Perspectives and practices in sharing data-centric adaptations in the biology classroom: How, why, when, and where are instructors sharing these high-impact pedagogies?

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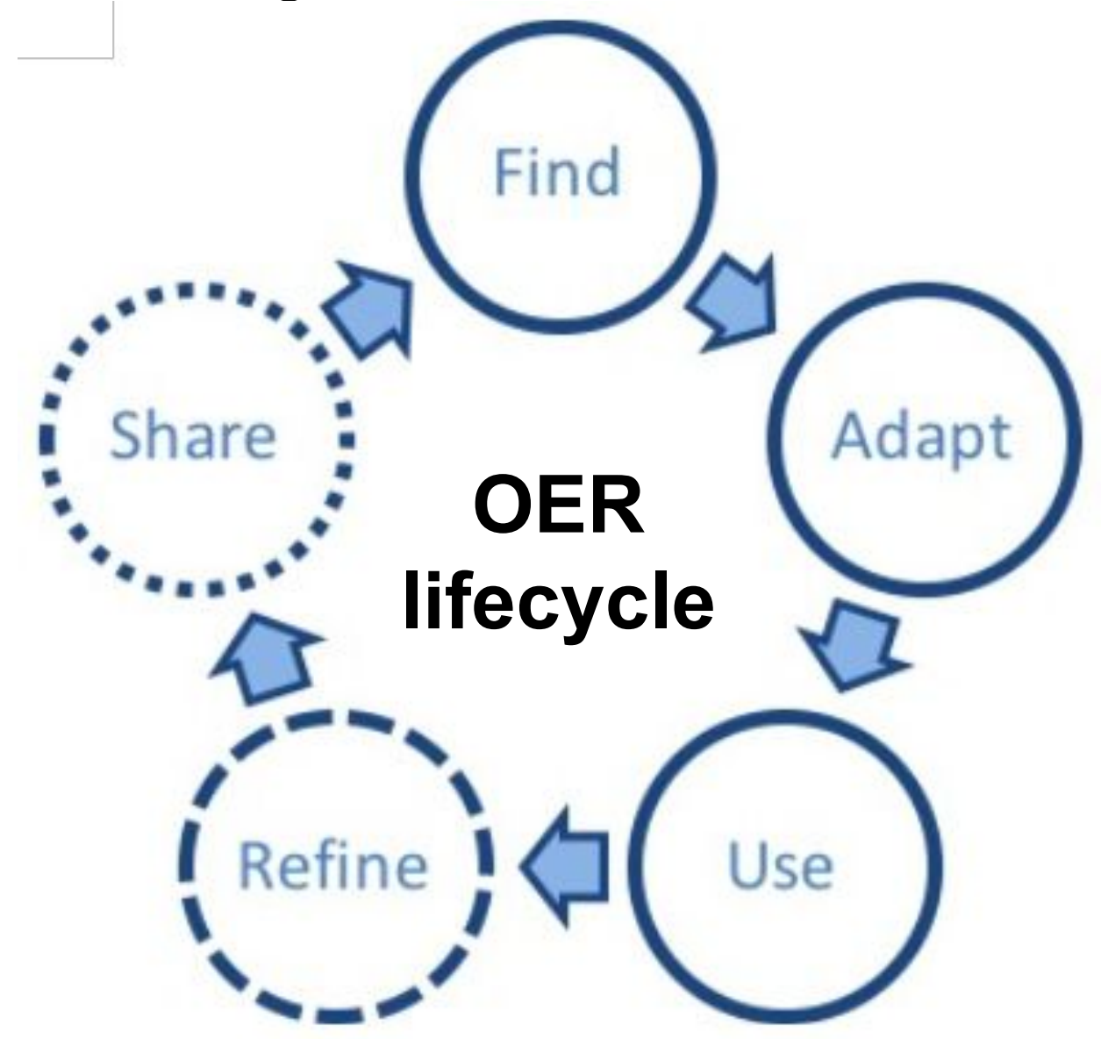
Why use data-centric teaching practices?

- **Quantitative literacy and skill development** is necessary for mastery at all Core Competencies presented in Vision and Change
- Successful integration of data-centric authentic inquiry **facilitates critical thinking and better understanding** of biological concepts

Can the Open Education Resource lifecycle facilitate broader adoption and adaptation of resources?



OER cycle model for education resources
Source: Adapted from Atkins et al. 2007

Step 1: *Find* teaching resources that use data for the classroom

Step 2: *Adapt* resources to be relevant for your class and students

Step 3: *Use* adapted teaching resources and assess student learning

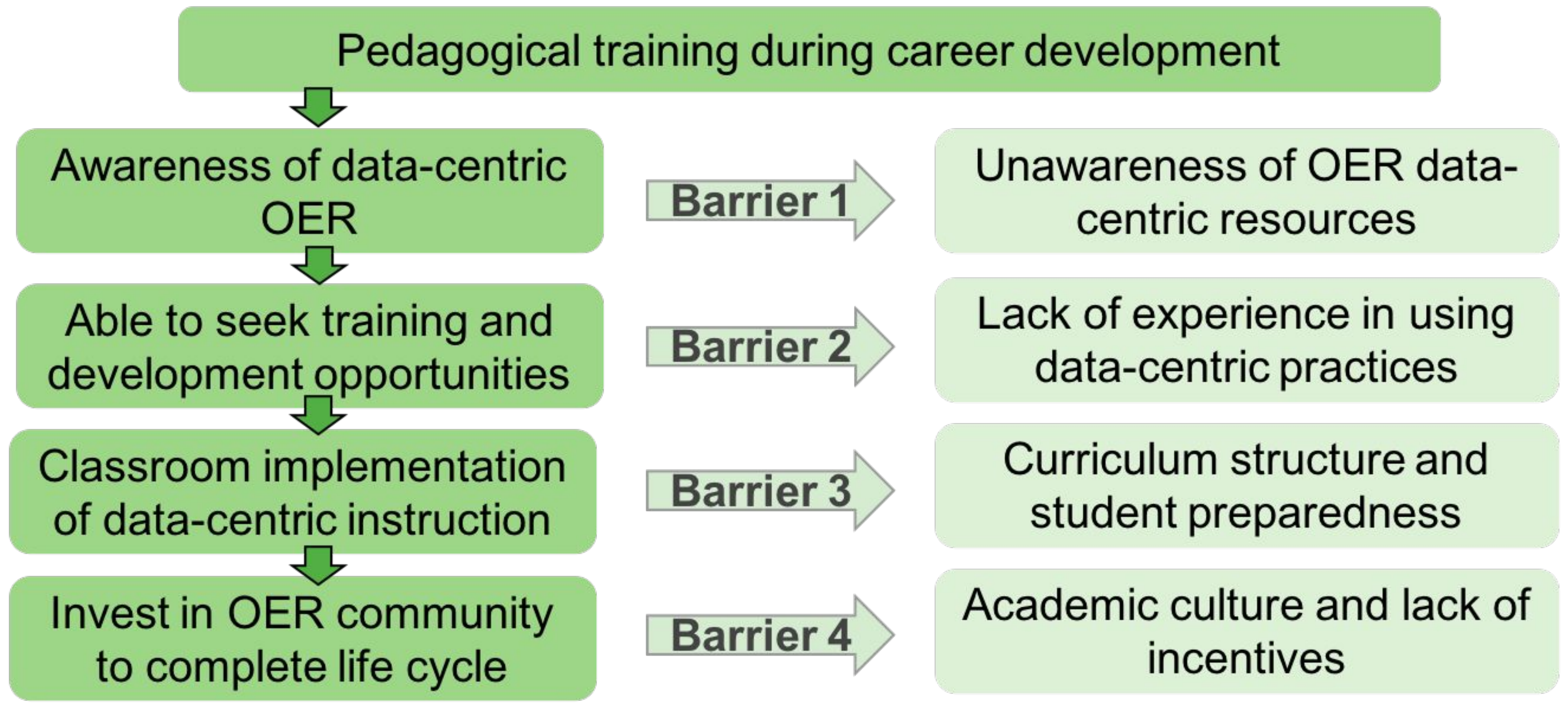
Step 4: *Refine* the resources after implementation for future use

Step 5: *Share* refined product on an OER platform

The Gap: Most faculty do not share back resource to complete the lifecycle

Source:https://upload.wikimedia.org/wikipedia/commons/2/20/Global_Open_Educational_Resources_Logo.svg

What are the barriers to adoption and adaptation of data-centric OER pedagogies?

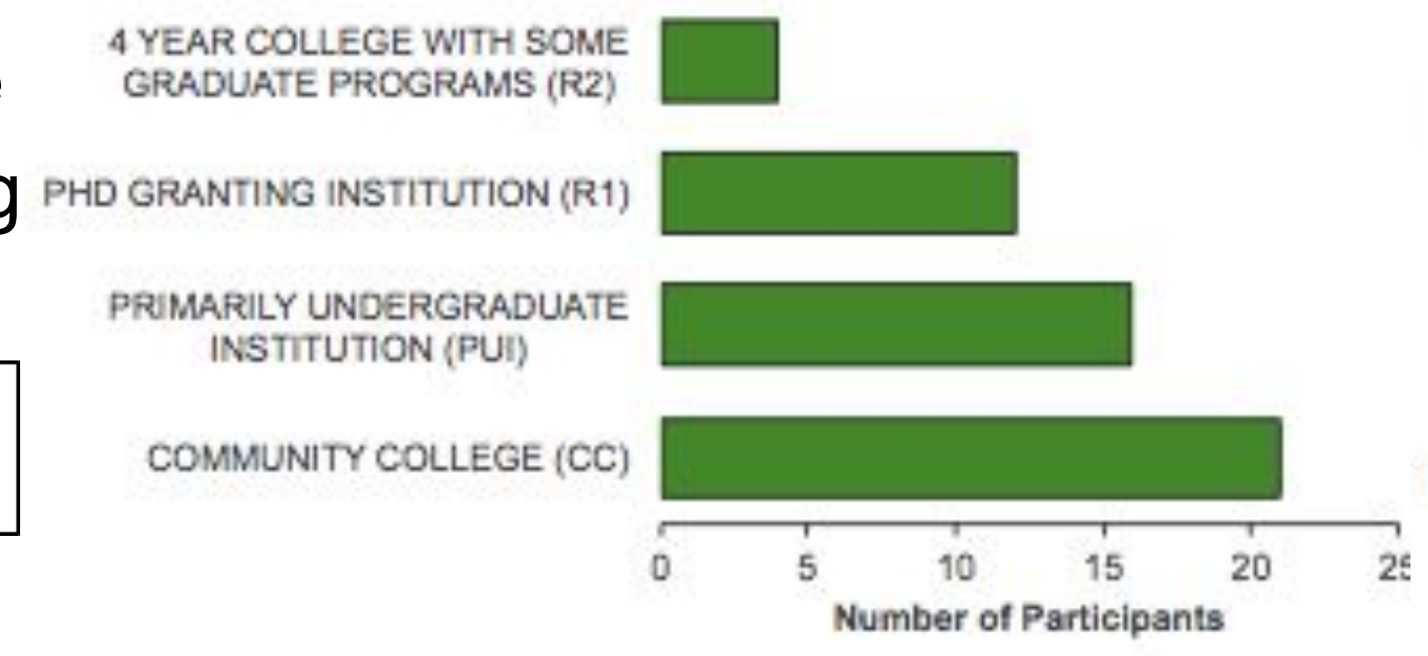


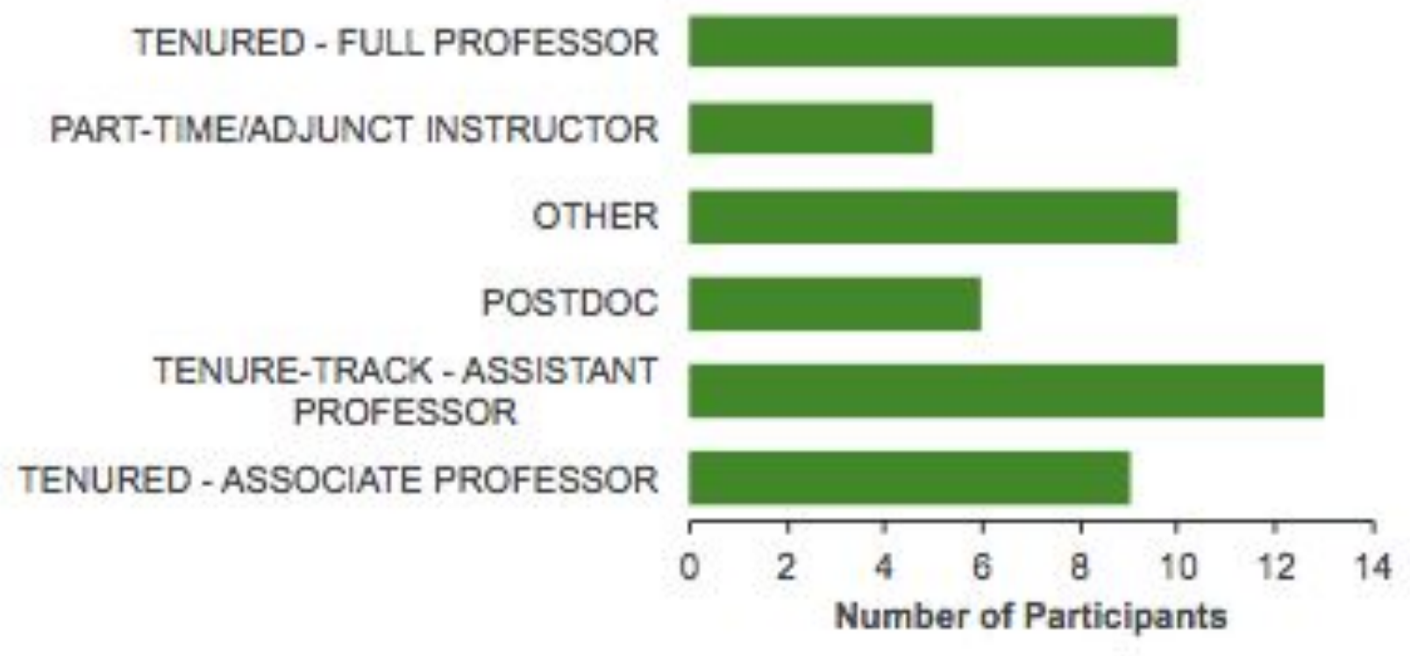
Pedagogical training during career development

Awareness of data-centric OER	**Barrier 1**	Unawareness of OER data-centric resources
Able to seek training and development opportunities	**Barrier 2**	Lack of experience in using data-centric practices
Classroom implementation of data-centric instruction	**Barrier 3**	Curriculum structure and student preparedness
Invest in OER community to complete life cycle	**Barrier 4**	Academic culture and lack of incentives

Higher-Ed survey on engagement in data-centric OER pedagogy?

53 respondents from diverse institution types and teaching experience surveyed at NABT last year

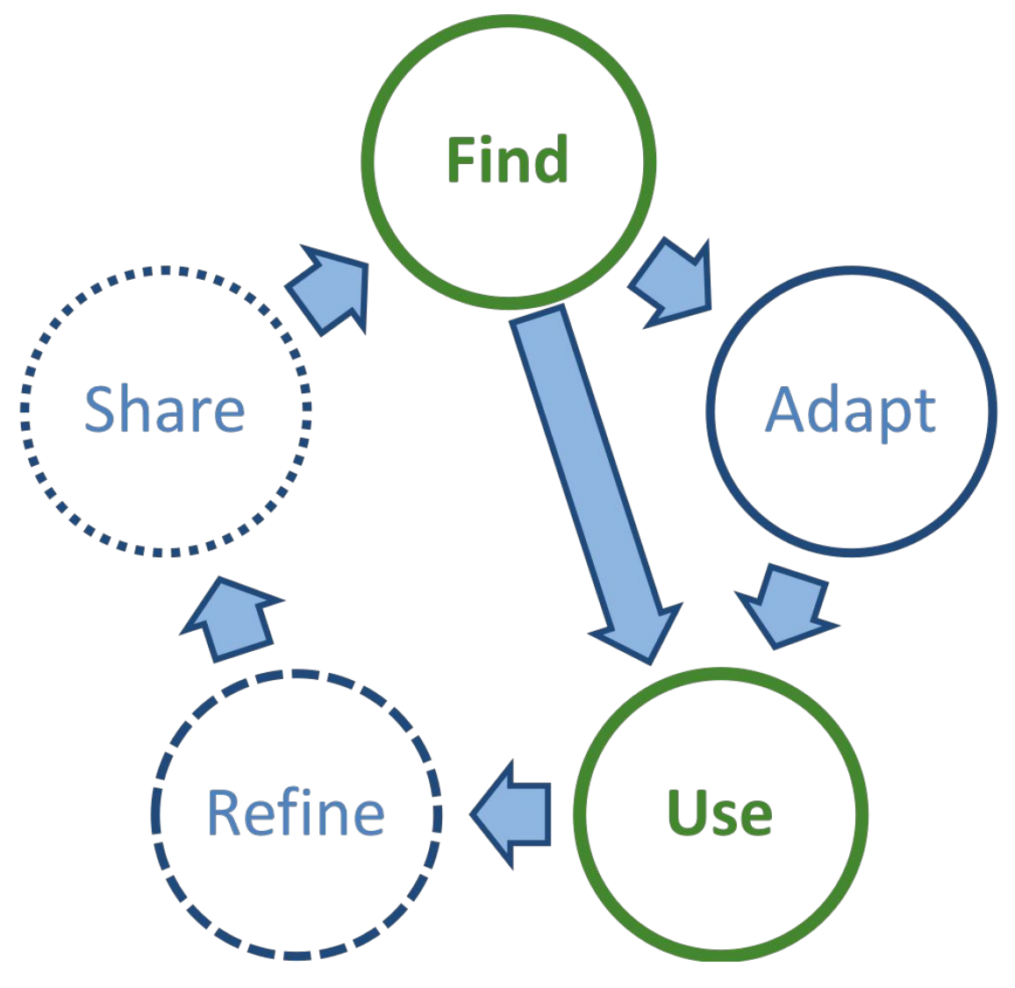




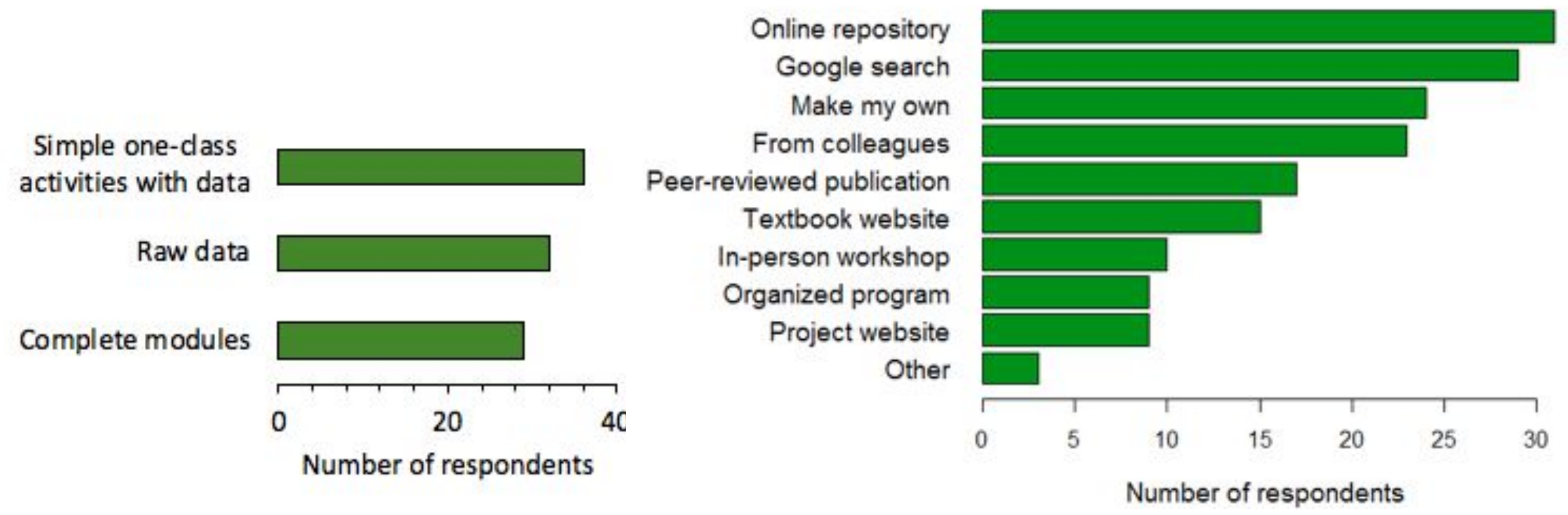
Note: Self-reporting by instructors surveyed at an education conference (bias towards faculty engaged in best practices)

Out of 100 instructors...

What kinds of resources and where are they found?



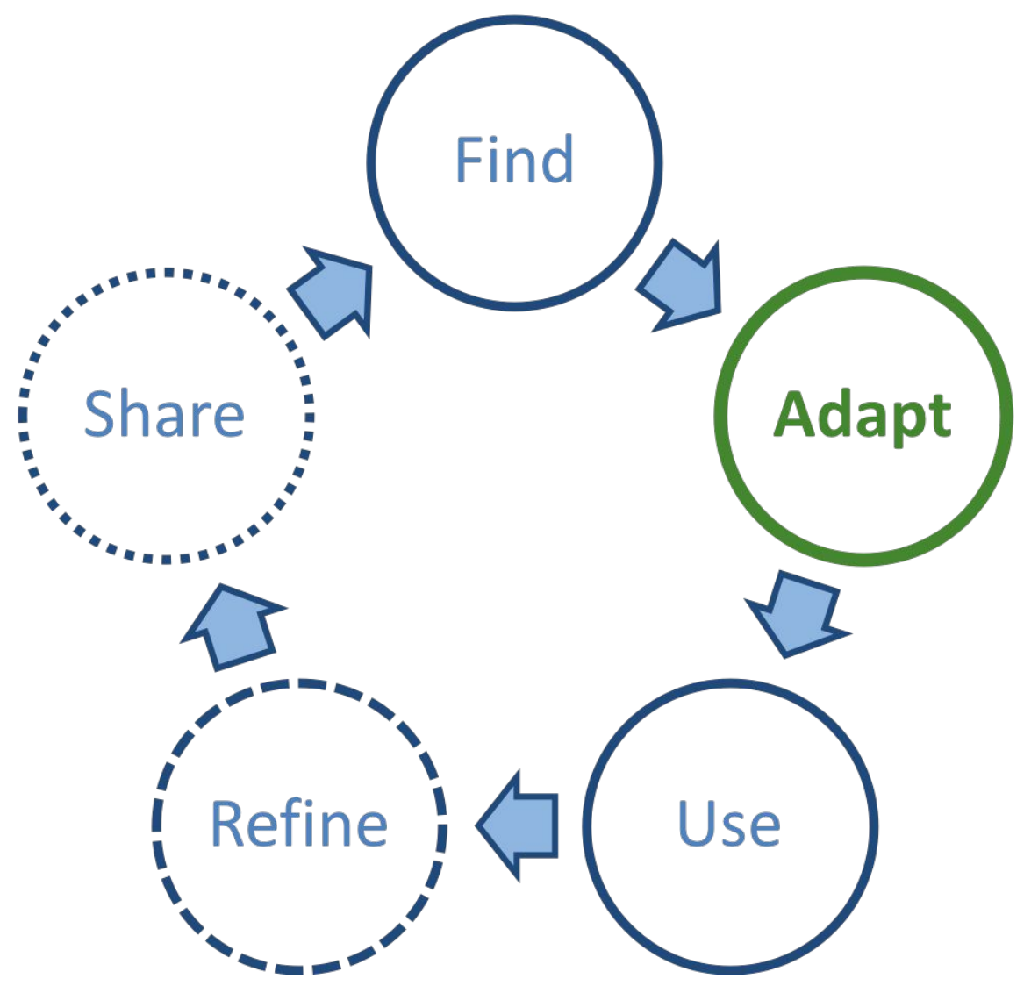
85 will **Find** and **Use**...



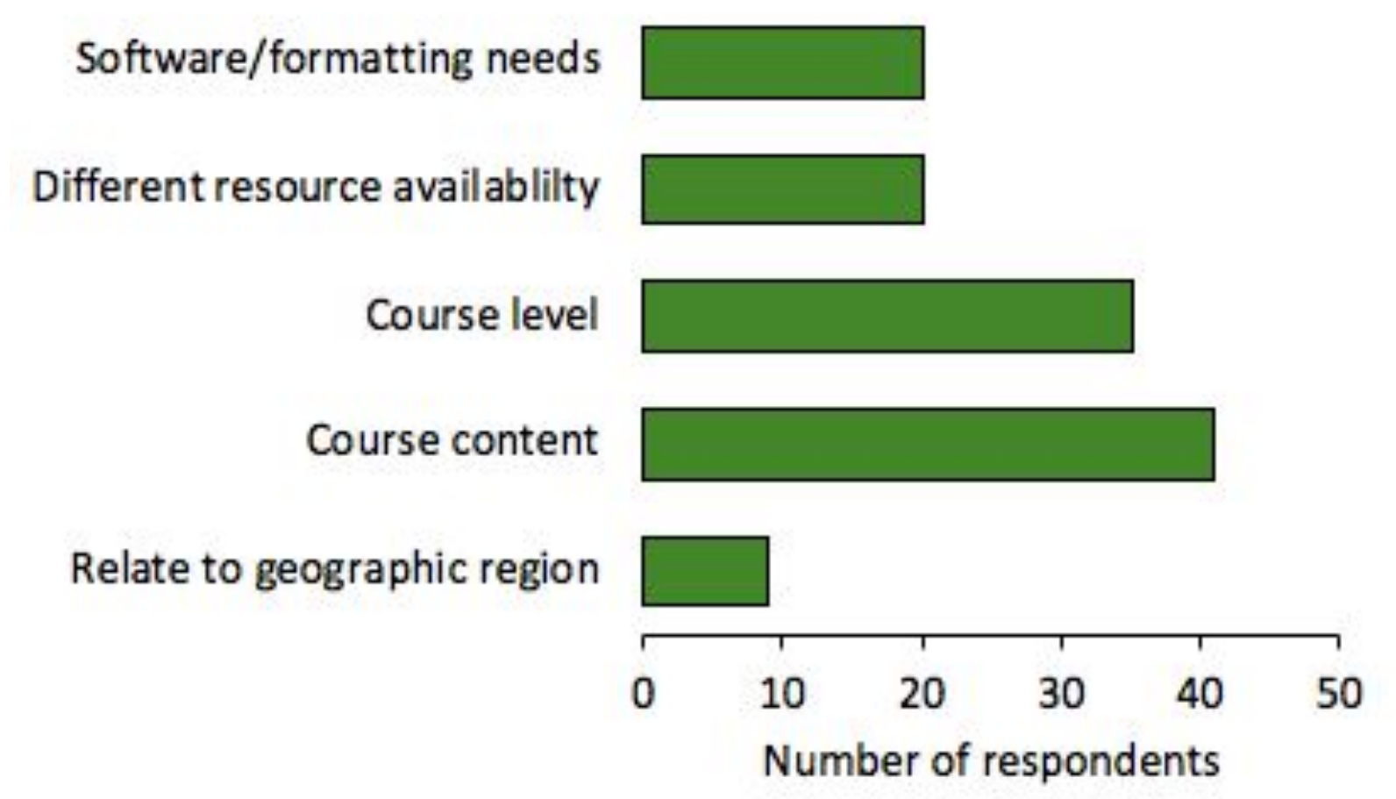
n=44 respondents, mean number of sources: 2.25±0.72

n=45 respondents, mean number of sources: 3.78 ± 0.27 SE

How are resources adapted?

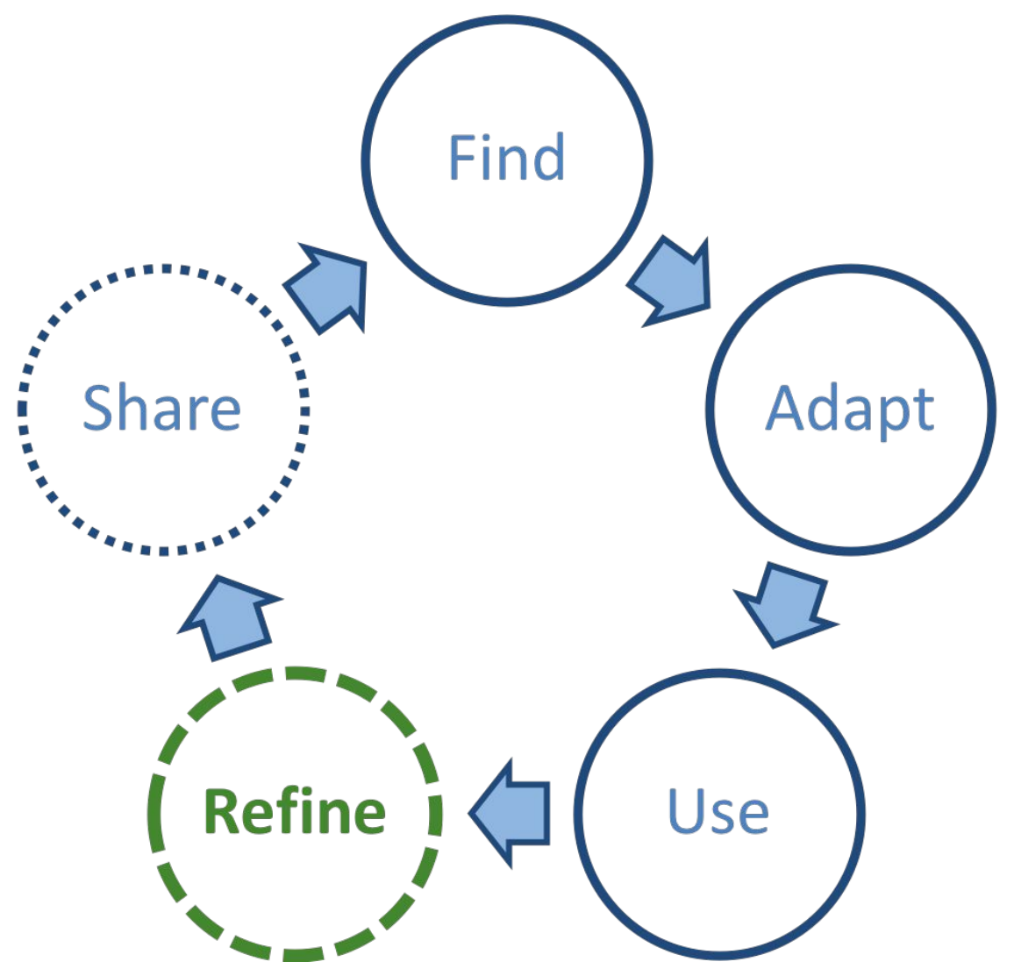


77 will **Adapt** before use...

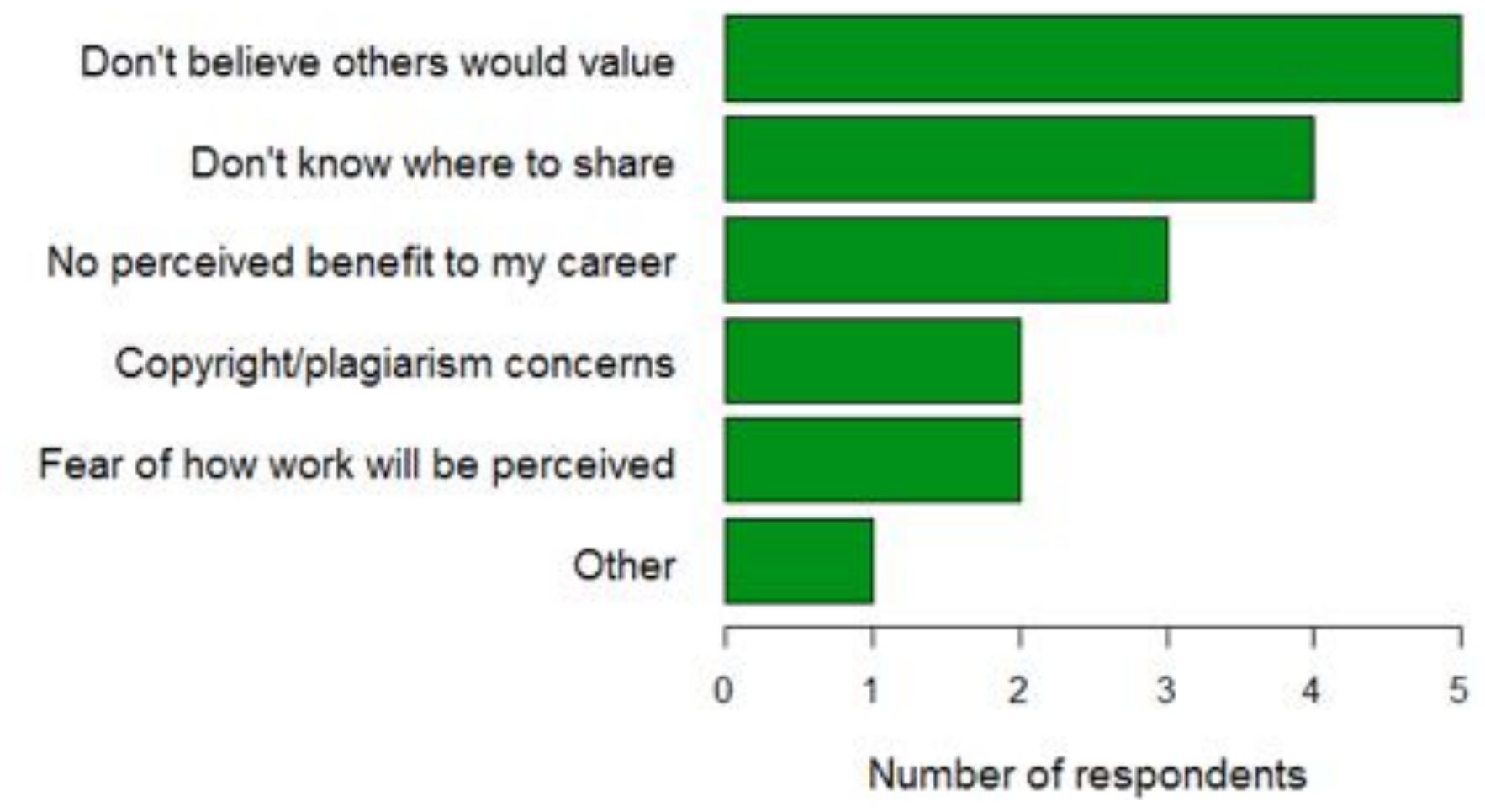


n=40 respondents
mean number of adaptation types:
2.7 ± 0.197 SE

What are the barriers to sharing?

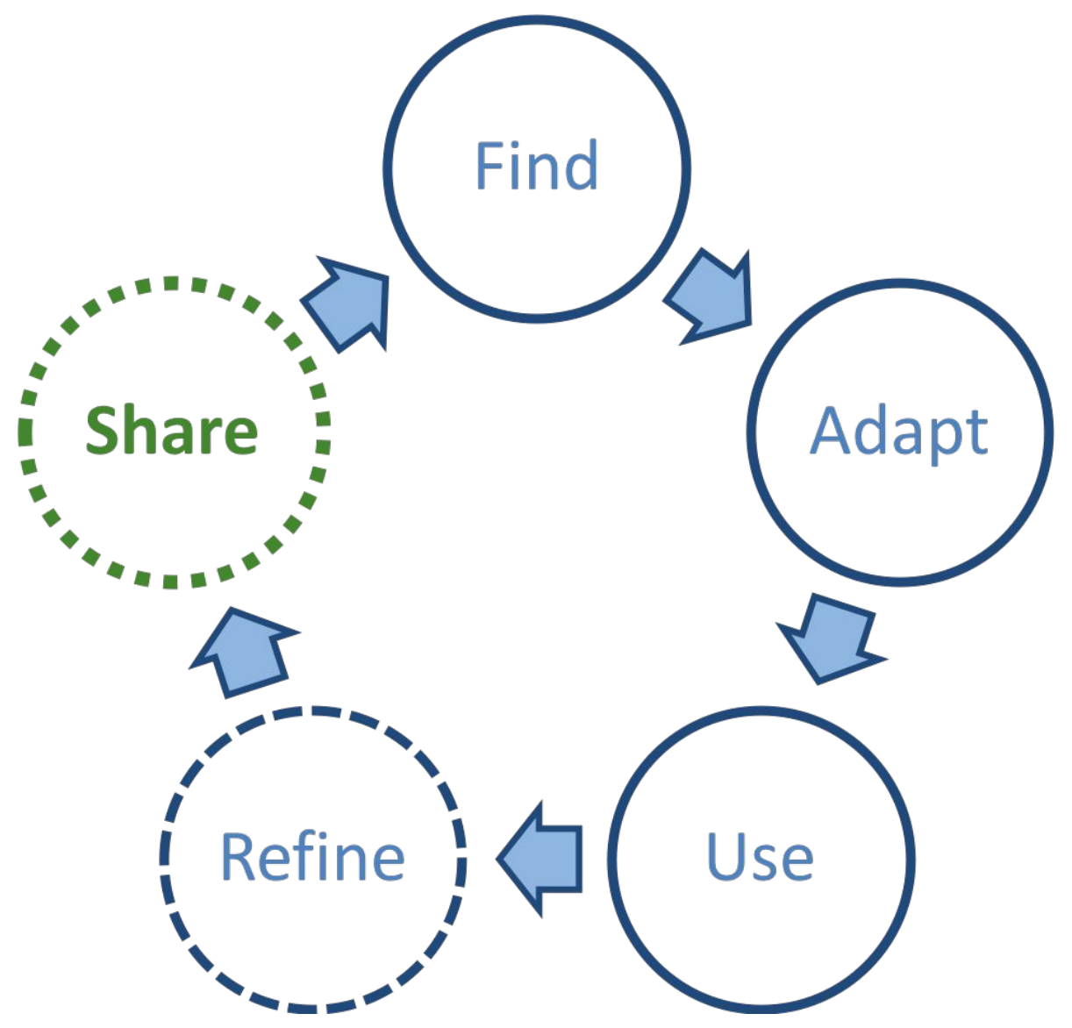


70 will **Refine**, but stop there...

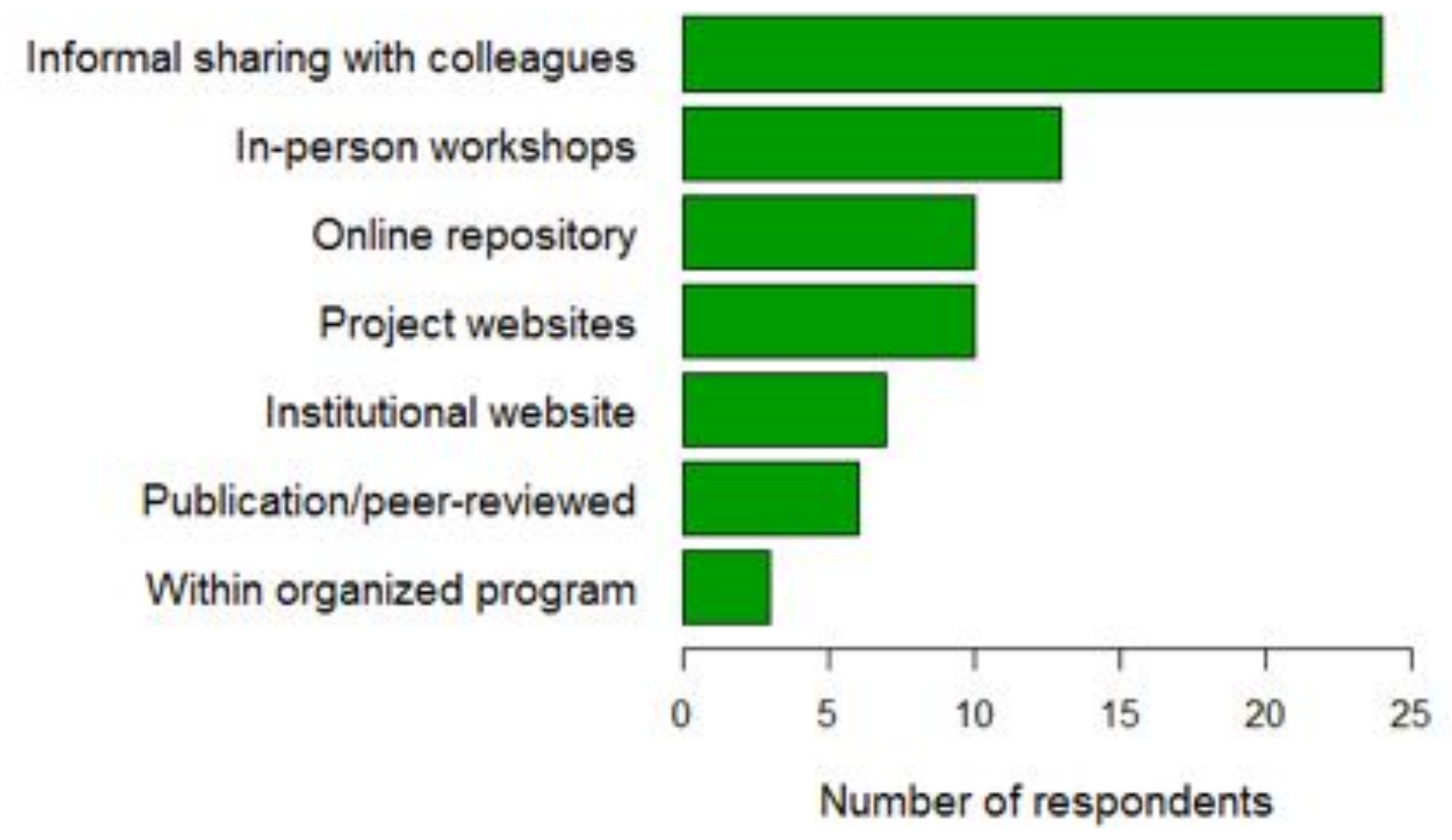


n=11 respondents,
mean number of barriers:
1.7 ± 0.213 SE

How are adaptations shared?



51 will **Share** adaptations...



n=30 respondents,
mean number of sharing methods:
2.6 ± 0.235 SE

Recommendations:

- **Barrier 1:** Make OER data-centric resources more discoverable, increase involvement of professional societies
- **Barrier 2:** Increase post-graduate pedagogical training opportunities, promote FMN-like mentoring
- **Barrier 3:** Integrate activities to address preparedness, increase institutional support for curricular development
- **Barrier 4:** Establish impact metrics and value for pedagogical sharing practices in merit and promotion processes

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