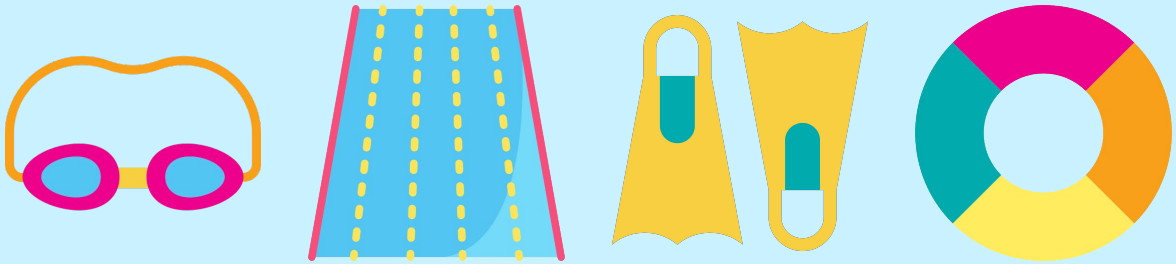
SWIM RELAY:

Using a Medley of Techniques to Teach Info Lit Concepts & Mechanics



Sam Harlow
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Hello!

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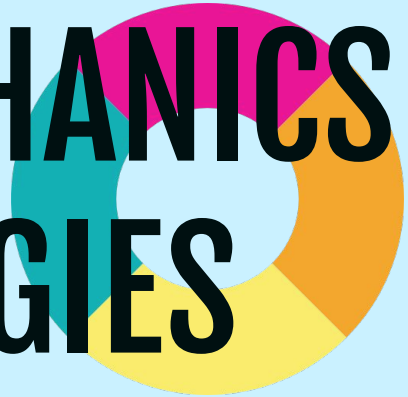
Today's #Goals

- ★ Introduce two different instructional techniques that involve mental modeling: teaching analogies and concept-based tutorials.
- ★ Examine the cognitive, pedagogical, and instructional design principles behind why we find these techniques effective and complementary.
- ★ Engage in hands-on exploration, discussion, and sharing.

TEACHING MECHANICS WITH ANALOGIES



What is an analogy?

"An analogy is a **comparison of the similarities of two concepts**. The familiar concept is called the analog and the unfamiliar one is the target. If the analog and target share similar features, an analogy can be drawn between them."

Glynn, S. M. (2008). Making science concepts meaningful to students: Teaching with analogies. In S. Mikelskis-Seifert, U. Ringelband, & M. Bruckmann (Eds.), *Four decades of research in science education: From curriculum development to quality improvement* (pp. 113–125).

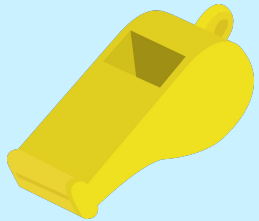
Why use analogies to teach mechanics?

- In one-shots, sometimes we really do have to explain and demonstrate how to use specific tools or model how to complete tasks.
- Lecture and demonstration are not always bad!
  - “Telling is an excellent method of communicating specific information, and there are plenty of occasions when our students need specific information” (Gooblar, 2019).
- Analogies allow us to quickly and compellingly explain a task, tool, or process so that we can maximize time for active learning in the classroom.

Gooblar, D. (2019, January 15). ‘Is it ever ok to lecture?’ *The Chronicle of Higher Education*. Retrieved from https://www.chronicle.com/article/Is-It-Ever-OK-to/245458

What are the principles behind the practice?

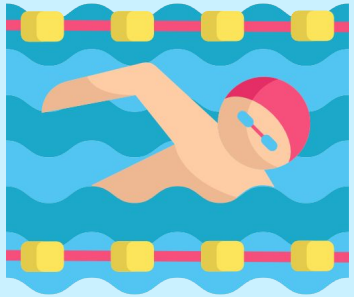
- Asset-based pedagogy
  - Builds on what students already know instead of assuming a deficit
- Active listening
  - Uses relevant examples and narrative storytelling
- Mental modeling
  - Helps students develop a clearer mental picture of a system or task*
    - *See also Step 3 of the **Decoding the Disciplines** framework.*



How are analogies for teaching best created?

Analogies for instruction work best when the features of the analog and the target are systematically compared. This comparison process is called ***mapping***. Cognitive psychology suggests that using verbal, and even visual, imagery through a narrative mapping process situated in a relevant context facilitates student cognition, learning, and interest.

Glynn, S. M. (2008). Making science concepts meaningful to students: Teaching with analogies. In S. Mikelskis-Seifert, U. Ringelband, & M. Bruckmann (Eds.), *Four decades of research in science education: From curriculum development to quality improvement* (pp. 113–125).



How are teaching analogies best used?

Choose current and relevant analogs for *your* specific students.

Get *students* to explain the analog before you map it for the class.

Resist the urge to improv. Ditch analogies that don't work!

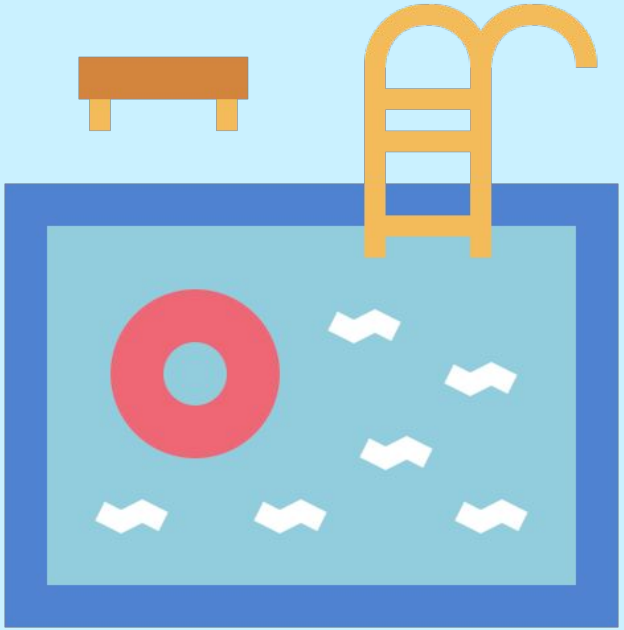
Why focus on lecture/demo for mechanics only?

"What telling is not good for: teaching students complex ideas, conceptual knowledge, or difficult skills. ...Donald L. Finkel use[s] the example of giving directions: 'When I tell my friend how to get to my house, I allow him to solve a specific problem (how to get to my house), but I do not enrich his understanding of geography, transportation, navigation, or anything else. He doesn't have to think differently after he has digested my instructions; he has neither deepened nor broadened his understanding of the world. He simply has gained some facts he needs for a specific purpose.'"

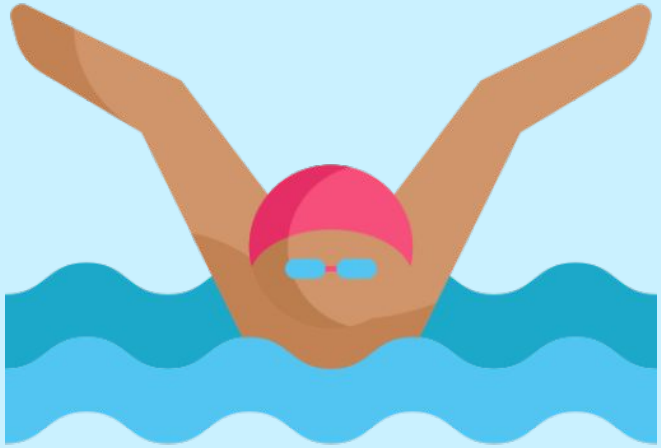
Gooblar, D. (2019, January 15). 'Is it ever ok to lecture?' *The Chronicle of Higher Education.* Retrieved from https://www.chronicle.com/article/Is-It-Ever-OK-to/245458

TEACHING CONCEPTS WITH TUTORIALS

“**Conceptual learning** is an educational method that centers on big-picture ideas and learning how to organize and categorize information. Unlike more traditional learning models which concentrate on the ability to recall specific facts (such as the dates of an event or the twenty possible causes of a particular illness), **conceptual learning focuses on understanding broader principles of ideas (what we call concepts)** that can later be applied to a variety of specific examples.”



Taken from “What is conceptual learning”



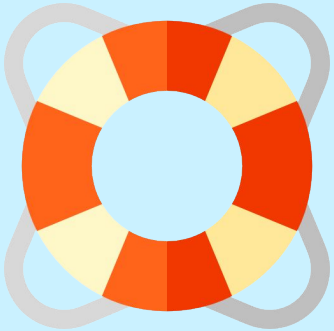
"When **tutorials** are concept- rather than resource-focused, they can apply to a broader audience of online learners from different academic areas. Concept-based video tutorials are also not subject to constant updating if they do not rely on a specific interface or web site to teach the lesson."

Martin, N. A., & Martin, R. (2015). Would you watch it? Creating effective and engaging video tutorials. *Journal of Library & Information Services in Distance Learning*, *9*(1–2), 40–56. https://doi.org/10.1080/1533290X.2014.946345

Authority is Constructed & Contextual

Searching as Strategic Exploration

Information Creation as Process



Scholarship as Conversation

Information has Value

Research as Inquiry

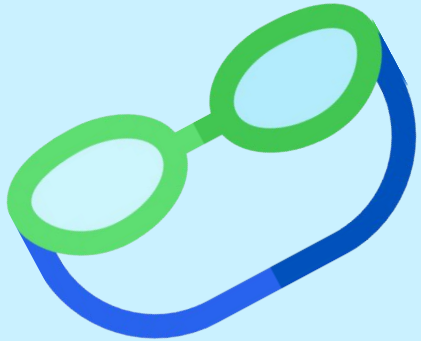
ACRL Information Literacy Framework

"The *Framework* offered here is called a framework intentionally because it is based on a **cluster of interconnected core concepts**, with flexible options for implementation, rather than on a set of standards or learning outcomes, or any prescriptive enumeration of skills. At the heart of this *Framework* are **conceptual understandings** that organize many other **concepts** and ideas about information, research, and scholarship into a coherent whole . . . The *Framework* is organized into six frames, each consisting of a **concept central to information literacy, a set of knowledge practices, and a set of dispositions**."

Introduction to ACRL Information Literacy Framework

Universal Design for Learning (UDL)

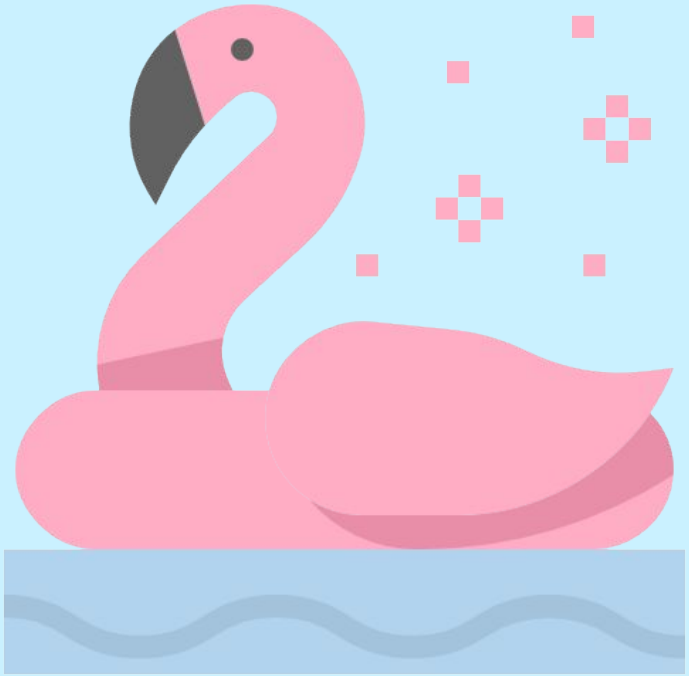
- ★ UDL is about creating accessible learning experiences for all learners.
- ★ UDL stresses the importance of multiple means of engagement, representation, and action/expression. Therefore it's important to create **accessible** online learning objects, as well as **diverse** concept driven online learning objects.



Instructional Design Theories & Models

The principles of instructional design theories and models can help you create elearning objects about library services in terms of design, and they always include knowing your audience before planning your online learning object.

Instructional Design Theories & Models

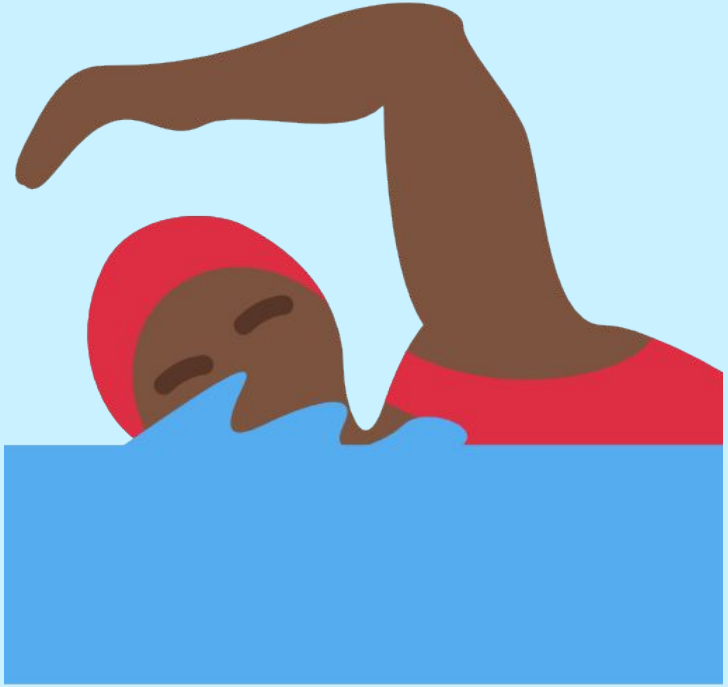


ADDIE: Analyze which includes thinking about instructional goals, target audience characteristics, and required resources.

Design, Develop, Implement, and Evaluate.

Design Thinking, with a focus on empathy

The design thinking iterative process asks us to solve problems and plan projects around, empathize, define, ideate, prototype, and test. In order to develop concept stories for online learning objects, it's important to learn and **empathize** with your intended audience.



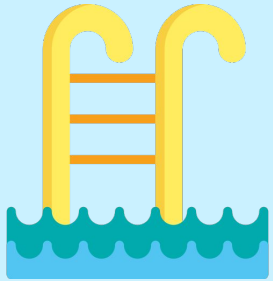
Concepts and Online Learning Object Tools:

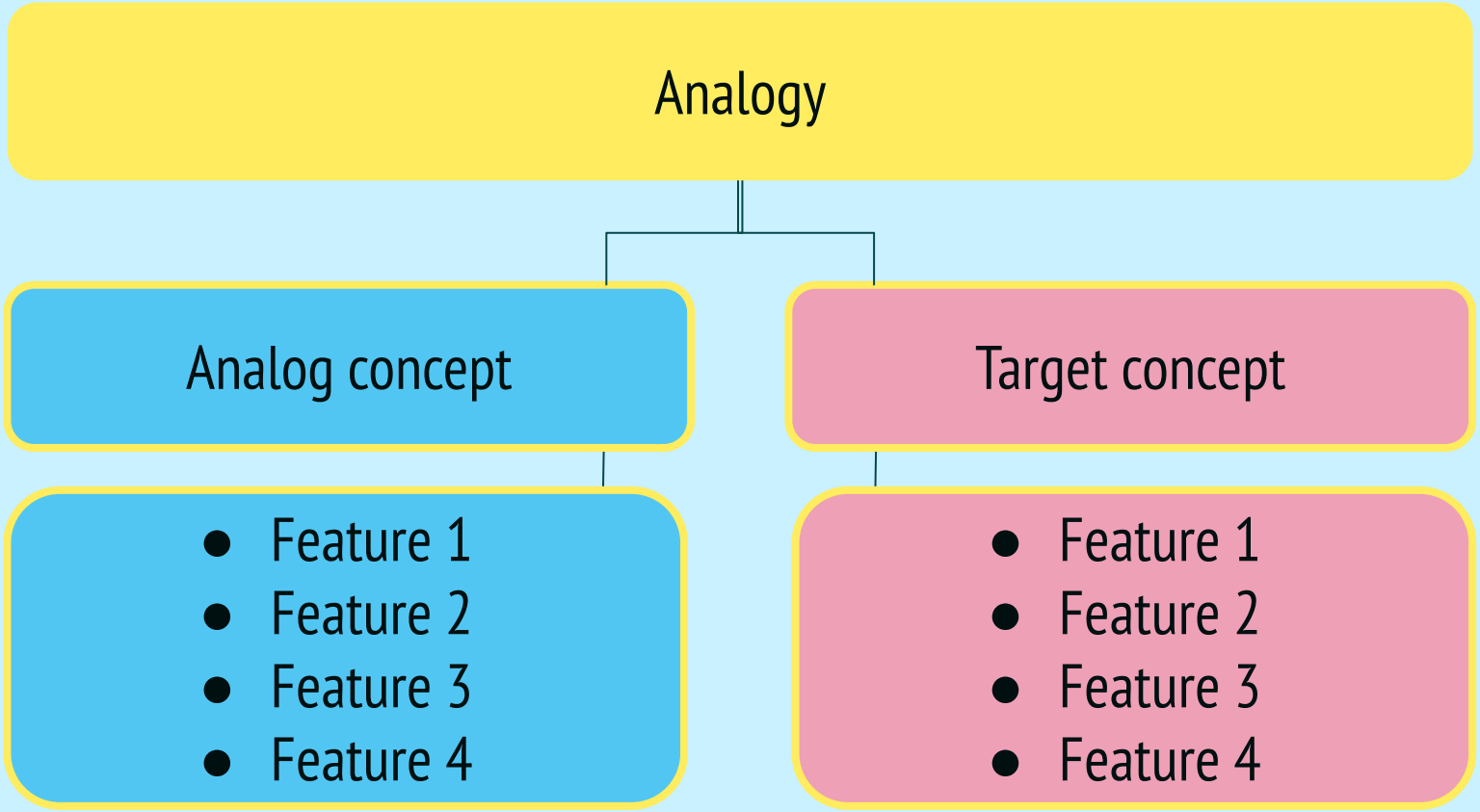
Video NC State: Picking your Topic IS Research!	Powtoons	Google Slides/ SlideCarnival	Camtasia	Screencast-O-Matic
Infographic Duke University Information Privilege Backpack	Canva	Ease.ly, Piktochart, Visme	Google Slides	PowerPoint
Tutorials KState University New Literacies Alliance, Scholarship is Like a Conversation	H5P	SoftChalk, Articulate, Storyline	Camtasia	Learning Management System (LMS)
Graphic Design	Icons: Iconfinder, Noun Project, Flaticon	Tutorials: Tutpad, Tutplus	Colors and fonts: FontSquirrel, DaFont, ColorPick Eyedropper Chrome extension	Instructional Design Frameworks/ Processes (ADDIE, etc)

HANDS-ON TECHNIQUES

Analogy Mapping

You can create and test out effective analogies for teaching by visually mapping target and analog concepts using a table, mind map, or graphic worksheet. The next slide shows one version of an analogy mapping table, and we will be using an example of a graphic worksheet today.





This is called a “tabular representation.” See Hesse, M. (1964). Analogy and confirmation theory. *Philosophy of Science, 31*(4), 319–327.

Searching with keywords in a database is kind of like using CTRL+F to find a word in a PDF or on a website...

CTRL+F Search

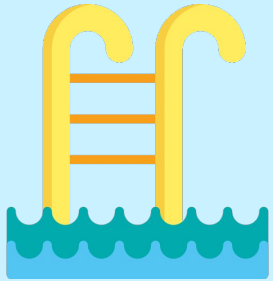
- A digital search tool
- For locating all instances of a word in a text document
- Search function locates exact match of input only

Database Search

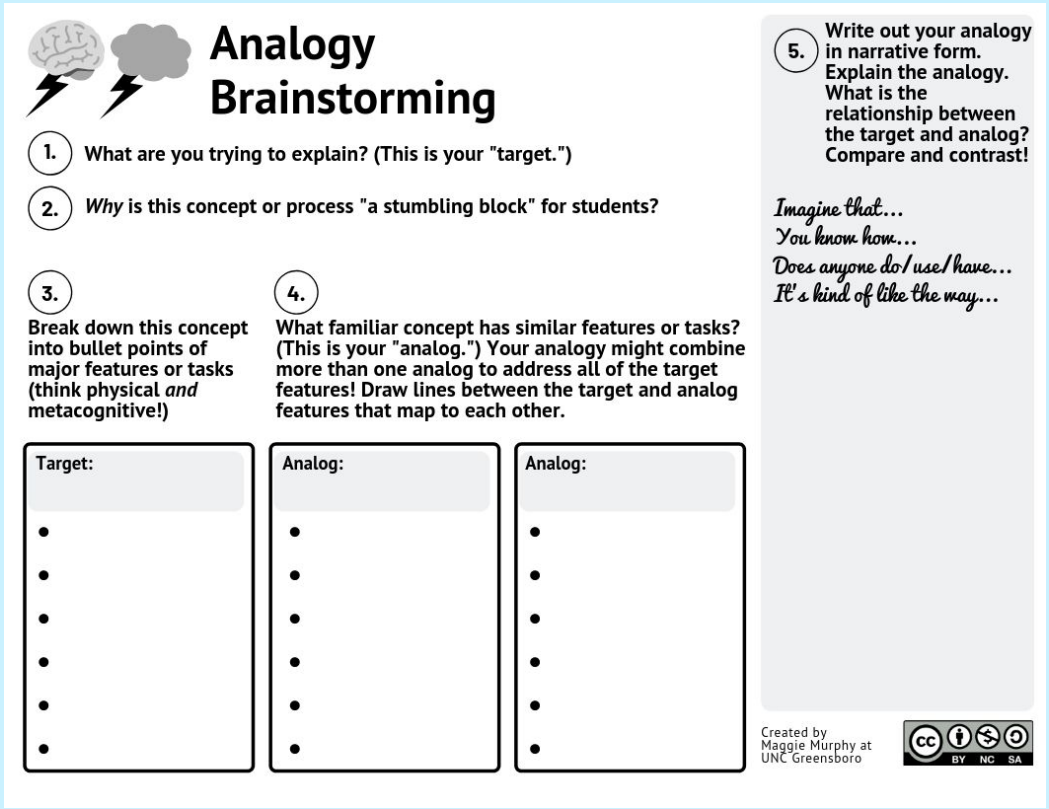
- A digital search tool
- For finding articles to use in our research
- Search function locates exact match of input only

Analogy Mapping

Additionally, remember that teaching analogies are enhanced by verbal and visual elaboration! When using an analogy in the classroom, don't be afraid to engage in narrative storytelling to make the analogy even more relatable to students. You can also visually demonstrate how concepts map to each other with a live demonstration, graphic representation, or simple whiteboard drawing.



Analogy Mapping Worksheet



Analogy Brainstorming

1. What are you trying to explain? (This is your "target.")
2. *Why* is this concept or process "a stumbling block" for students?
3. Break down this concept into bullet points of major features or tasks (think physical *and* metacognitive!)
4. What familiar concept has similar features or tasks? (This is your "analog.") Your analogy might combine more than one analog to address all of the target features! Draw lines between the target and analog features that map to each other.
5. Write out your analogy in narrative form. Explain the analogy. What is the relationship between the target and analog? Compare and contrast!

Imagine that...
You know how...
Does anyone do/use/have...
It's kind of like the way...

Target:	Analog:	Analog:
•	•	•
•	•	•
•	•	•
•	•	•
•	•	•
•	•	•

Created by Maggie Murphy at UNC Greensboro

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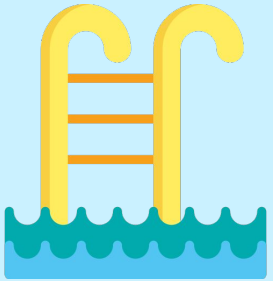
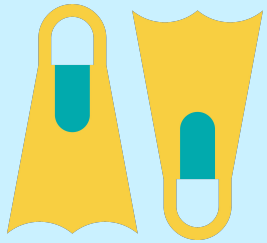
This worksheet is available as a machine-readable PDF alongside our slides in our Google folder:

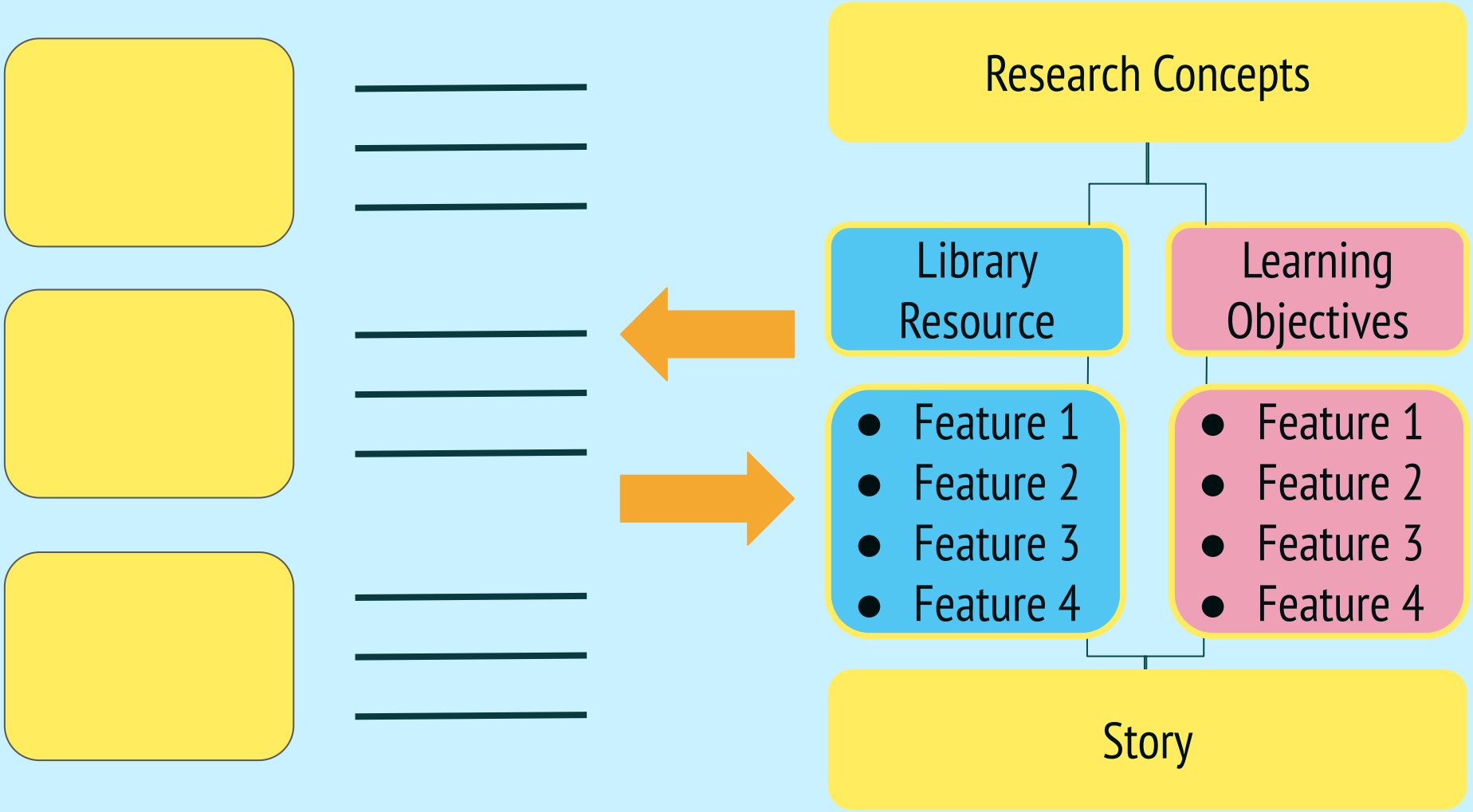
go.uncg.edu/swimrelay



Storyboarding

When developing online learning objects or teaching sessions, many people start with storyboarding. Storyboards are graphic organizers that can help plan and develop multimedia or lessons, but for this workshop we are going to take storyboarding and connect it to concept mapping.




Research Concepts
Library Resource
Learning Objectives
Feature 1
Feature 2
Feature 3
Feature 4
Feature 1
Feature 2
Feature 3
Feature 4
Story

Acknowledge a challenge students face in the research process:

Library concept to help challenge:

Learning objectives & *Framework*:

Tutorial ideas (type, tools to use):

Acknowledge a challenge students face in the research process:

Many students (both undergraduates and graduates) think the logistics and organization of citations are tedious and time consuming, especially when searching across multiple databases.

Library concept to help challenge:

Showcasing free and easy to use citation management tools and resources, which at UNC Greensboro Libraries is Zotero.

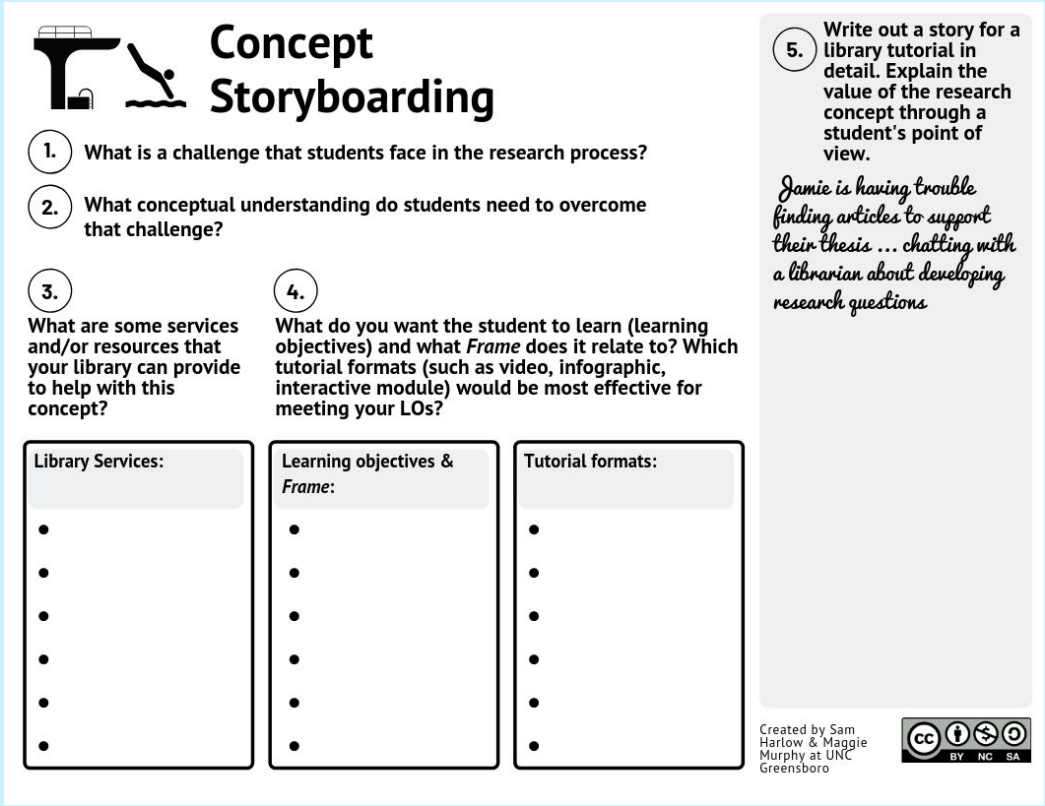
Learning objectives & *Framework*:

- ★ Introduce the concept of citation management
- ★ Prove the value, ease, and benefit of learning Zotero
- ★ Information Has Value

Tutorial ideas (type, tools to use):

A 2 minute animated intro video, with quick overview of Zotero, about a student who loves their research topic, but struggling with citations, with brief overview of Zotero: https://youtu.be/kI5aNQYZIaw

Concept Storyboarding Worksheet



Concept Storyboarding

1. What is a challenge that students face in the research process?

2. What conceptual understanding do students need to overcome that challenge?

3. What are some services and/or resources that your library can provide to help with this concept?

4. What do you want the student to learn (learning objectives) and what *Frame* does it relate to? Which tutorial formats (such as video, infographic, interactive module) would be most effective for meeting your LOs?

Library Services:	Learning objectives & *Frame*:	Tutorial formats:
•	•	•
•	•	•
•	•	•
•	•	•
•	•	•
•	•	•

5. Write out a story for a library tutorial in detail. Explain the value of the research concept through a student's point of view.

Jamie is having trouble finding articles to support their thesis … chatting with a librarian about developing research questions

Created by Sam Harlow & Maggie Murphy at UNC Greensboro

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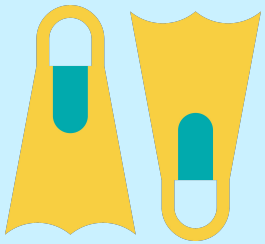
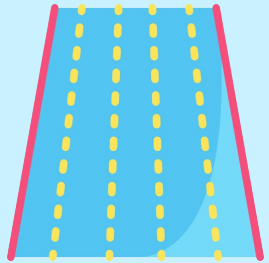


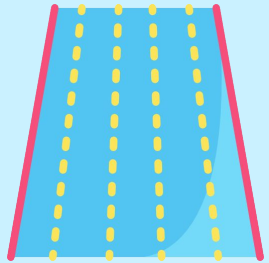
Card Sorting

Card-sorting is a user-experience (UX) research technique in which users organize topics (“sort cards”) into groups that make sense to them. This allows designers to arrange content and structure navigation in a way that matches user’s mental models.



Card Sorting for Teaching

In teaching and online learning object creation, this method can also be used as an ***instructional design technique***. Students or peer reviewers can engage in card sorting of your lesson plan components, course topics, tutorial modules, or other instructional material units to organize and order content in a way that seems logical or useful to them.



Card Sorting Options

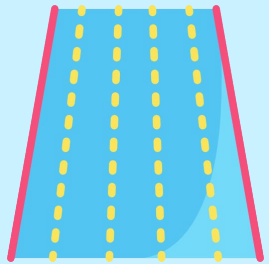
There are many free and low-cost options for card-sorting.

Paper card sorting:

- Index cards, sticky notes

Digital card sorting:

- Trello, Padlet (instructional tech/project management w/ drag & drop card/note functionality)
- Optimal Workshop, usabiliTEST (UX testing platforms)



Additional Resources

Librarian Instructional & Graphic Design

- Librarian Design Share
- Char Booth, info-mational
- Liberatory Design

Accessibility & Inclusive Teaching

- CAST: the UDL Guidelines
- FLOE (flexible learning for open education)
- Accessibility and OER

Library Instruction and OLOs Repositories:

- PRIMO
- ACRL Information Literacy Sandbox
- OER Commons