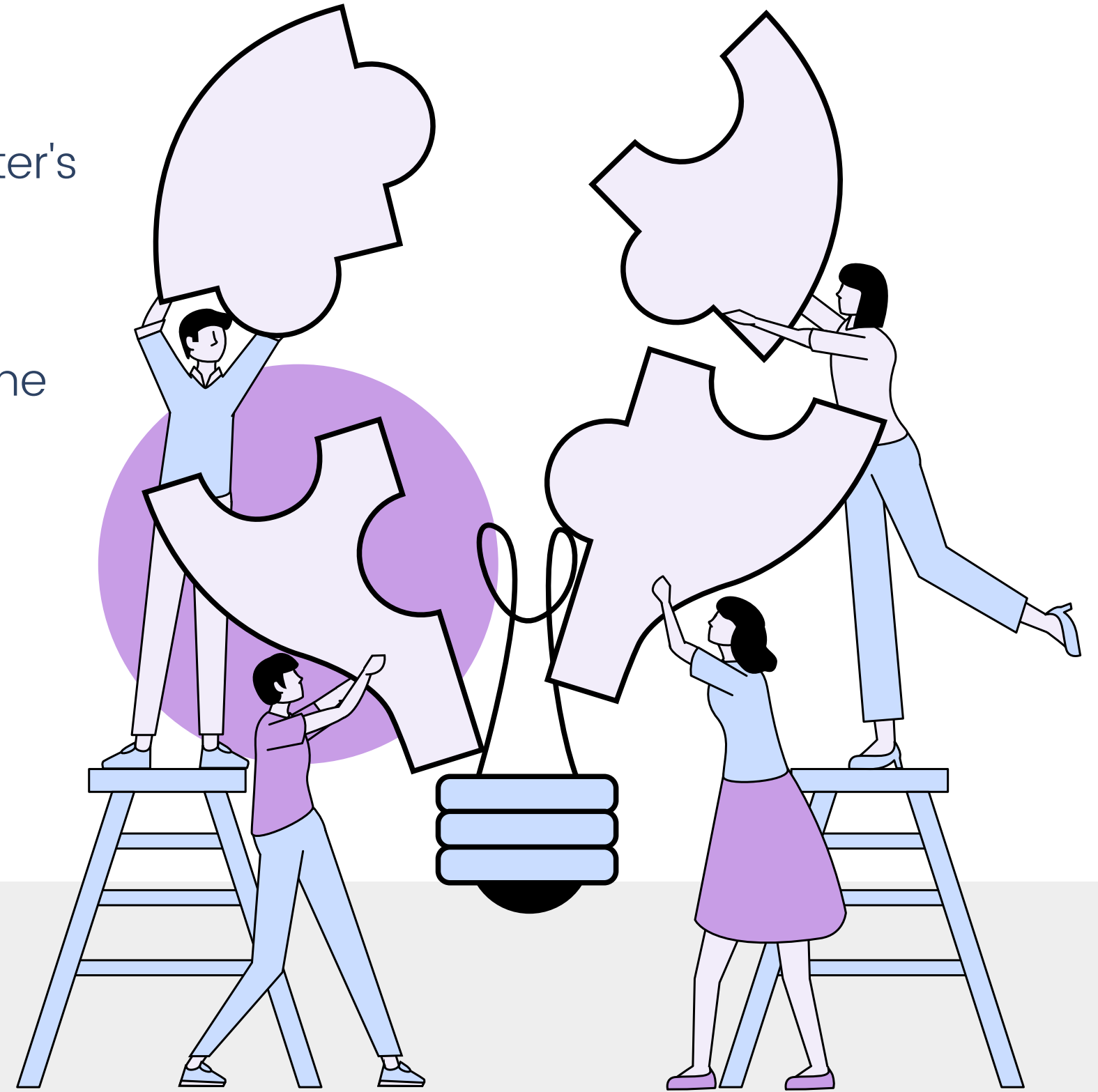


How to reduce/deal with limitations?

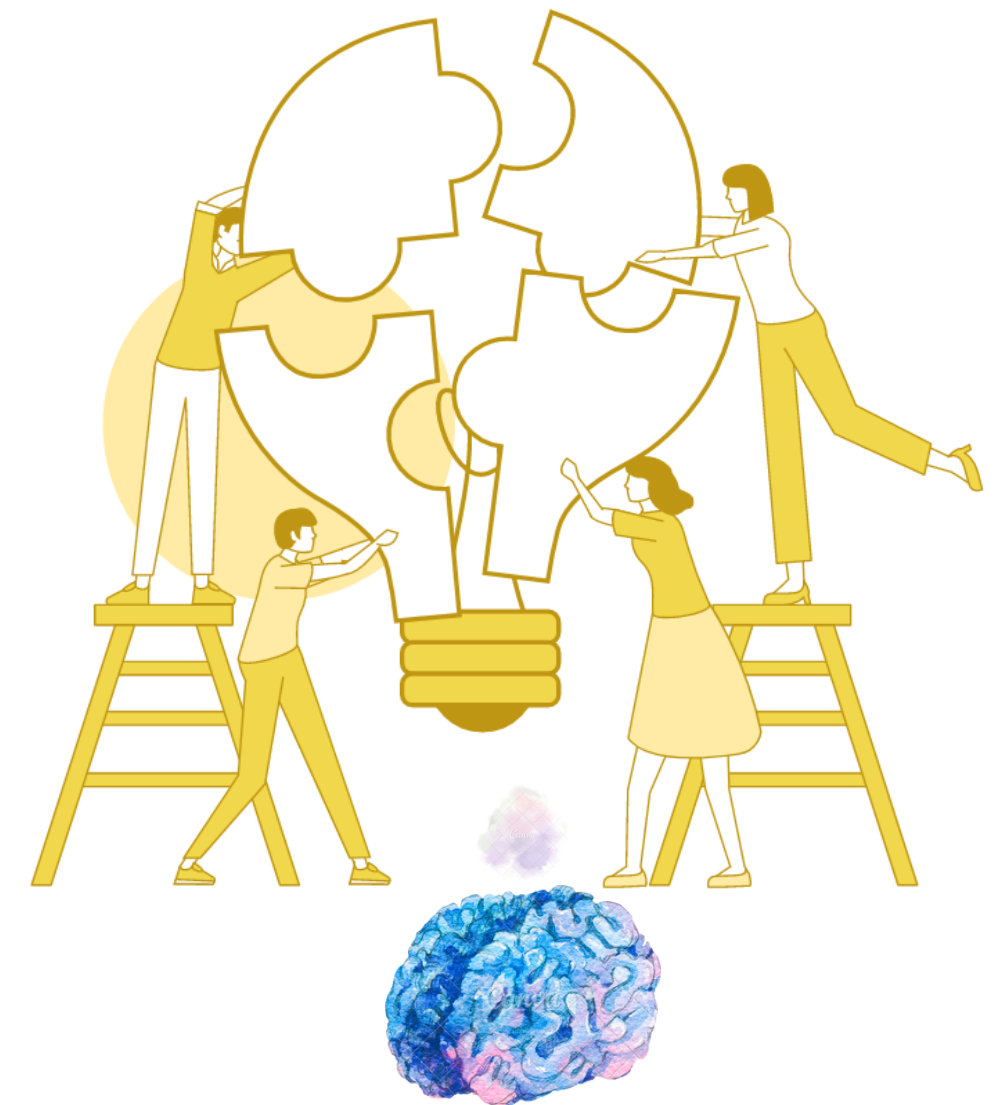


## Potentialities

- Collaborations carried out during undergraduate and master's degrees;
- Project invited to participate of the Doctoral Forum during the 8th WCRI;
- Address a multidisciplinary and interdisciplinary need;
- Feasible.



- How to improve **generalizability** of results?
- **Idiom** aspects of the instrument – should I first create and validate it in Portuguese and later adapt to other languages or do it simultaneously?
- **Population**: Should I include only researchers to the modified Delphi?
- Should I balance the number of participants based on each **STEAM area**, **geographic region**, **stakeholder**?
- **The instrument validation**: I would like to combine different approaches to make sure the instrument adequately measures the construct, and its components are well designed for its purpose. Would you recommend a deeper literature for it?
- Is there anything that can be done during the **Delphi phase** to avoid a **misconception of the instrument** and yield the chances of developing a reliable instrument to measure what I want?
- How to deal with **dropouts** and **missing data** during the modified Delphi?
- Should we focus on one aspect of equity and OS? For instance: recognition and reward system?



**Disclosure: we are not against OS; we embrace the challenges OS brought into light as well as the benefits of it. Our research project and results does not intend to undermine any individual nor institutions. Instead, we aim to improve inclusion, diversity, equity of policies and practices towards RI integrity culture aligned with OS practices..**

Thank you!



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