Jul 25th, 3:25 PM - Jul 1st, 3:45 PM

Building a Unified Data and Information Literacy Program: A Collaborative Approach to Instruction

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Library Instruction West 2014, Portland, OR, July 25, 2014

Image credit: "Data", https://flic.kr/p/8gWv67

User needs are changing...

"Ability to design and conduct experiments, as well as to analyze and interpret data"

Examples of Data Information Literacy Instruction in Libraries

- Data Information Literacy Project

- New England Collaborative Data Management Curriculum (NECDMC)

- For-credit courses

- Workshops at a variety of institutions

At CU-Boulder...

- Needs Assessment

- Training Program

What did we learn?

So, what's next?

Benefits of the collaborative model

- Shared goals

- Limited economy of instruction

- Sustainability

- Scalability

What can instruction librarians offer?

Well...a lot!

- Established relationships with disciplinary departments

- Expertise in learning theory, instructional design, and assessment

What do data experts want our learners to know?

- Understanding of the data lifecycle and its components

- How does this connect with goals of our existing information literacy program?

ACRL Draft *Framework*: Structure

● Threshold concepts

  ○ Knowledge practices

  ○ Metaliteracy learning objectives

  ○ Dispositions

  ○ Self-assessments

  ○ Possible assignments/assessments

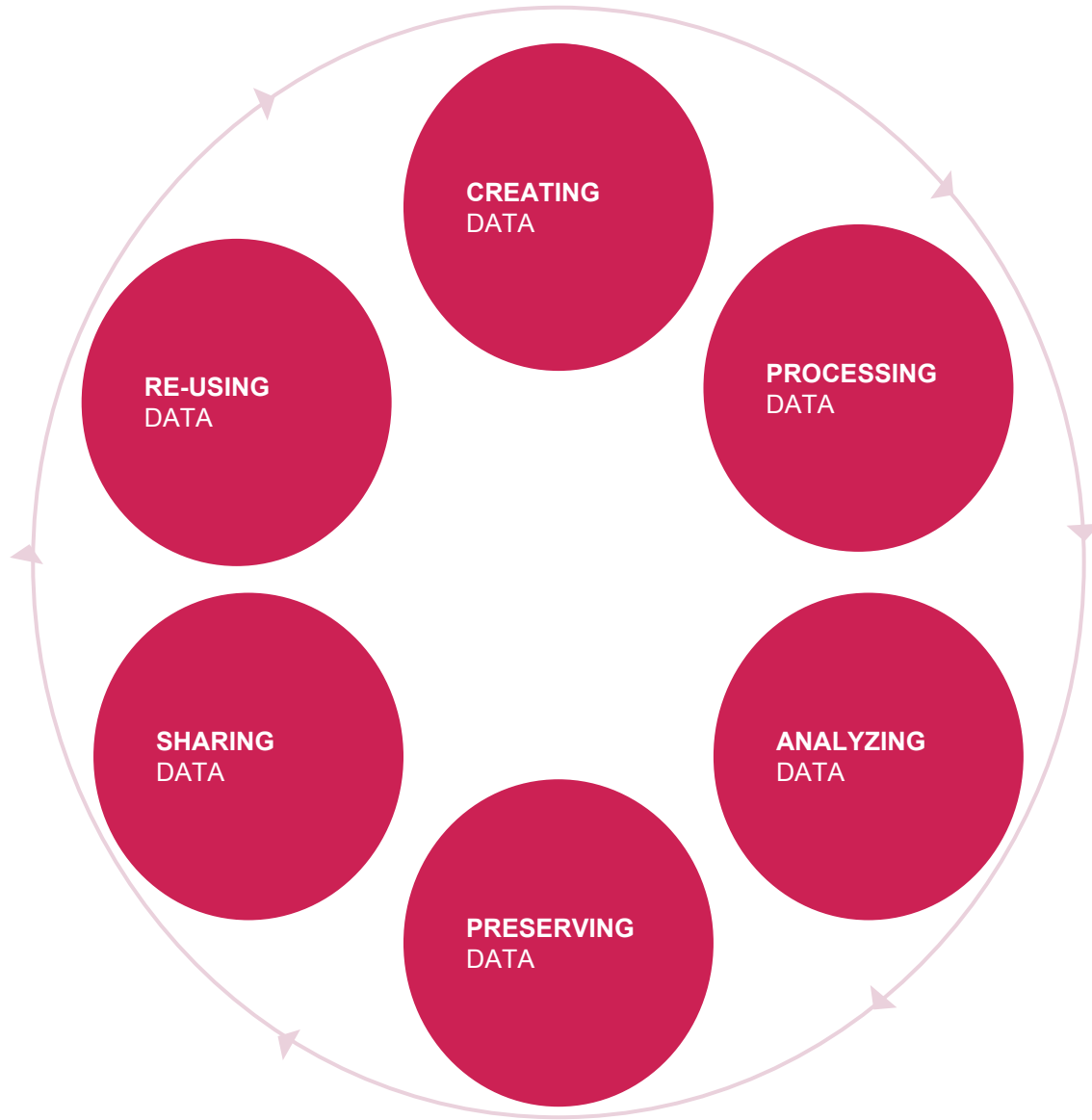# ACRL Draft *Framework*: Structure

- Threshold concepts

    - Knowledge practices

    - Metaliteracy learning objectives

    - Dispositions

    - Self-assessments

    - Possible assignments/assessments

ACRL Draft *Framework*: Threshold Concepts

- Scholarship is a conversation

- Research as inquiry

- Authority is constructed and contextual

- Searching as exploration

- Format as a process

CREATING
DATA

PROCESSING
DATA

RE-USING
DATA

ANALYZING
DATA

SHARING
DATA

PRESERVING
DATA

Model based on:
Research Data Lifecycle. UK Data Archive. url: http://www.data-archive.ac.uk/create-manage/life-cycle

Scholarship is a conversation

CREATING DATA

RE-USING DATA

PROCESSING DATA

SHARING DATA

ANALYZING DATA

PRESERVING DATA
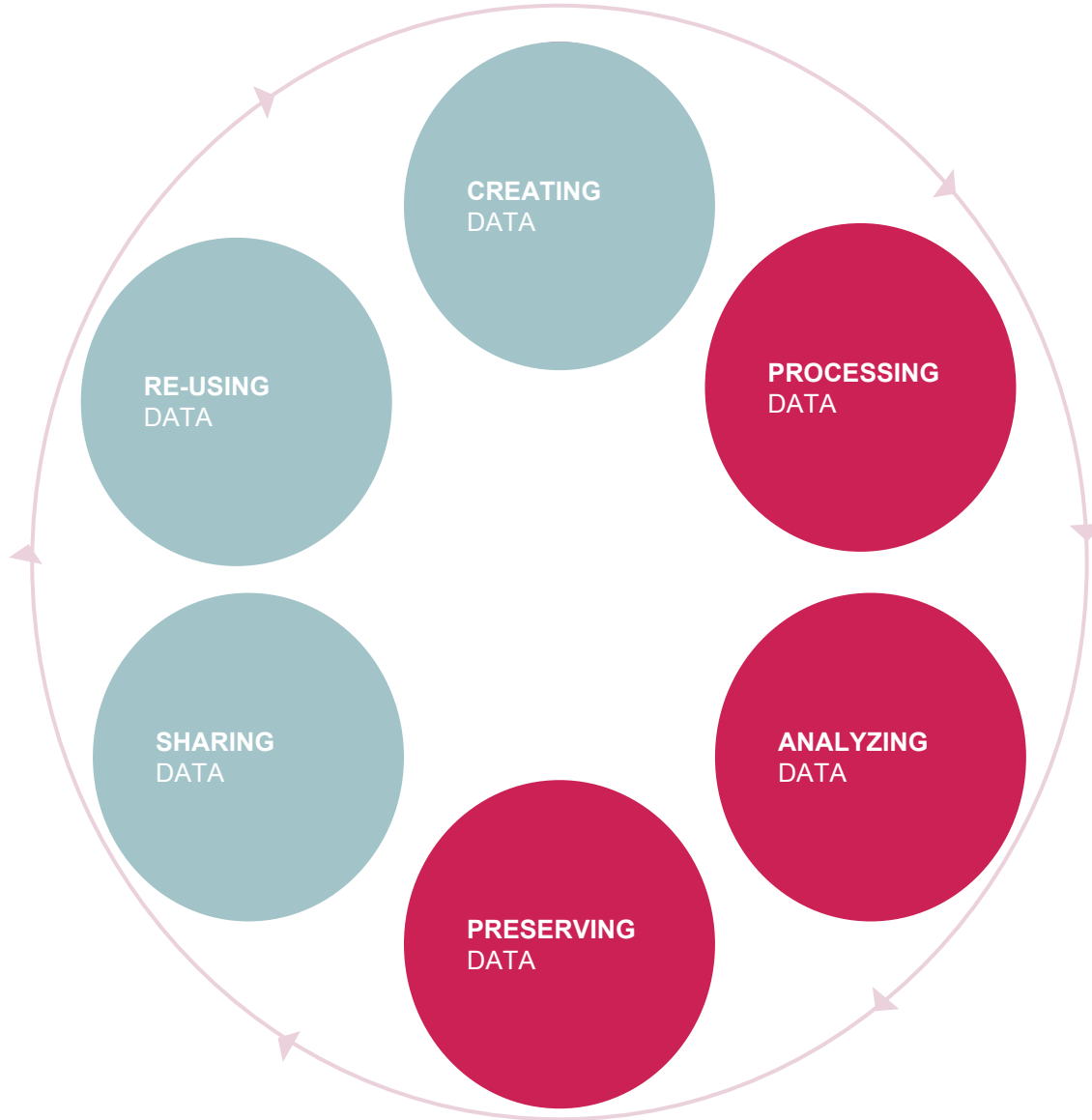
"Recognize that they are often entering into the midst of a scholarly conversation, not a finished conversation"

Research as inquiry

CREATING
DATA

PROCESSING
DATA

RE-USING
DATA

ANALYZING
DATA

SHARING
DATA

PRESERVING
DATA

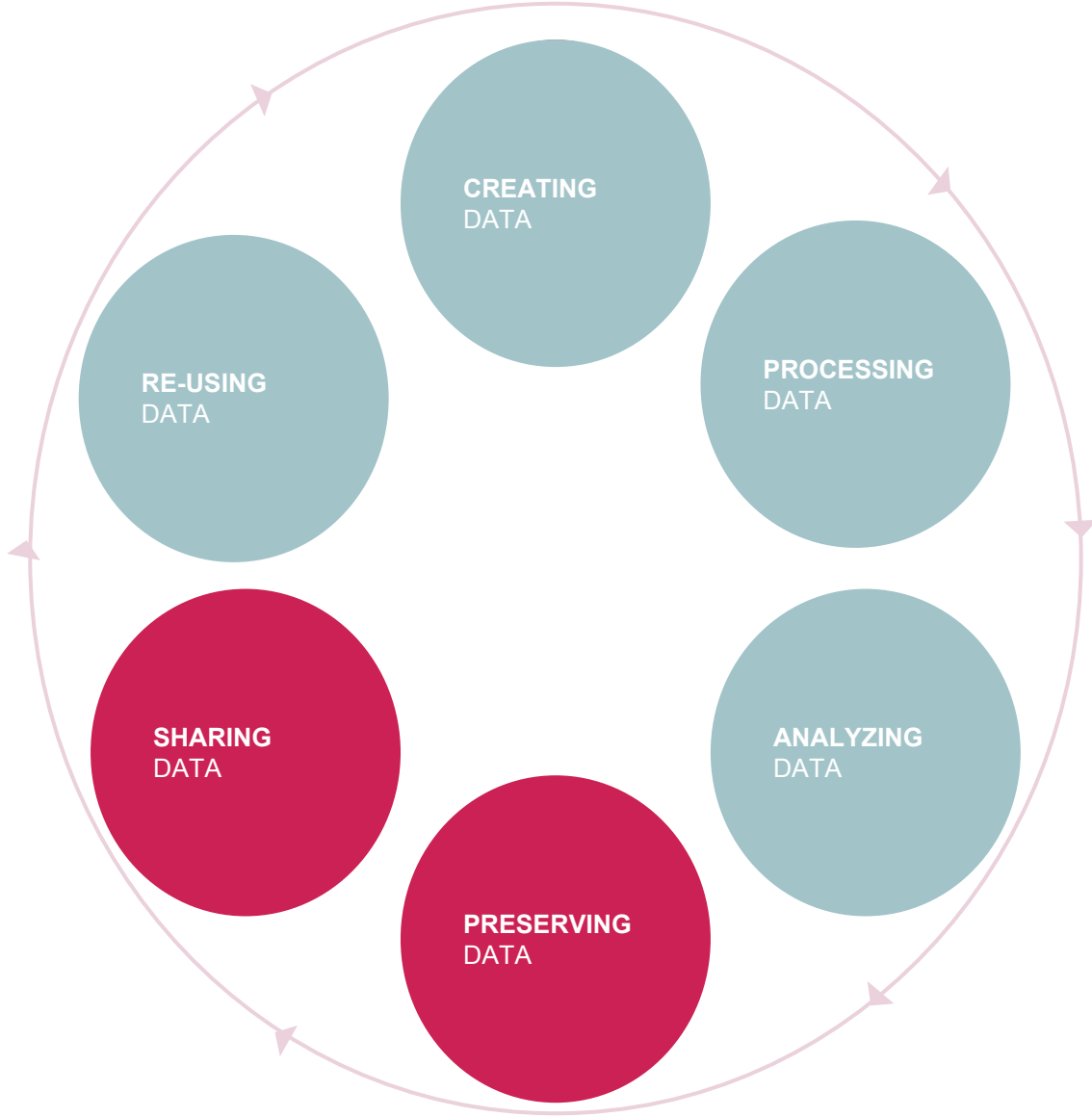*"Engage in informed, self-directed learning that encourages a broader worldview through the global reach of today's information technology"*

Authority is constructed and contextual

CREATING
DATA

PROCESSING
DATA

RE-USING
DATA

ANALYZING
DATA

SHARING
DATA

PRESERVING
DATA

*"Identify markers of authority when engaging with information, understanding the elements that might temper that authority"*

Searching as exploration

CREATING
DATA

PROCESSING
DATA

RE-USING
DATA

ANALYZING
DATA

SHARING
DATA

PRESERVING
DATA

"Are inclined to discover citation management and sharing features, moving them from searching for information to information management strategies"

Format as a process

CREATING
DATA

PROCESSING
DATA

ANALYZING
DATA

PRESERVING
DATA

SHARING
DATA

RE-USING
DATA
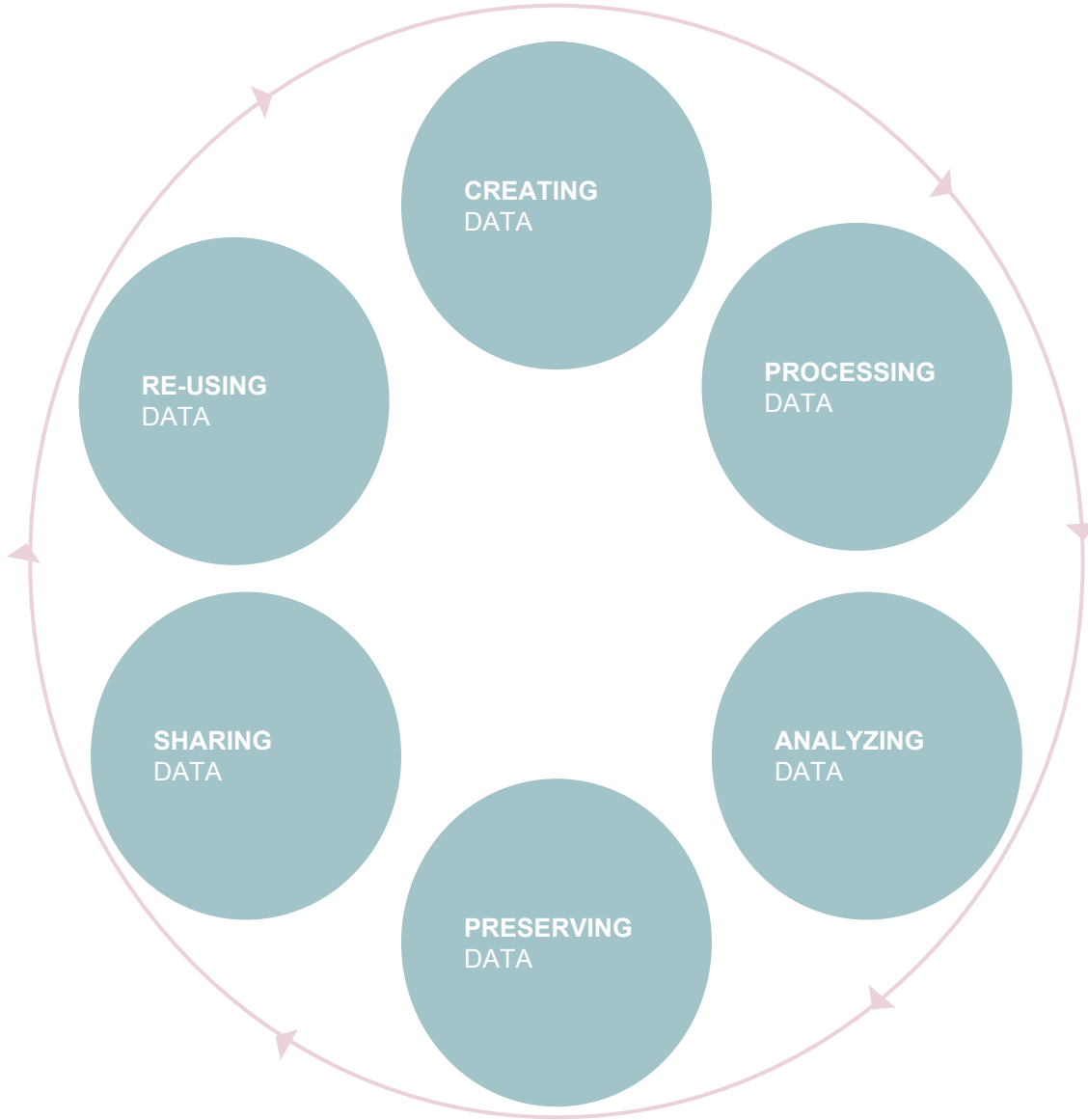
"Decide which format and mode of transmission to use when disseminating their own creations of information"

Collaborative DIL Instruction Assignment Examples

"Scholarship is a conversation"

Students identify an article from Retraction Watch from their discipline and describe how and why the article was retracted. Students reflect on the roles of (bad) data management in leading to the retraction and (good) data management practices that could have helped to avoid the retraction. Students attempt to find and access the data from the article. If data is accessible, students evaluate the likelihood that the data is sufficient for verifying and replicating the findings in the article.

Learning Objectives:
- Understand how the scientific community addresses flawed or unethical practices through the scholarly conversation that takes place after an article is published.
- Identify good practices that can improve the ability of scholars to converse about the contribution of a particular piece of scholarship.

Collaborative DIL Instruction Assignment Examples

"Research as inquiry"

Students develop a research question based on the published literature and identify whether or not data that could help answer the question exists in a repository or other source. Students reflect on the process of trying to discover existing data. If they are able to find relevant data, they also evaluate the experience of accessing and reusing data. Students then identify other data that could be combined to answer their question more completely.

Learning Objectives:

- Identify links between data and publications.
- Evaluate how well existing data sources can be used to answer research questions.
- Understand how data from different sources can be integrated to answer complex questions.

Collaborative DIL Instruction Assignment Examples

"Authority is constructed and contextual"

Students are given an article in their discipline with a link to associated data in a repository or other source. Students evaluate the likelihood that the data is sufficient for verifying and replicating the findings in the article. Students write a narrative description of how the data set was created based on the available documentation and reflect on the completeness of this description. Students identify gaps in the documentation that could call into question the authority of the data set.

Learning Objectives:

- Understand how underlying data helps to construct the authority of publications.
- Understand how the authority of a data set is constructed and documented throughout the data lifecycle.

Collaborative DIL Instruction Assignment Examples

"Searching as exploration"

Students use a citation management solution to organize (and possibly share) citations for a paper or article. Students use figshare to organize data, images, or other files associated with the paper or article (and possibly share these files with collaborators). Students evaluate the effectiveness of these tools in helping to manage their information. Students compare and contrast their experiences with the citation management and data management solutions.

Learning Objectives:
- Understand how to use citation and data management tools.
- Evaluate the effectiveness of these tools.
- Understand similarities and differences in information and data management strategies.

Collaborative DIL Instruction Assignment Examples

"Format as a process"

Students bring in a data set from their own research. Students use figshare to prepare the data set for publication. If the data can be shared openly, students actually publish the data. Students reflect on the process of publishing data and identify areas of difficulty. Students explain why they chose particular formats for publishing their data.

Learning Objectives:

- Identify appropriate formats for making data openly accessible.
- Understand how format choice impacts data publication and reuse.

Take-aways

- Instruction librarians should market their strengths to data librarians and other campus data experts, building support within your library and campus.

- The ACRL *Framework* "threshold concepts" align in many ways with education efforts around data management and data literacy throughout the data lifecycle.

- Data Information Literacy instruction is essential for meeting existing IL goals (rather than competing with IL efforts).

Questions?