Understanding the OER landscape
(from a STEM discipline perspective)

RIOS INSTITUTE

FOR A RACIALLY JUST, INCLUSIVE, AND OPEN STEM EDUCATION

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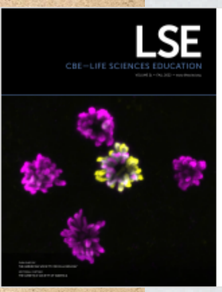
Introductions

What are you interested in discussing?

What questions do you have?

Big Ideas

- OER
- OER Ecosystem
- Functioning & Health
- Sustainability



Sustainability and Justice: Challenges and Opportunities for an Open STEM Education

Open educational resources, or OER, are teaching materials that reside in the public domain and are available under an open license. While the creation of hig...

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OER: Open Educational Resources

How are OER different from curriculum on the internet? Why does that matter? ...For students, for educators, for project leaders?

Diaz Eaton et al, 2022

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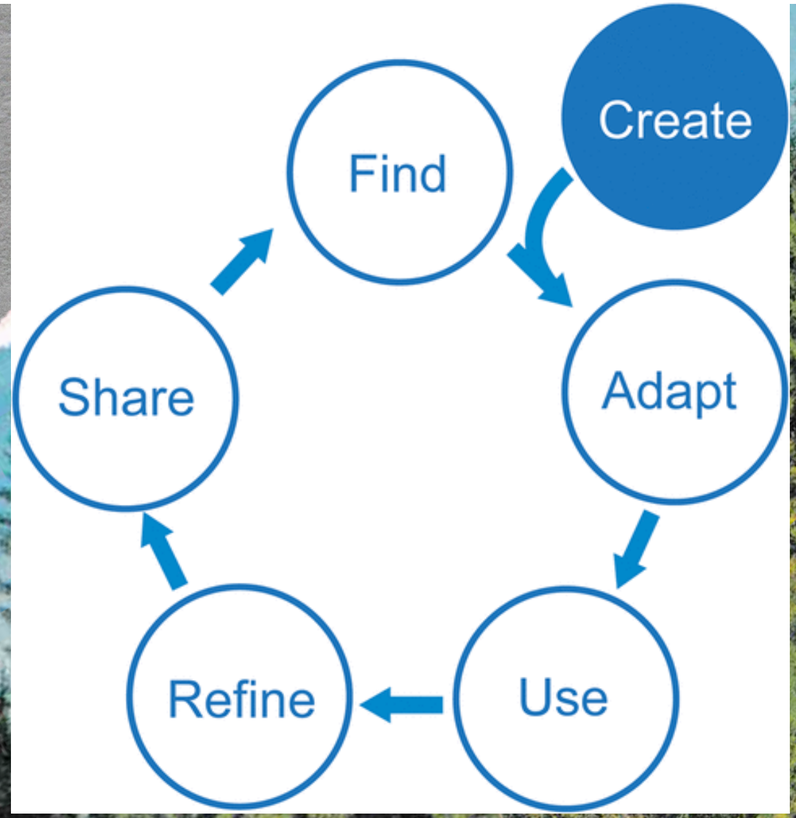
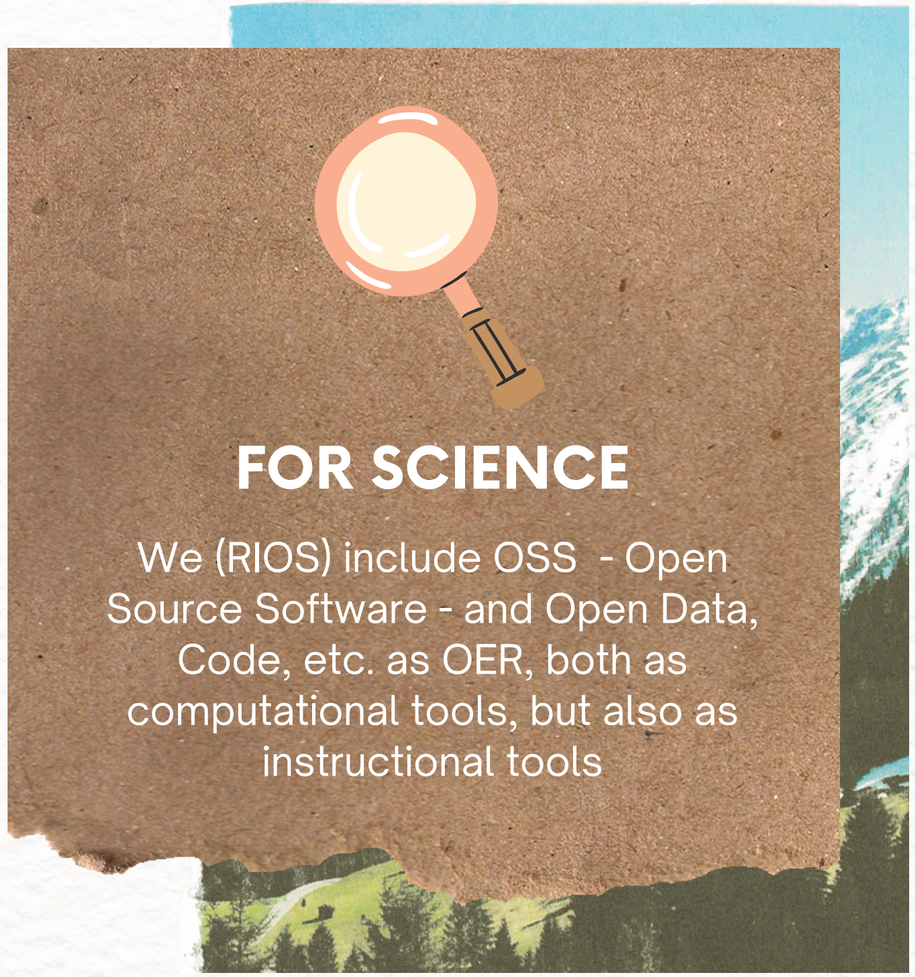


Why does this matter?

- Free [OER] texts save students and universities money
  - Careful of "open-washing"
- Opportunity to bring new life to static resources, keep updated
  - Note general trend from static websites, brick and mortar libraries - > adaptive, evolving



Scale

Efforts are local, institutional, regional, global

Massive K-12, postsecondary is humanities (or intro STEM text-focused)

- Regional boards of higher education
- Infrastructure investment (COVID)
- UNESCO OER

OER Ecosystem

humans + OER + cyber + practices

Humans & community

Humans adapt and modify OER to sustain their needs and meet their goals. Community members: Authors & users (not just instructors), brokers, scientific community

OER & Cyberenvironment

We (RIOS) includes in the OER environment the cyberinfrastructure to manage OER sharing

*** For more information, see **Diaz Eaton et al, 2022**

Open Practices

FOR SCIENCE

Open practices are a part of data science in many fields. May include Github, arxiv, open lab notebooks, etc.
Teach some of this to students

Credits: Adapted from Attributes of Open Pedagogy from Bronwyn Hegarty, licenced under CC BY 3.0.

Healthy

What do you consider a healthy OER ecosystem?

We cultivate

Healthy ecosystems with attention to justice

All aspects of OER ecosystem function depend on humans, for humans, and thus, there are important consequences for humanity, both in labor and content.

Sustainability challenges

Environment Challenges

- Maintenance labor and cost
- Technology updates & environmental impact
- OER with life

Human Characteristics

- OER & OP education
- Content (STEM, SJEDI) education
- Building community

Open possibilities

- Data
- Integrating Open STEM+
- Collaborations
- Others?

Grounded in core principles

Efforts at Scale

Reform efforts include

- Creating inclusive OER
- OER institutional transformation
- Inclusive institutional transformation

Key players - OER orgs, AACU, NSF-funded projects, HHMI, AAAS, some STEM orgs

Summary

OER

Healthy

SJEDI

Opportunities

Collaboration

OER Ecosystems

People + OER + cyberinfrastructure + practices

Sustainable

- Many challenges
- Solutions rooted in healthy ecosystem goals

Thank you!!!

Looking forward to the discussion