

Innovation with Open Educational Resources: The State of the Art

Open Educational Resources and Practices in Language Learning and Teaching

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Dr. Robert Farrow
Open Education Research Hub
Institute of Educational Technology
The Open University, UK

rob.farrow@open.ac.uk
@philosopher1978

INNOVATION WITH OPEN EDUCATIONAL RESOURCES

WHAT ARE OPEN EDUCATIONAL RESOURCES (OER)?

Open Educational Resources (OER) are teaching, learning and research materials in any medium – digital or otherwise – that are in the public domain and/or released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. They are free at the point of use and ‘free’ in the sense that they provide users with greater freedoms in how resources are shared, used, customised and iterated.

Compatible definitions of OER are provided by [UNESCO](#), [Hewlett Foundation](#) and [OER Commons](#).

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WHAT ARE OPEN EDUCATIONAL RESOURCES (OER)?

There is a wealth of evidence to suggest that OER have a positive effect on learning and teaching without compromising quality (e.g. de los Arcos et al., 2014; Hilton, 2016; Weller et al., 2015; Wiley, 2015).

When embedded in the right organisational culture, the benefits of OER include:

- Improved access to education and training
- Dramatically reducing the cost of educational and training materials
- Facilitating more diverse input into the creation of learning materials
- Efficient use and reuse of intellectual property
- Greater opportunity for synchronous and asynchronous learning
- More flexibility in provision in education and training
- Facilitating translation and adaptation of resources for different markets
- More responsive design and calibration of education and training materials
- Flexible integration into learning management systems and platforms
- Transparency/publicity in the creation and use of educational resources

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THE OPEN PARADIGM IN EDUCATION

Widespread recognition that the shift to digitized, online and freely accessible learning resources can bring profound ethical challenges

A range of cultures, behaviours, practices and technologies from educational contexts may be described as ‘open educational practices’ (OEP), including access to education or published research, policies, teaching methods, software, data sets and other educational resources.

Over the last decade – primarily in the form of Massive Open Online Courses (MOOC) and Open Educational Resources (OER) – the open education movement has expanded opportunities for education worldwide.



TESS | **India**



OPEN EDUCATION
CONSORTIUM

The Global Network for Open Education



saylor.org
FREE EDUCATION



CC **creative
commons**



OPEN COURSE LIBRARY
download.remix.teach

flipped
learning
network



SIYAVULA
TECHNOLOGY-POWERED LEARNING

TESS
India

Project Co-PILOT



BCcampus
connect.collaborate.innovate.

**P2
PU**



OpenLearn

Keyword	Hypothesis
Performance	OER improve student performance/satisfaction
Openness	People use OER differently from other online materials
Access	OER widen participation in education
Retention	OER can help at-risk learners to finish their studies
Reflection	OER use leads educators to reflect on their practice
Finance	OER adoption brings financial benefits for students/institutions
Indicators	Informal learners use a variety of indicators when selecting OER
Support	Informal learners develop their own forms of study support
Transition	OER support informal learners in moving to formal study
Policy	OER use encourages institutions to change their policies
Assessment	Informal assessments motivate learners using OER

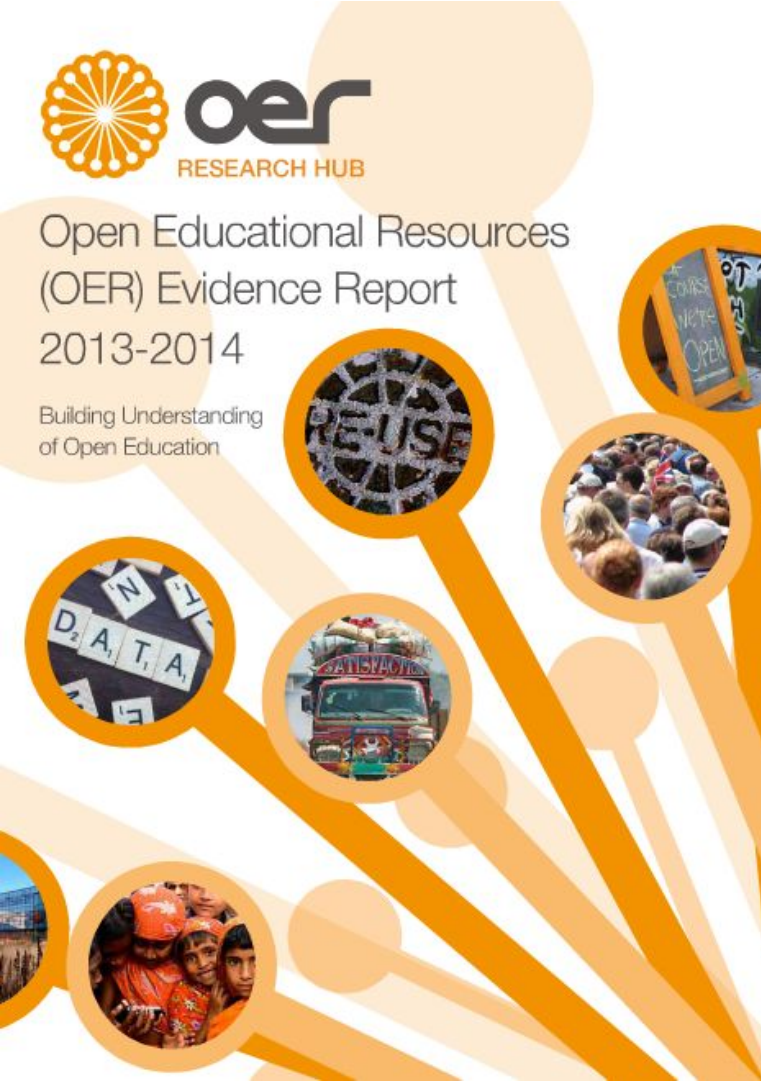
Data

- 20+ surveys;
- 60+ interviews with educators OER experts & learners;
- 6 focus groups;
- impact statements



Open Educational Resources
(OER) Evidence Report
2013-2014

Building Understanding
of Open Education



OER Evidence Report 2014
OER Data Report 2015

<http://oerhub.net/reports/>

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THE BIG PICTURE

The evidence base about the impact of OER continues to grow, but claims about saving money and encouraging innovative pedagogies have been shown to be well grounded

Much of the debate in the USA is about the relative efficacy of OER alternatives

Openness presents challenges to researchers along several axes: lack of clarity; validity; data collection; dissemination.

Openness is typically contextual and situated: it can be hard to generalise

Certain tensions can be determined in the open education movement (conservative/radical; idealist/pragmatic; &c.)

Openness can be seen to have a close connection with radical, critical connections through the association with enhanced freedom/autonomy

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OPEN RESEARCH AGENDA

Open Research Agenda (2016):

- Community consultation exercise to better understand research priorities of practitioners
- Intended to identify patterns across countries and stakeholders
- ‘Flipping’ the conference format
- Survey (n=91) of open education leaders
- Workshops: Hewlett OER Grantees Meeting; Open Education Global; OER16; Global OER Graduate Network (webinar); Computers and Learning Research Group (CALRG); European OER Experts Meeting; OERu Expert Meeting; Open Education 2016

Priority areas for research focus identified under thematic clusters...

Open practices and pedagogies



- “Open pedagogy”
- Citation and cataloguing protocols
- Integration of OER into curriculum
- Creating assessment tools
- Micro-credentialling
- Recognition of prior learning
- Sustainable business models

- OER for lifelong learning and professional development
- Policy development
- Benefits of ‘non-disposable assignments’
- Local/National platforms for teachers
- Networked learning
- OER for language development

OER impact research



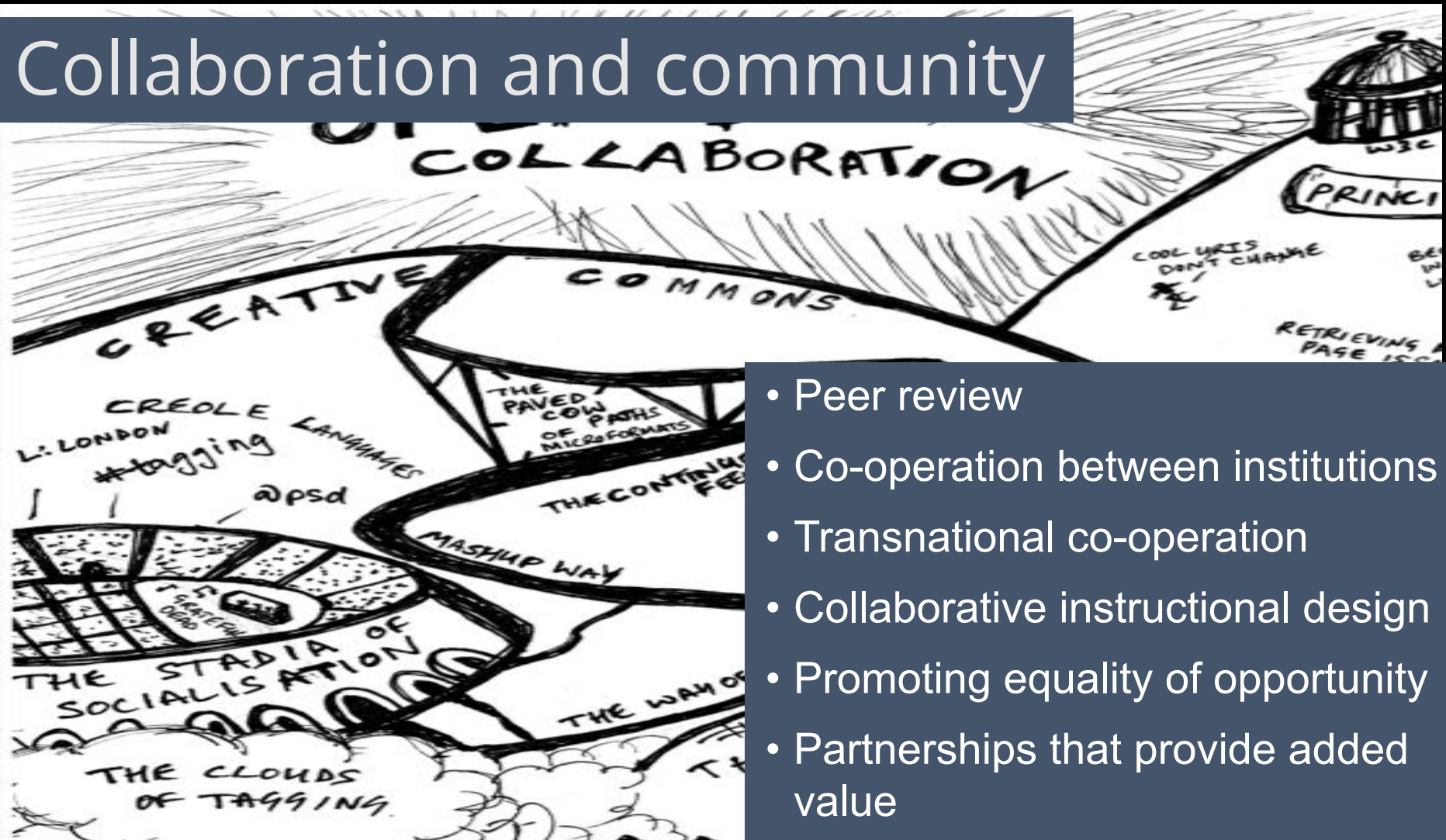
- Measuring the influence of the use of OER and OEP on learning outcomes and institutions
- More empirical studies with wider focus than purely on open textbook efficacy
- A wider range of research methods (including qualitative approaches)
- Quantifying the return on investment from going open
- Scant mention of student cost savings

Promoting adoption and adaptation

A photograph of a wall with peeling white paint. The words "Life is sharing" are written in large, bold, black cursive script across the middle of the frame. The background is dark and textured, possibly a brick wall or a different material.

- Factors affecting adoption of individual OER
- Qualitative descriptions of adaptation
- Barriers to remix and sharing (& implications for design)
- Barriers to institutional adoption
- Strategies for easing implementation by faculty

Collaboration and community



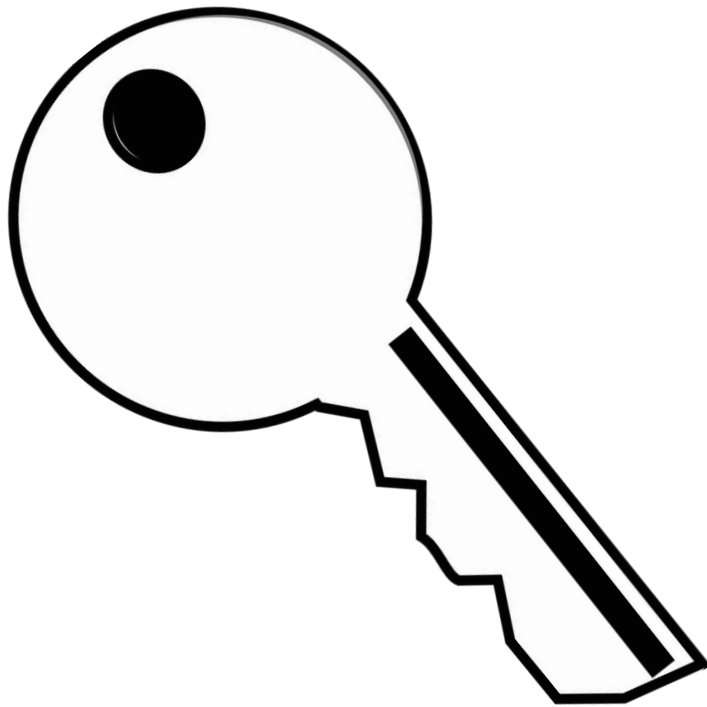
- Peer review
- Co-operation between institutions
- Transnational co-operation
- Collaborative instructional design
- Promoting equality of opportunity
- Partnerships that provide added value
- Quality

Technology and infrastructure



- Sustainable OER ecosystem
- Ways of cataloguing and sharing OER (e.g. shared database)
- Linked open data for education
- Open digital badging
- Geographical hubs for sharing OER
- Using OER with VLEs
- Beyond repositories
- Interoperability

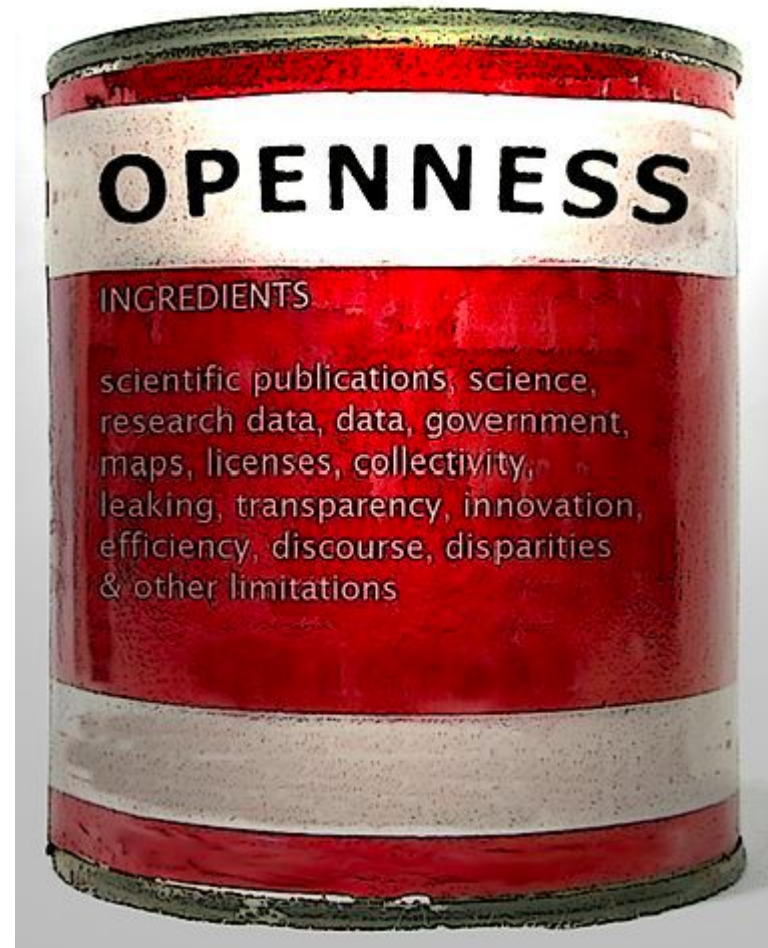
Ethical issues



- Privacy, security and trust in online learning
- Ownership of (student) data and 'safe spaces'
- Access & accessibility vs. remixable resources
- Appropriate literacies
- Being ethical 'in the open'
- Some conflation with ethical issues in e-learning more generally

Openness

- Tension between differing interpretations of openness
- Social and political aspects of open education
- Articulating the benefits of open
- Building open communities and supporting cross-community exchange



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TENSIONS AT THE MACRO LEVEL

Desire for control and predictability	Desire for freedom, exploration and innovation
Advocacy	'Pure' research
A well defined community of practice	An 'open' community
'I have this problem and I need a solution...'	'I think research should be done in...'
Local context	Global context
Pragmatic	Ideological

OPEN RESEARCH

Pitt R; de los Arcos, B; Farrow, R; & Weller, M.



Open Research (2016)

<https://openresearch.pressbooks.com/>

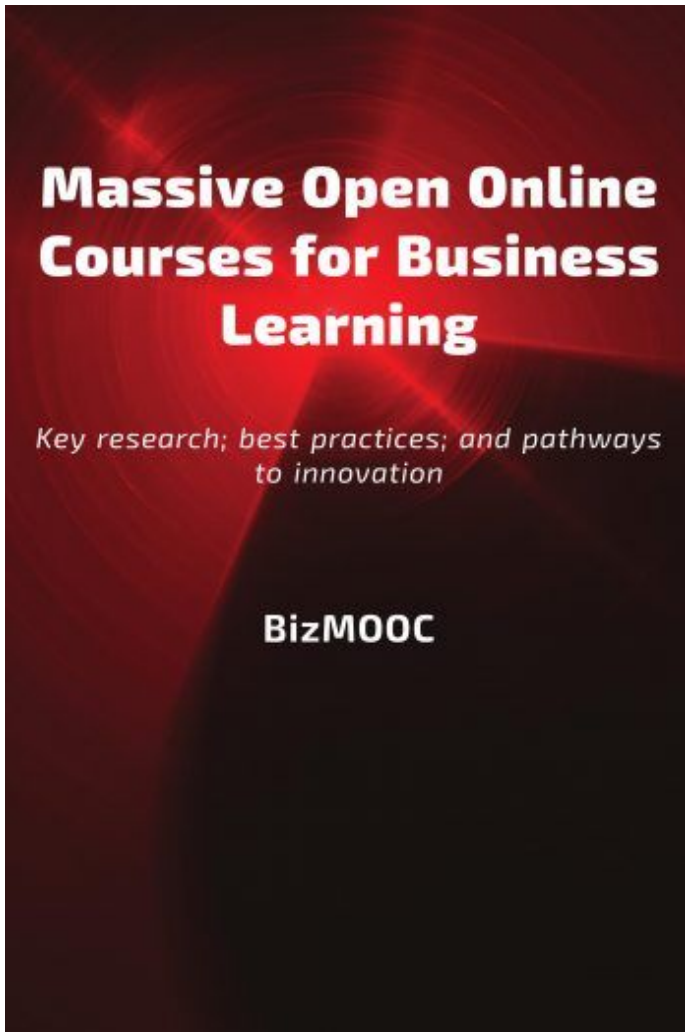
biz mooc

- Established a common body of knowledge across academia & industry
- Overcoming strategic barriers to MOOC activity
- Produced guidelines, best practice, open access MOOC BOOK
- 3 Pilot MOOCs on lifelong learning; entrepreneurship; and innovation

<https://mooobook.pressbooks.com/>

<http://bizmooc.eu/>





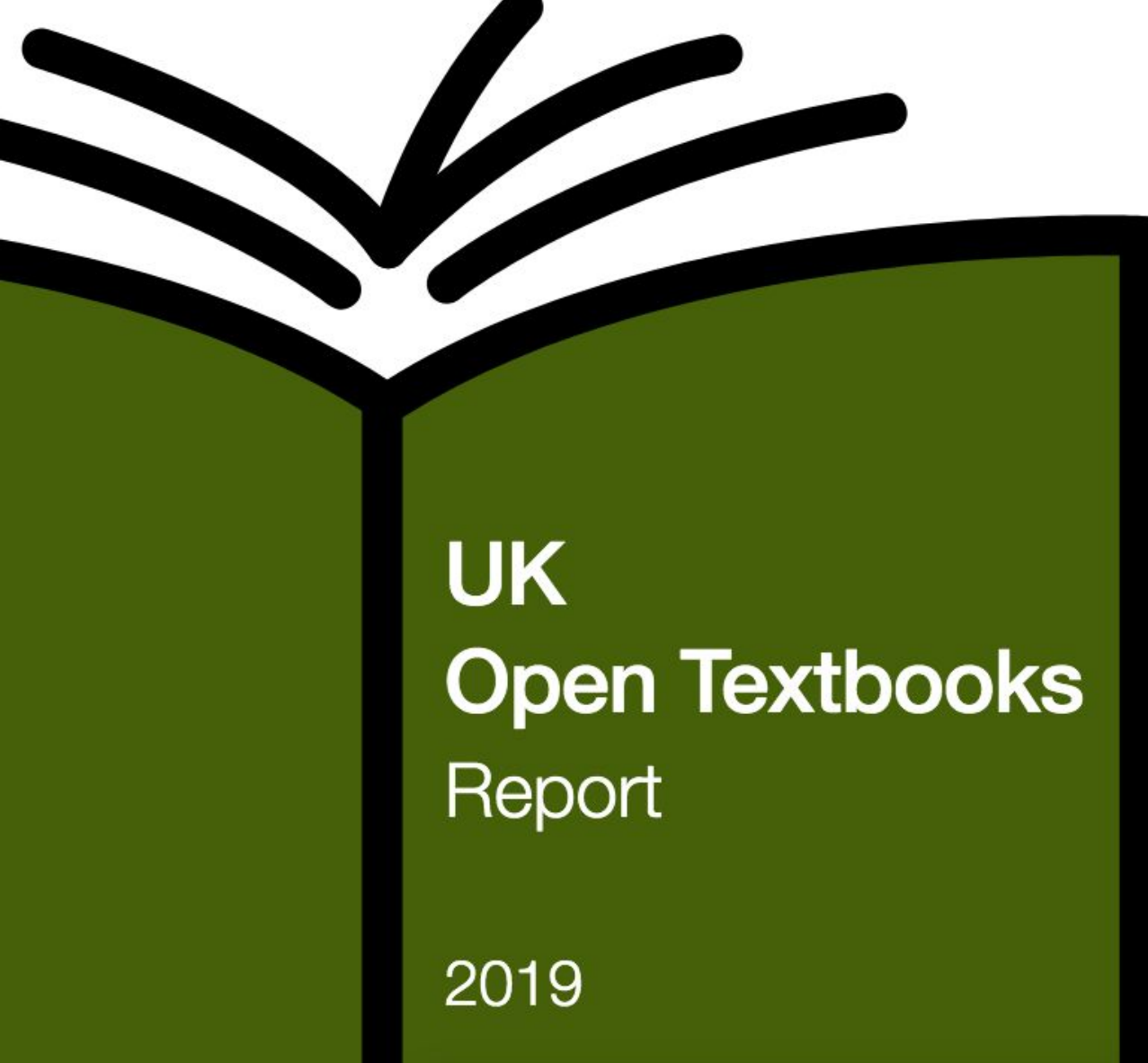
Enabling experimentation

Larger, more diverse learning communities

Support lifelong, inexpensive, flexible learning

Creativity & innovation around social activities (cMOOC, constructivism)

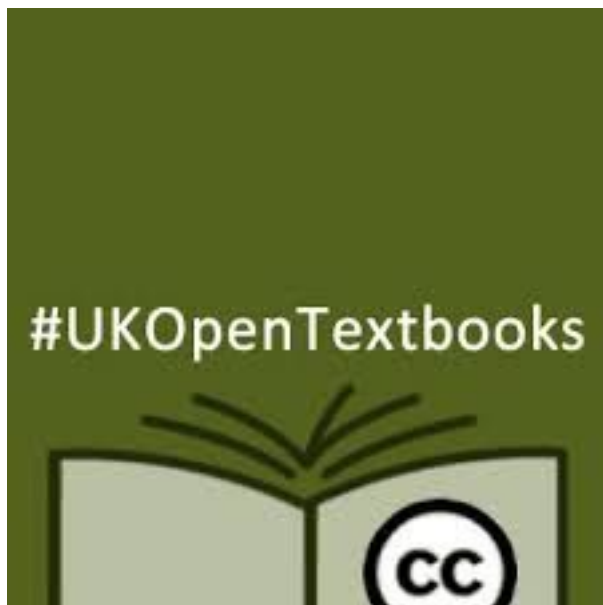
Empowering educators and learners



<https://ukopentextbooks.org/>

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UK OPEN TEXTBOOKS



Open Textbooks have been deployed for a number of reasons including:

- Immediate access to a free version for all students
- The ability to remix, adapt, combine and add content
- The quality of the open textbooks available
- The ease of the digital format
- Costs of textbooks is less of an issue in Europe - emphasis on ease of access, pedagogical advantages; innovation; provision for smaller markets which are not well served by commercial publishers (e.g. less common languages)

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GLOBAL OER GRADUATE NETWORK

GO-GN started in 2013 as an initiative from Fred Mulder, [UNESCO Chair in OER](#) at the Dutch Open Universiteit, in collaboration with Rory McGreal, UNESCO / COL Chair in OER at Athabasca University (Canada).

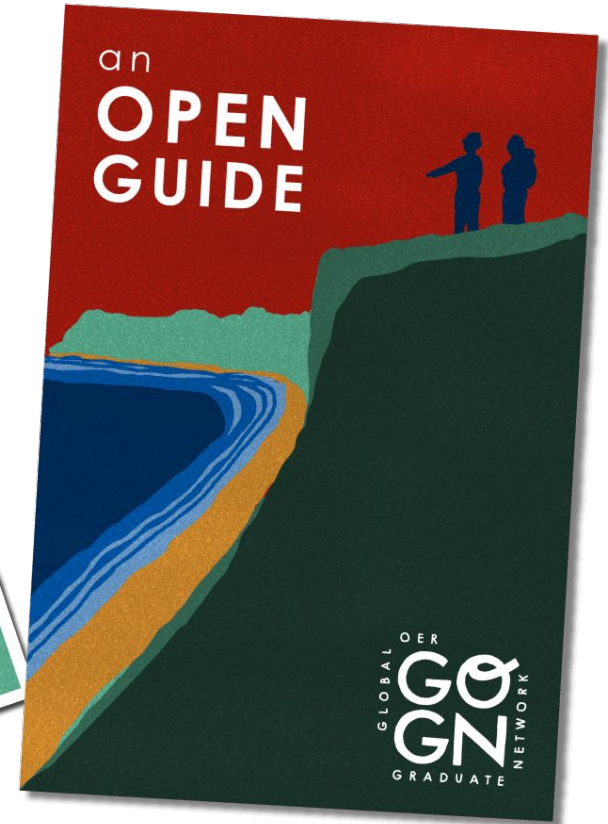
GO-GN is currently funded through the OER programme of [The William and Flora Hewlett Foundation](#) and administered by the [Open Education Research Hub](#) from the [Institute of Educational Technology](#) at The Open University, UK.

The aims of the GO-GN are:

- to raise the profile of research into open education,
- to offer support for those conducting PhD research in this area, and
- to develop openness as a process of research.

More than 100 doctoral and post-doctoral researchers form the core of the network with more than 200 experts, supervisors, mentors and interested parties forming a community of practice





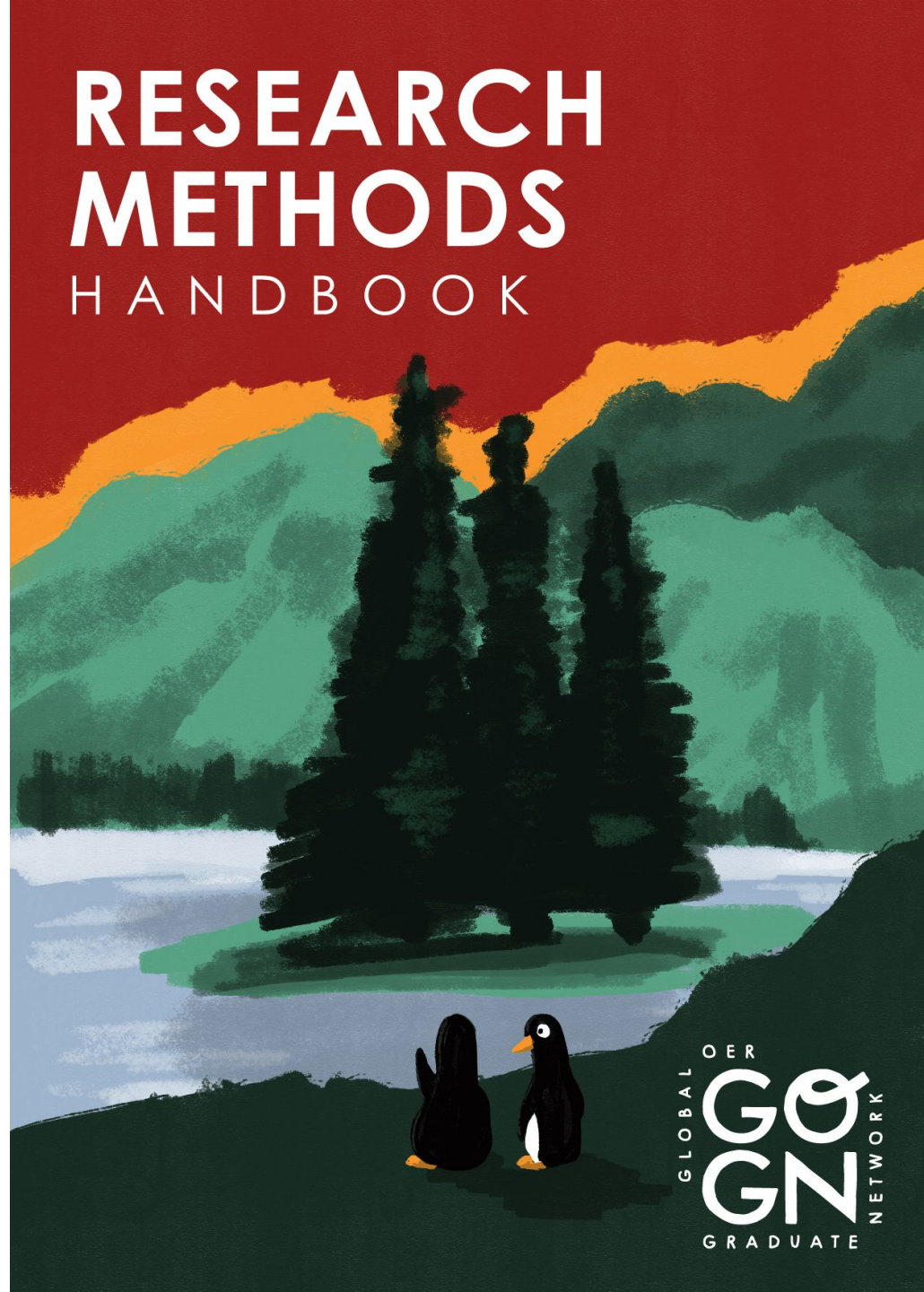
A guide to doctoral research processes which covers:

- philosophical foundations of research (ontology, epistemology, axiology);
- research paradigms;
- open research practices;
- designing and managing a research project;
- catalogue of authentic experiences of using different methods in open education research

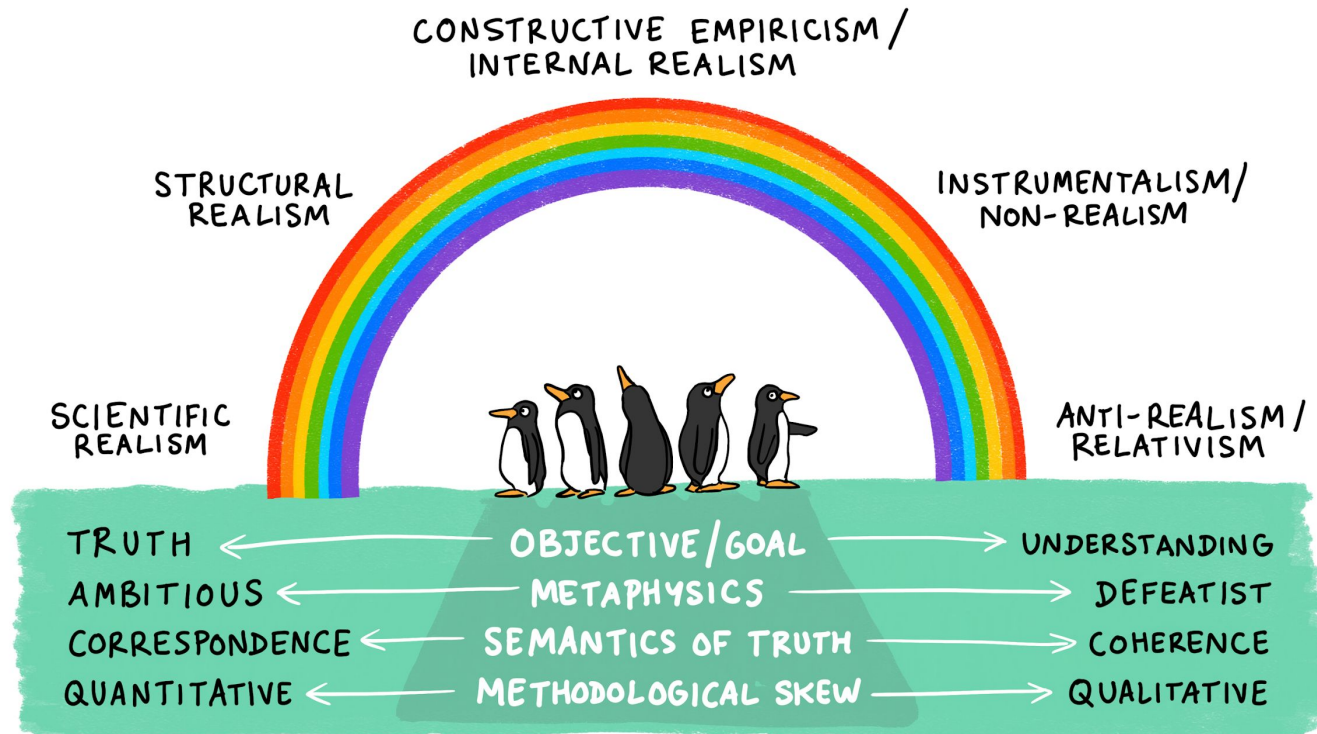
Farrow, R., Iniesto, F., Weller, M. & Pitt., R. (2020). *The GO-GN Research Methods Handbook*. Open Education Research Hub. The Open University, UK. CC-BY 4.0.

http://go-gn.net/gogn_outputs/research-methods-handbook/

RESEARCH METHODS HANDBOOK



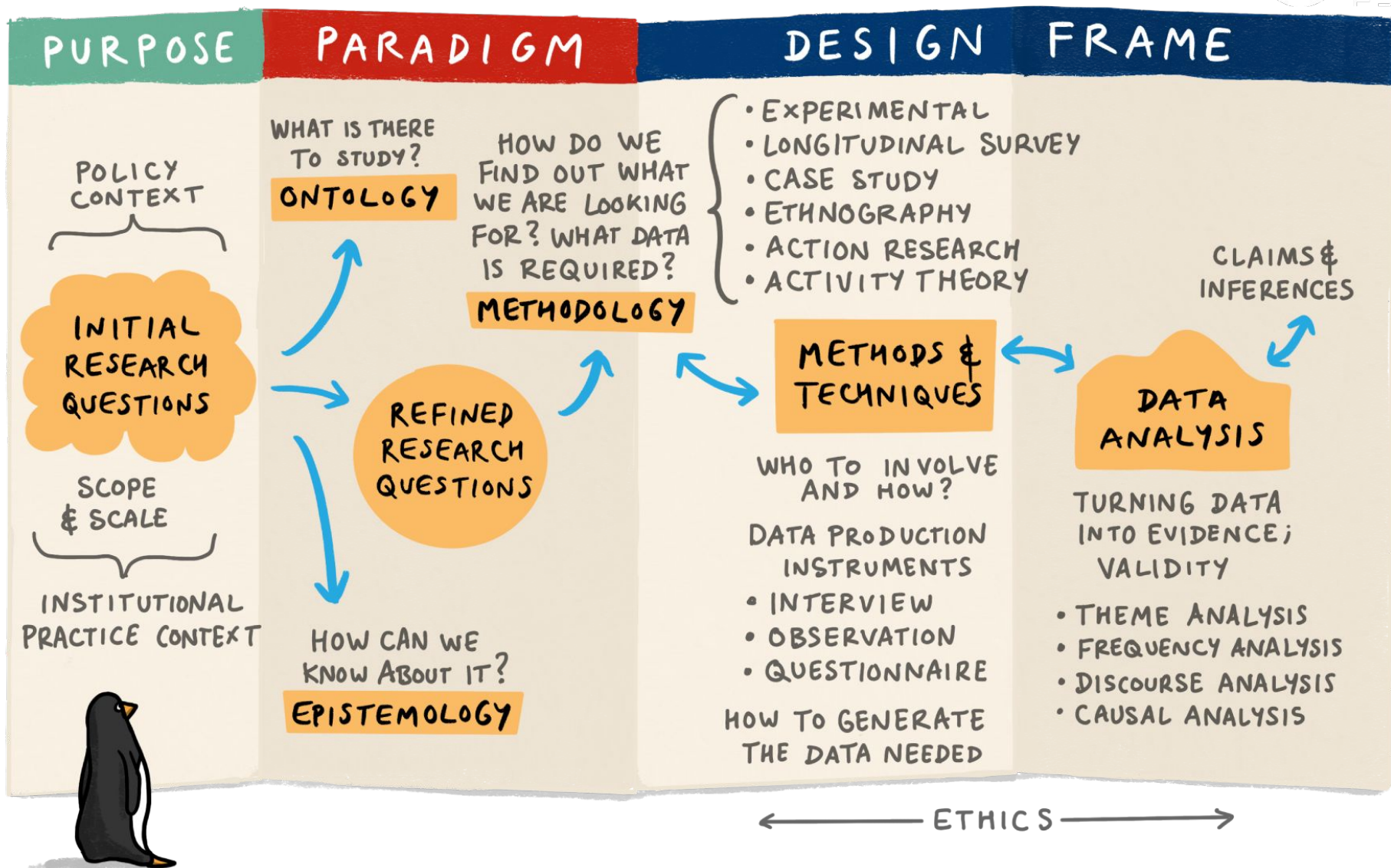
GLOBAL
OER
GO
GN
GRADUATE
NETWORK



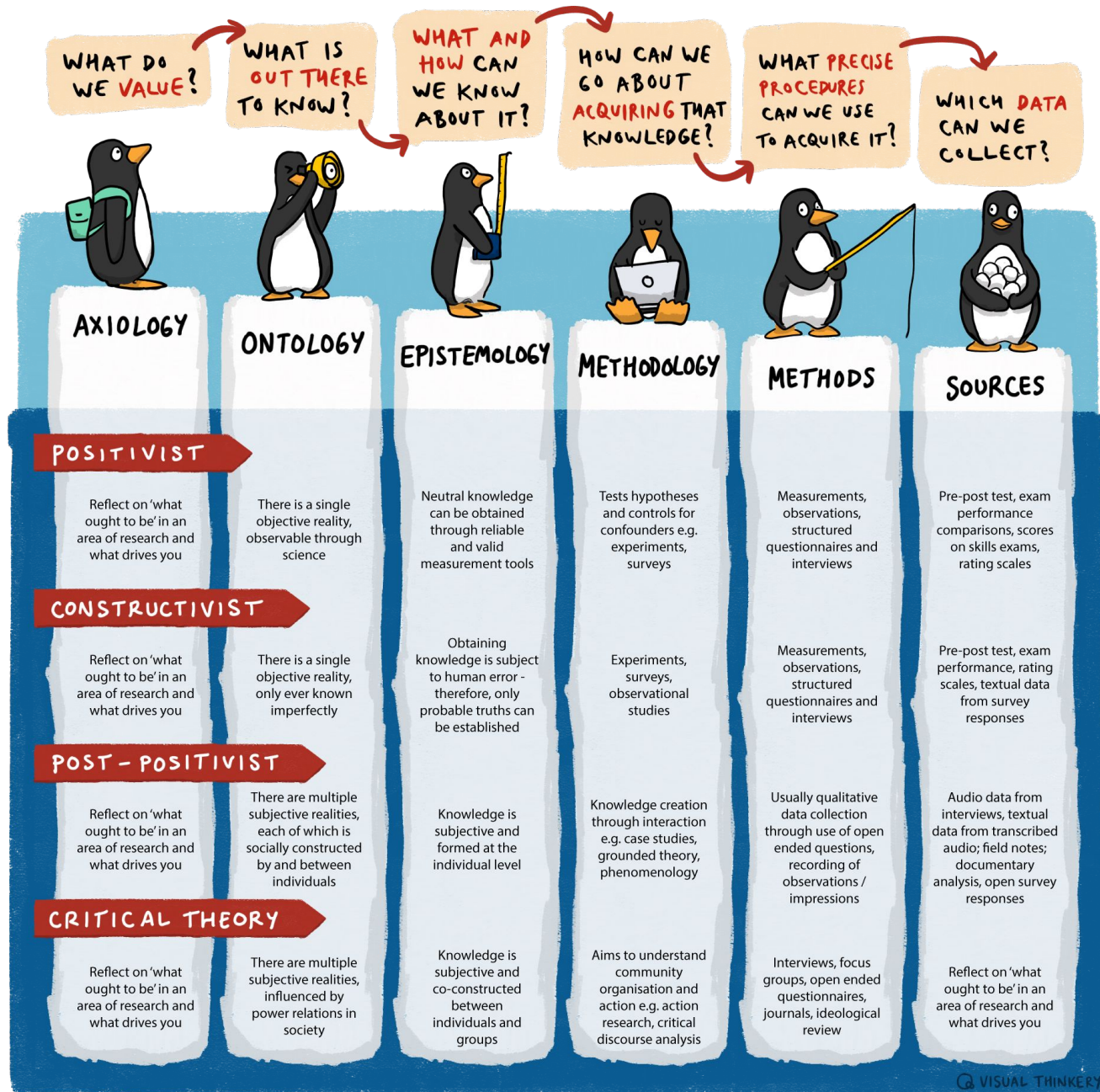
Causal Comparative (Explain
variation, regression based)
 Correlation Based
 (Relation between variables)
 Data Mining & Analytics
 Experimental &
 Non-experimental
 Longitudinal Analysis
 Meta-Analysis
 Random Controlled Trials
 Quasi-experimental
 Survey

Convergent Parallel
 Embedded Design
 Explanatory Sequential
 Exploratory Sequential
 Interdisciplinary
 Multidisciplinary
 Multiphase
 Transformative
 Mixed Methods
 Survey

Action Research
 Case Study
 Cognitive Interviews
 Content Analysis
 Design-Based Research
 Ethnography
 Grounded Theory
 Historical
 Iterative Design
 Meta-synthesis
 Narrative
 Phenomenology
 Survey



Research Design Process (based on E891) (Open University, n.d.)
































Progression through the Research Process (based on Brown & Dueñas, 2020)

- A companion volume focused on theoretical perspectives
- Collaborative, open practices
- Contributions from 20 researchers
- Overview of perspectives on conceptual frameworks and their role in research
- Testimony about using a range of different frameworks in open education research
- A range of tips and guides to best practice

Farrow, R., et al (2021). *The GO-GN Guide to Conceptual Frameworks*. Open Education Research Hub. The Open University, UK. CC-BY 4.0.
http://go-gn.net/gogn_outputs/conceptual-frameworks/

CONCEPTUAL FRAMEWORKS GUIDE



Research Lifecycle Stages	Use Cases for Conceptual Frameworks						
	Describe	Guide Decisions	Provide Context	Generate ideas	Organise	Analyze	Explain
Framing / Research Statement							
Literature Review							
Research Question							
Research Design							
Data Collection							
Results							
Interpretation							

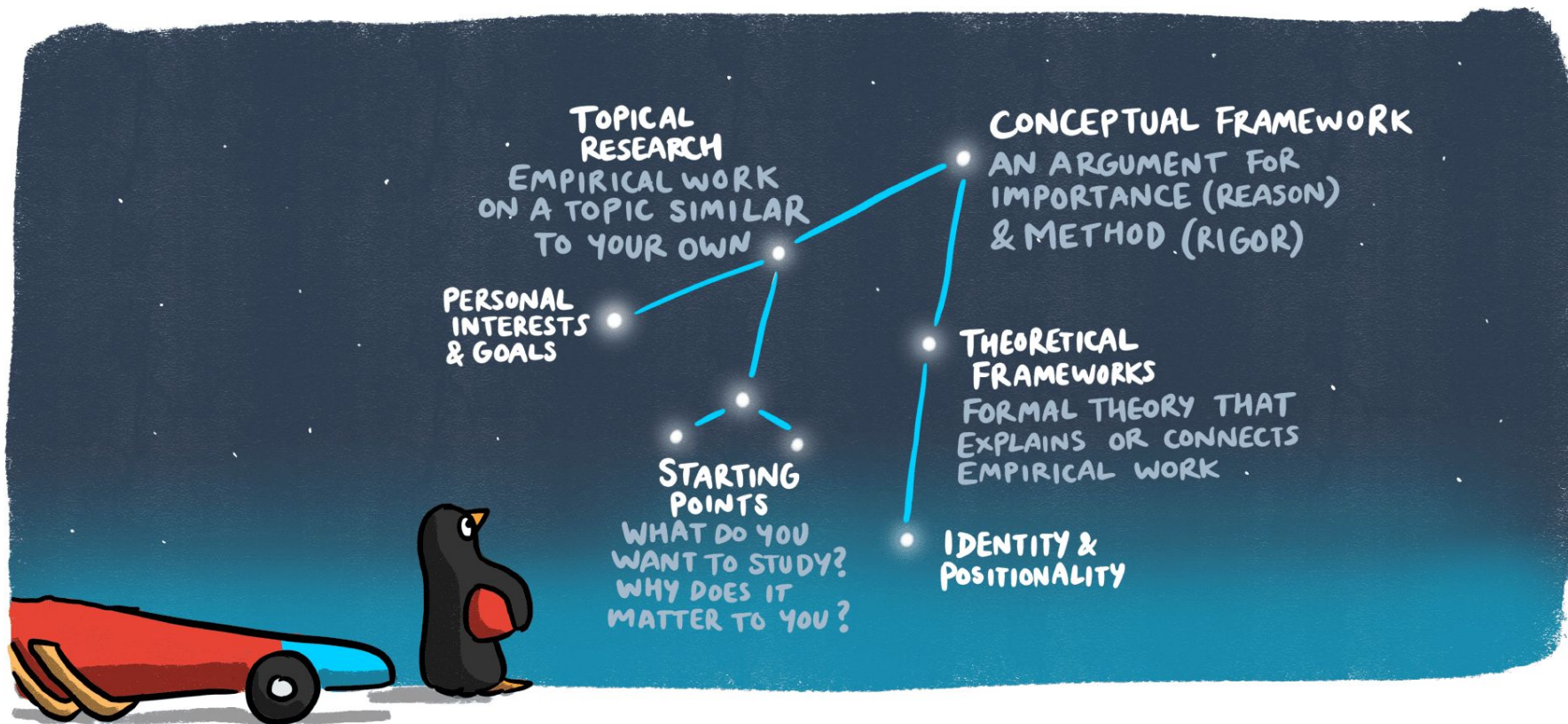
Use Cases for Conceptual Frameworks through the Research Lifecycle

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CONCEPTUAL FRAMEWORKS: UNDERPINNING RESEARCH CONSTRUCTS

Underpinning	Description	Examples
Model	A model holds for a given case or stated population, arising from context-specific research, often indicating main features of influence or contribution	Technology Acceptance Model (TAM) (Davis, 1989) Diffusion of Innovation (Rogers, 2003) Pathways to Implementing Change (Corbett & Rossman, 1989)
Conceptual Framework	Conceptual frameworks tend to be more flexible and descriptive, identifying factors or criteria that have influence on a particular field within the more major features	Technological, Pedagogical and Content knowledge (TPACK) (Mishra & Koehler, 2006) Discovery Learning (Bruner, 1961) Experiential Learning (Kolb, 1984)
Theoretical framework	A theoretical framework arises from outcomes beyond a single study, based on one or more theories	Social Creative Constructivism (Passey, Dagien, Atieno & Baumann, 2019) Human Motivation (Maslow, 1943)
Theory	Theories consider a broader and deeper concern or context, suggesting the detail of what might be more general, beyond a given context	Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris, Davis & Davis, 2003) Social Constructivism (Vygotsky, 1978) Constructionism (Papert, 1986) Behaviourism (Skinner, 1953)

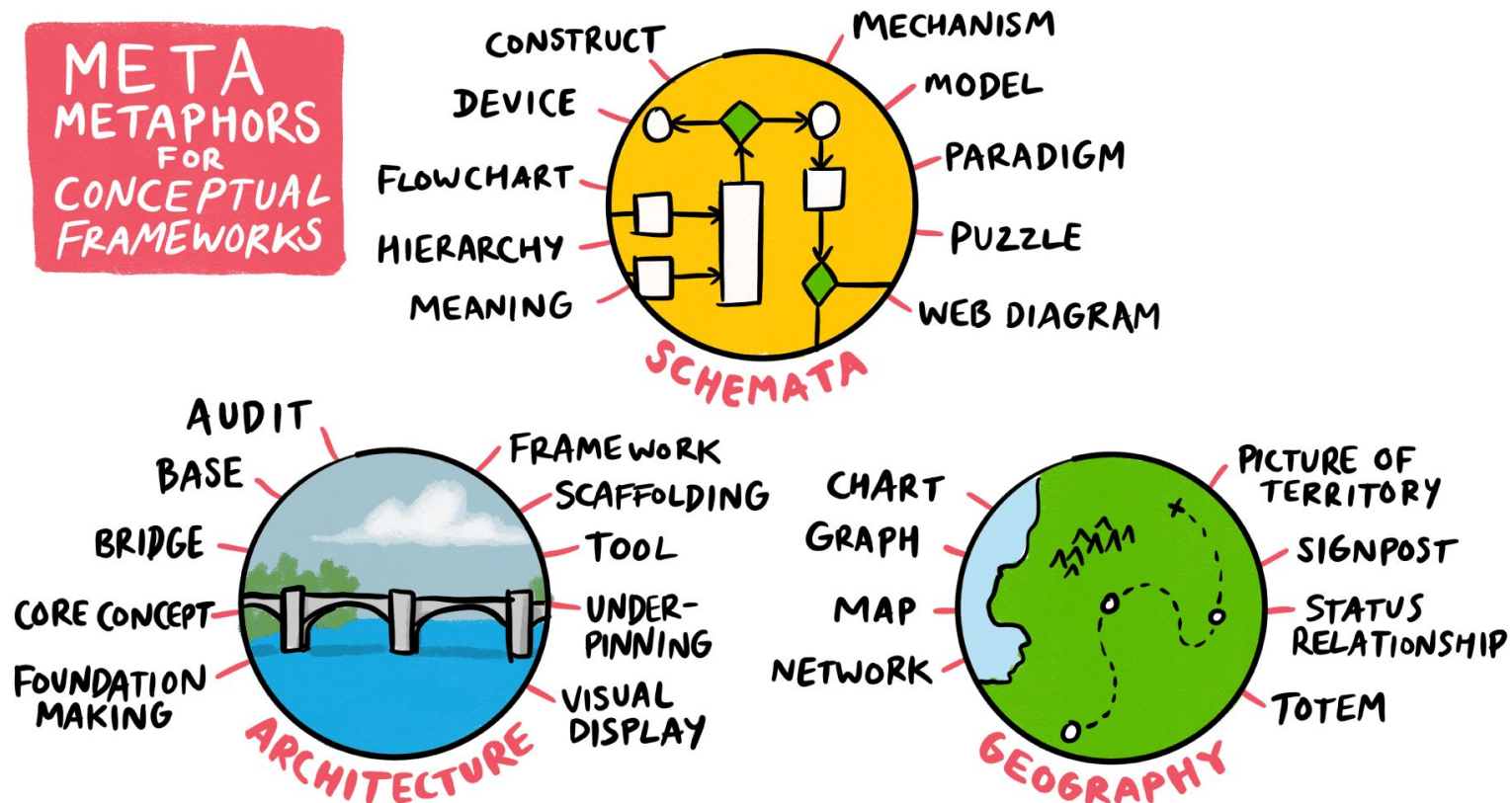
Examples of forms of underpinning constructs (Passey, 2020:3)



Elements of a Conceptual Framework
(Adapted from Rogers, 2016:1710)

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CONCEPTUAL FRAMEWORKS: METAPHORS



Categorisation of conceptual framework metaphors
(based on Leshem & Trafford, 2007:104)

RESEARCH REVIEW

S U M M E R 2 0 2 0



Farrow, R. (ed.) *et al.* (2020). GO-GN Research Review (Summer 2020). Global OER Graduate Network.
http://go-gn.net/gogn_outputs/research-review-summer-2020/

- Marjon Baas (Leiden University, Netherlands)
- Natasha Chtena (University of California Los Angeles, USA)
- Glenda Cox (University of Cape Town, South Africa)
- Michael Dabrowski (Athabasca University, Canada)
- Helen De Waard (Lakehead University, Canada)
- Kathy Essmiller (Oklahoma State University, USA)
- Paco Iniesto (Open University, UK)
- Caroline Kuhn (Bath Spa University, UK)
- Rebecca Pitt (Open University, UK)
- Hélène Pulker (Open University, UK)
- Martin Weller (Open University, UK)

Farrow, R. (ed.) *et al.* (2021). GO-GN Research Review (Winter 2021). Global OER Graduate Network.

https://go-gn.net/gogn_outputs/research-review-winter-2021/

- Paula Cardoso (Universidade Aberta, Portugal)
- Natascha Chtena (Harvard University, USA)
- Glenda Cox (University of Cape Town, South Africa)
- Ada Czerwonogora (Universidad de la República, Uruguay)
- Helen DeWaard (Lakehead University, Canada)
- Robert Farrow (The Open University, UK)
- Paco Iniesto (The Open University, UK)
- Caroline Kuhn (Bath Spa University, UK)
- Anuradha Peramunugamage (University of Moratuwa, Sri Lanka)
- Rebecca Pitt (The Open University, UK)
- Viviane Vladimirschi (Educational Consultant/Independent Researcher, Brazil)
- Martin Weller (The Open University, UK)



INNOVATION WITH OPEN EDUCATIONAL RESOURCES

EUROPEAN NETWORK FOR CATALYSING OPEN RESOURCES IN EDUCATION (ENCORE+)

ENCORE+ is a Knowledge Alliance project funded by the European Commission under Erasmus+

<https://encoreproject.eu/>



- Supporting the uptake of open education resources (OER)
- Catalysing and sharing innovative practice across education and business
- Developing stakeholder communities for knowledge exchange



Co-funded by the
Erasmus+ Programme
of the European Union

This project has been funded with support from the European Commission. The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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EUROPEAN NETWORK FOR CATALYSING OPEN RESOURCES IN EDUCATION (ENCORE+)



OER World Map includes details of 1400+ organisations, 900+ services, 500+ projects and 300+ policies in support of OER. However, activity is typically uncoordinated, and happens in clusters (national/regional, disciplinary, technological, etc.)

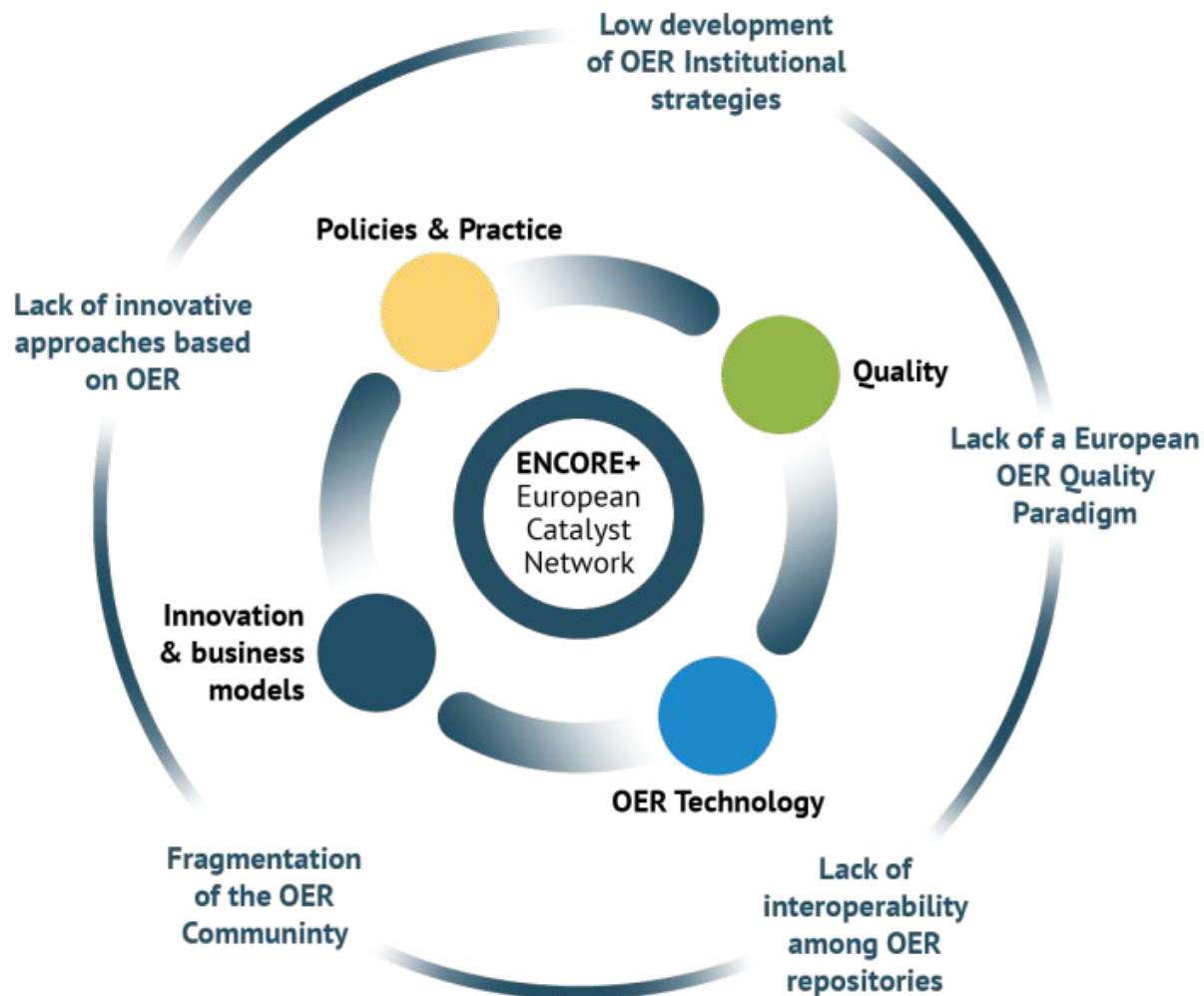
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EUROPEAN NETWORK FOR CATALYSING OPEN RESOURCES IN EDUCATION

Needs which ENCORE addresses	Outcomes
Need 1: European multi-stakeholder engagement platform for OER linking business and academia.	European catalyst network to strengthen an integrated and community-based European vision of the future European OER area. (WP2)
Need 2: Analytical consolidation of approaches and solutions of OER Repository Technologies.	Integrated future architecture of a European OER-RT infrastructure. (WP3)
Need 3: Validated policy recommendations which are based on broad consensus and experiences.	European guidelines for effective OER policies for business and academia. (WP4)
Need 4: Community-based broad consensus for open education quality.	European Open & Community-based Quality Review Framework for OER. (WP 5)
<i>Need 5: Validated innovation and business models for OER.</i>	<i>European OER business and start-up community including business models. (WP 6)</i>

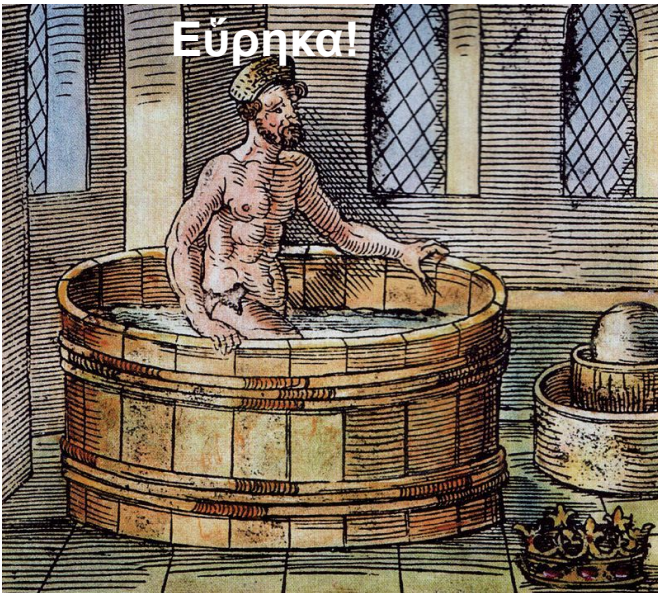
INNOVATION WITH OPEN EDUCATIONAL RESOURCES

EUROPEAN NETWORK FOR CATALYSING OPEN RESOURCES IN EDUCATION (ENCORE+)



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EUROPEAN NETWORK FOR CATALYSING OPEN RESOURCES IN EDUCATION



[https://en.wikipedia.org/wiki/Eureka_\(word\)#/media/File:Archimede_bain.jpg](https://en.wikipedia.org/wiki/Eureka_(word)#/media/File:Archimede_bain.jpg)

“Innovation is production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and the establishment of new management systems. It is both a process and an outcome.”

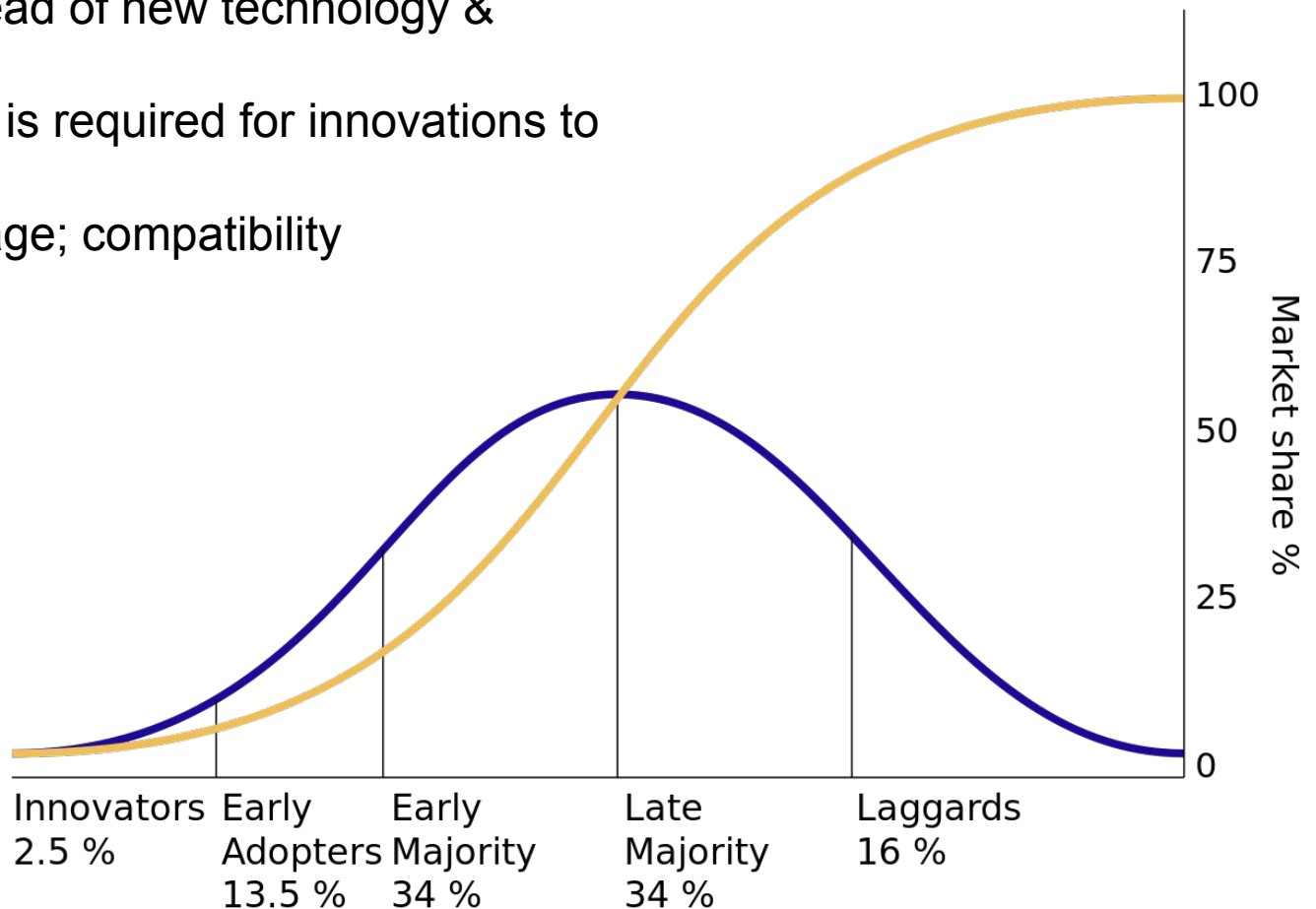
Crossan & Apayadin (2010)

<https://doi.org/10.1111/j.1467-6486.2009.00880.x>

INNOVATION WITH OPEN EDUCATIONAL RESOURCES

DIFFUSION OF INNOVATIONS (ROGERS, 2003)

- Focused on spread of new technology & practices
- Adoption culture is required for innovations to sustain
- Relative advantage; compatibility



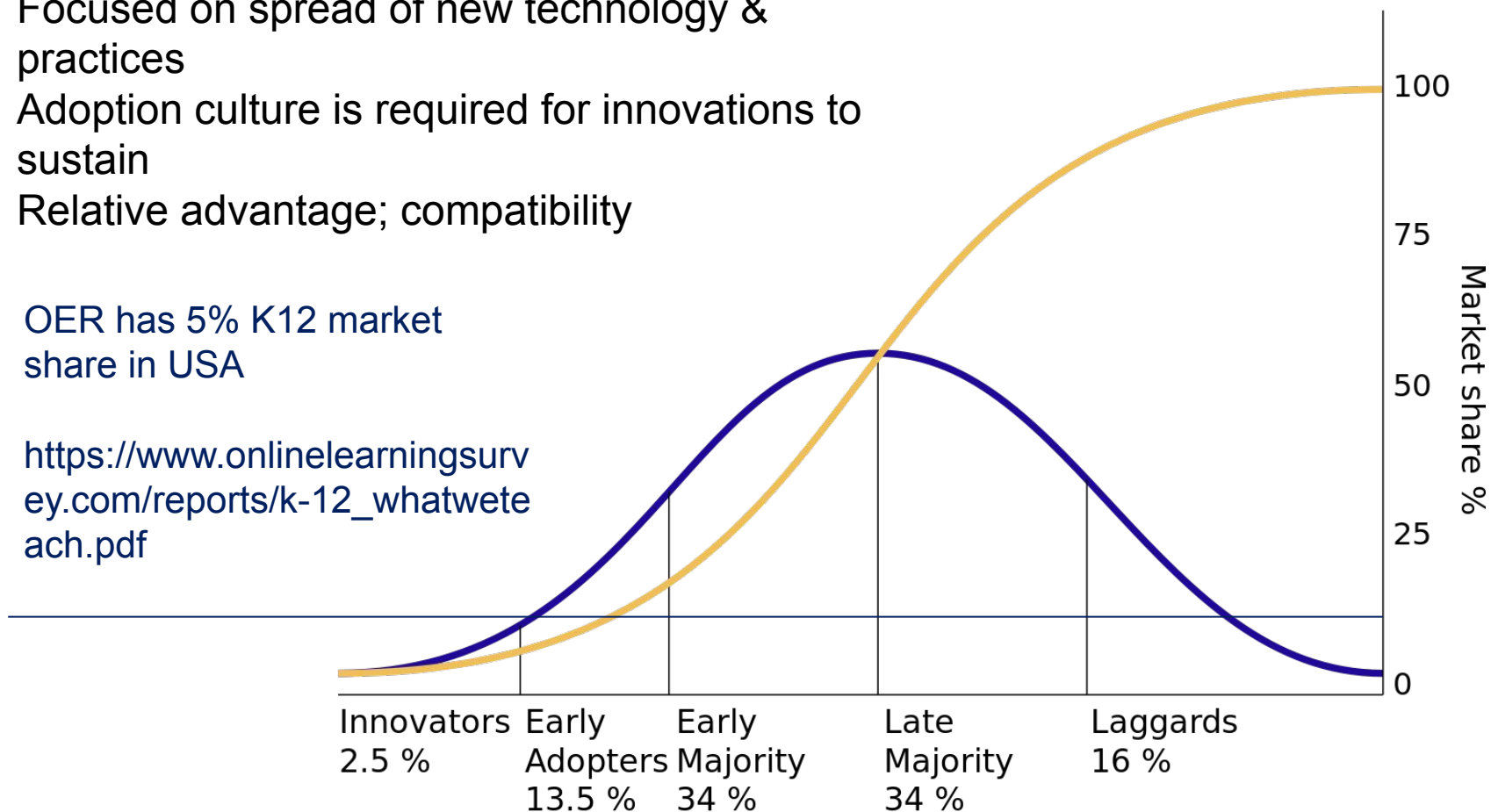
INNOVATION WITH OPEN EDUCATIONAL RESOURCES

DIFFUSION OF INNOVATIONS (ROGERS, 2003)

- Focused on spread of new technology & practices
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OER has 5% K12 market share in USA

https://www.onlinelearningsurvey.com/reports/k-12_whatweteach.pdf



The SAMR Model for Technology Integration

SAMR

I wonder what's in the ocean?

NO TECH

SUBSTITUTION

Tech acts as a direct tool substitute, with no functional change.

AUGMENTATION

Tech acts as a direct tool substitute, with functional improvement

MODIFICATION

Tech allows for significant task redesign

REDEFINITION

Tech allows for the creation of new tasks, previously inconceivable.

ENHANCEMENT

TRANSFORMATION

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SAMR FRAMEWORK APPLIED TO OPEN TEXTBOOKS

Substitution	Augmentation	Modification	Redefinition
<p>Use Open Textbooks in place of proprietary versions</p> <p>(More than \$1 billion saved in the USA)</p> <p>https://sparcopen.org/news/2018/1-billion-in-savings-through-open-educational-resources/</p>	<p>Freely shared and accessible online</p> <p>Enhances access, reduced dependency on grants and loans</p> <p>Facilitates pedagogical experimentation and iteration</p>	<p>Producing revised/remixed versions of lessons, textbooks and supplementary resources (e.g. assessments, multimedia)</p> <p>Collaboration across institutions</p>	<p>Rethinking the textbook as the standard organisation of curricula</p>

Creation of an OER innovation evaluation framework

- Develop theory/model of innovation
- Piloting and refinement of framework/tool

Highlight and amplify innovation & business model cases:

- Establishing key criteria for cases of interest
- Benchmarking technical innovation
- Connecting with external stakeholders
- Developing OER value proposition

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OER BUSINESS MODELS

Defender-like strategies

The fixed core model – maintaining core, innovating on the edges

The outreach model – maintaining core, but focus on new relationships

The service-provider model – focus on target group, innovating on the edges

Prospector-like strategies

The entrepreneurial model – innovating in all areas

The entrepreneurial model with fixed core – innovating in all areas apart from the core

Business Models ([Darwish, 2019](#))

Static – content/curation based (libraries, repositories, open courseware)

Interactive – courses/products for self-directed learning; platformed (xMOOC)

Dynamic – online/blended courses, often accredited

Transformative – bespoke service/career based courses; marketplace exchange

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ENCORE+ CIRCLES



Innovation and business models Circle

27th of September
1-2:30pm (CEST)



Policies & Practice Circle

30th of September
11:00-12:30am (CEST)



Quality Circle

25th of October
1-2:30pm (CEST)



OER Technology Circle

29th of October
09:30-11:00am (CEST)

INNOVATION WITH OPEN EDUCATIONAL RESOURCES

ENCORE+ 'INNOVATION PIVOT'

Desk research to identify drivers, enablers, barriers and challenges for innovation through OER and provide evaluation criteria for identifying outstanding examples of OER innovation.

- Regular Innovation Briefings (6 monthly)
- Innovation Report 2022

Future Circles:

- February 2022
- October 2022
- April 2023

Innovation Showcase April 2023

INNOVATION WITH OPEN EDUCATIONAL RESOURCES

ENCORE+ POSITION PAPERS

ENCORE+ Position Paper Technology

<https://encoreproject.eu/2021/10/07/oer-technology-circle-position-paper-no-1/>

ENCORE+ Position Paper Policy and Strategy

<https://encoreproject.eu/2021/09/14/oer-policy-and-strategy-position-paper/>

ENCORE+ Position Paper on Innovation

<https://bit.ly/3jlLVMR> (open for comment)

ENCORE+ Position Paper on Quality

<https://cutt.ly/cR1toZy>

INNOVATION WITH OPEN EDUCATIONAL RESOURCES

SUPPORTING INNOVATION WITH OER

- Raise awareness of open alternatives
- Empower individuals in ways that enable them to exercise autonomy
- Encourage experimentation in pedagogy and practice
- Develop constructive, critical learning cultures
- Think and act at the level of the ecosystem
- Leverage the power of networks



- Contextualist, not essentialist
- Defines itself against a status quo that restricts some activity: open lets you do X / removes some impediment to X
- Fundamentally oriented towards freedom
- But what kind of freedom?

Deimann, M. & Farrow, R. (2013). Rethinking OER and their use: Open Education as Bildung. *International Review of Online and Distance Learning* 14(3).

<http://www.irrodl.org/index.php/irrodl/article/view/1370/2542>

Farrow, R. (2016). "Constellations of Openness" in Deimann, M. and Peters, M. A. (eds.) *The Philosophy of Open Learning: Peer Learning and the Intellectual Commons*. New York: Peter Lang.

<https://www.peterlang.com/view/product/31200>

Farrow, R. (2016). A Framework for the Ethics of Open Education. *Open Praxis*, 8(2). <http://dx.doi.org/10.5944/openpraxis.8.2.291>

Farrow, R. (2017). Open education and critical pedagogy. *Learning, Media and Technology* 42 (2): 130-146.

<https://doi.org/10.1080/17439884.2016.1113991>

THANK YOU

rob.farrow@open.ac.uk
@philosopher1978



The Open
University