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Mapping for change: Re-imagining assessment with concept maps

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Mapping for Change: Re-imagining assessment with concept maps

ALAO Conference, 2013
#conceptmaps

Heidi Gauder
Fred Jenkins



Before We Talk

Draw a map—with words—of how you
conduct research

What are Concept Maps?

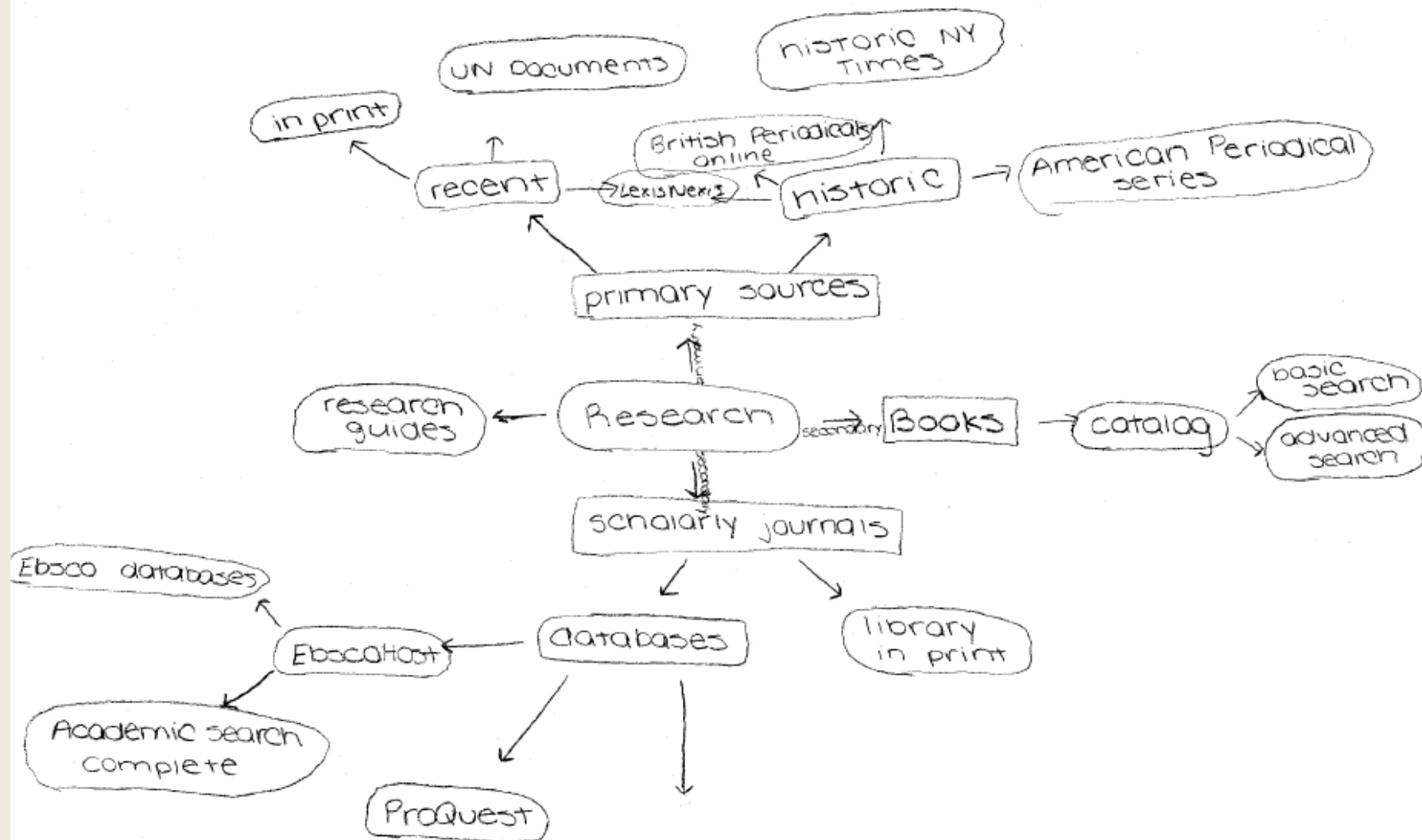
“Concept maps are graphical tools for organizing & representing knowledge”

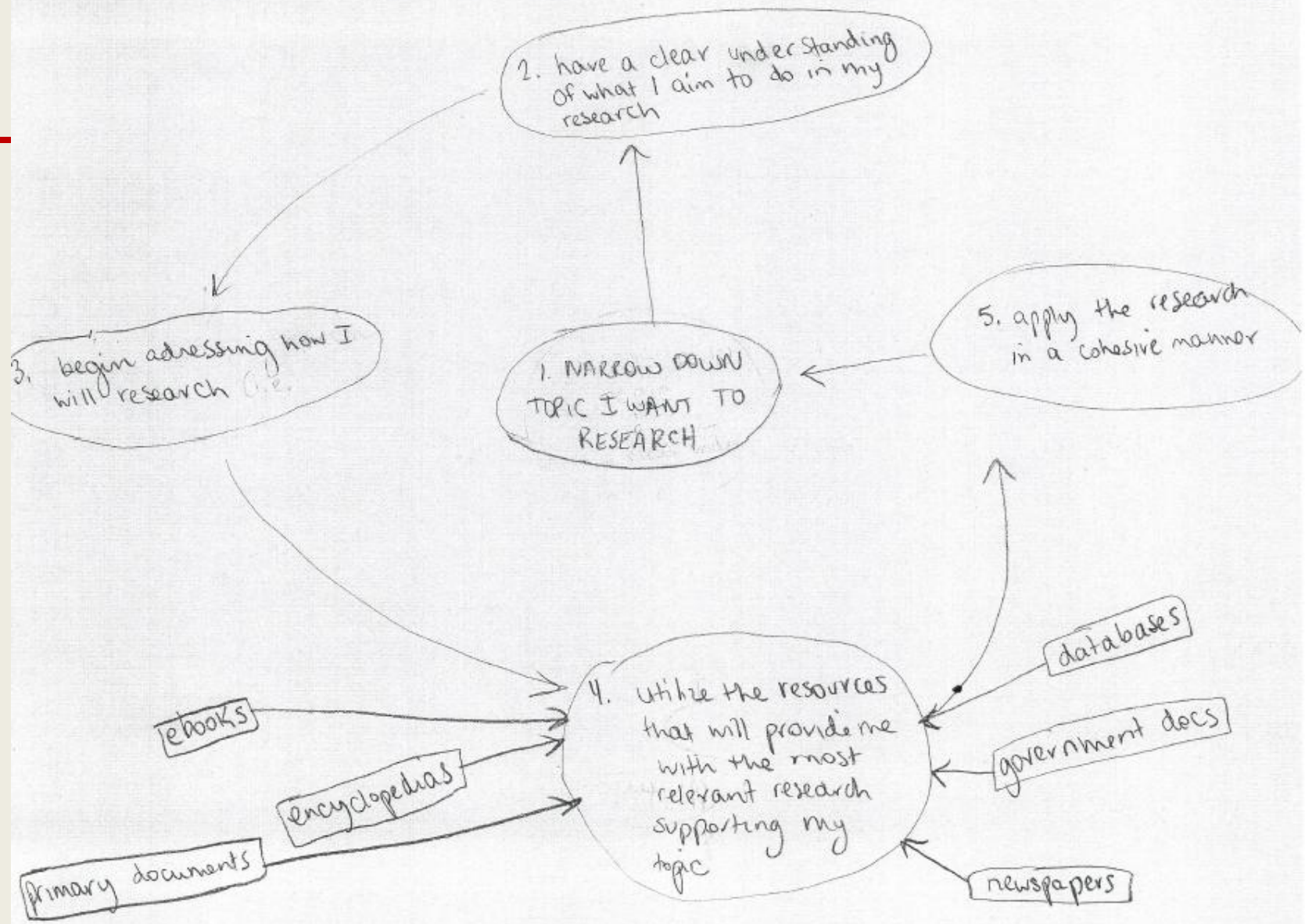
“They include concepts, usually enclosed in circles or boxes...”

“And relationships between concepts indicated by a connecting line between the two concepts”

What are Concept Maps?

- Developed by Joseph Novak (Cornell)
 - Originally used within the sciences to help represent student knowledge
 - “Meaningful learning involves the assimilation of new concepts and propositions into existing cognitive structures.”
- Based on work by David Ausubel, educational psychologist, cognitive theorist





Research about Concept Maps

Pausch, L. M., and M. P. Popp. "Assessment of Information Literacy: Lessons from the Higher Education Assessment Movement. " (1997).

- General overview of assessment in higher education and assessment of information literacy.
- "The concept map has been shown to become more complex as students learn more and is a reliable method for testing knowledge. In addition, this method provides the student with a self-assessment tool that can become an inducement to learning."

Pinto, Maria, Anne-Vinciane Doucet, and Andrés Fernández-Ramos. "Measuring Students' Information Literacy Skills Through Concept Mapping." (2010).

- Good overview of concept mapping. Main focus on assessing students' ability to understand articles by having them create concept maps based on them and then analyzing these.

Research about Concept Maps

Colosimo, April, and Megan Fitzgibbons. "Teaching, Designing, and Organizing: Concept Mapping for Librarians." (2010).

Describe uses for concept mapping

- Use in teaching to explain complex ideas, help learners articulate information needs, and assess conceptual understanding.
- Design tool for planning, implementing, and evaluating projects, courses, presentations, and workshops.
- Facilitate the creation, organization, and communication of ideas and resources, particularly in collaborative settings.

Concept Maps & Assessment

Measures cognition rather than skills

- Demonstrate students achieved learning outcomes
- Demonstrate student research abilities improved over time
- Help identify areas for improving course content

Population Samples

PHL240: Philosophy Research Methods

- 1 credit hour, 9 meetings
- Taught by librarians
- Mostly Juniors & Seniors

INS250: International Studies Research Methods

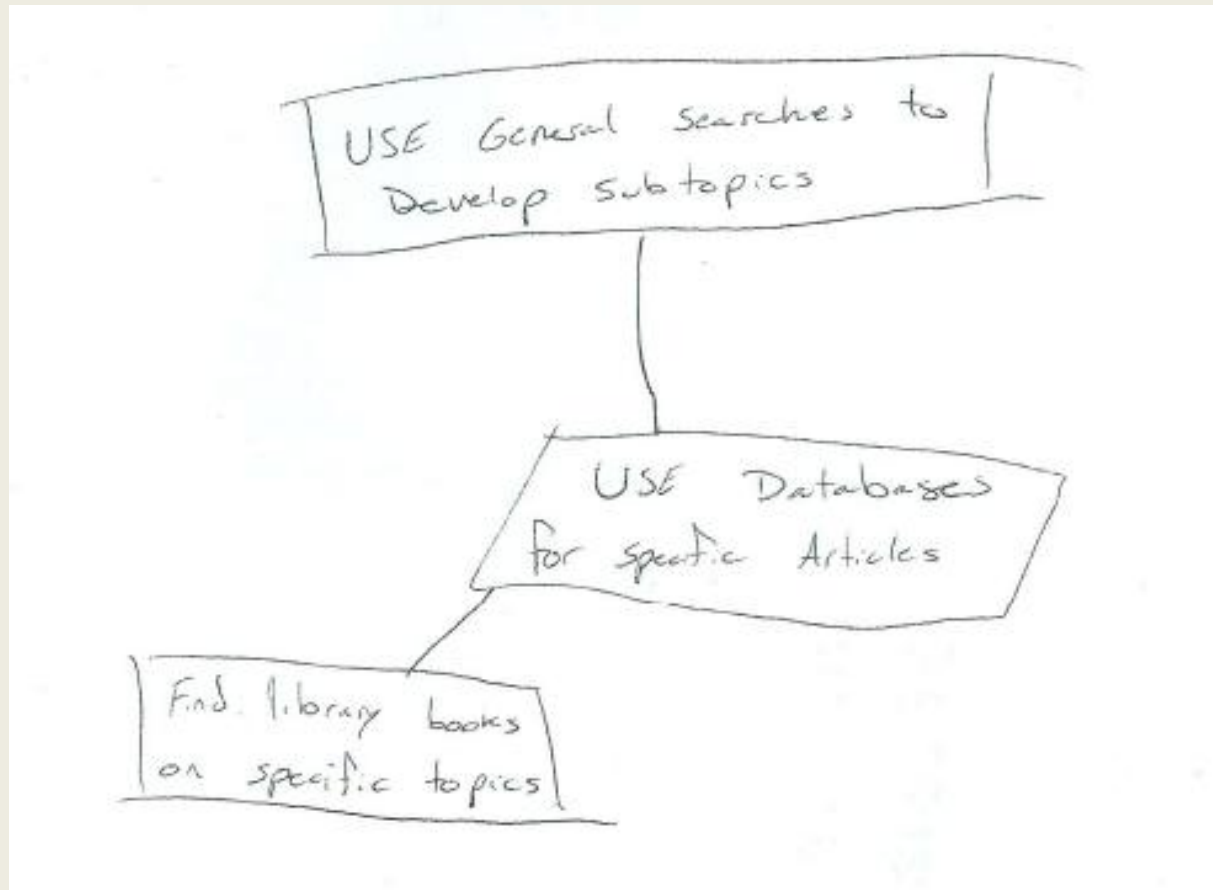
- 1 credit hour, 12 meetings
- Taught by librarians
- Sophomores, Juniors, Seniors

Population Samples

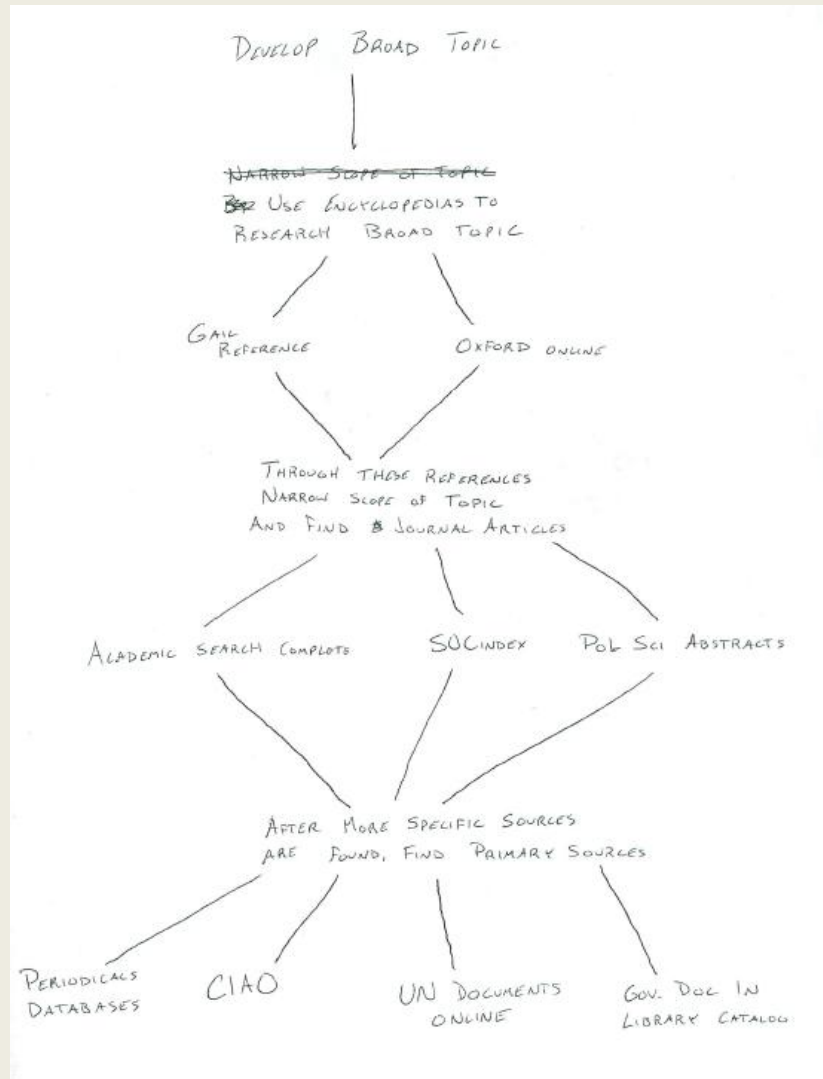
EDC568: Research and Evaluation in Human Services

- 3 credit hours
- Taught by School of Education faculty
- 2 meetings with librarian
- Graduate students

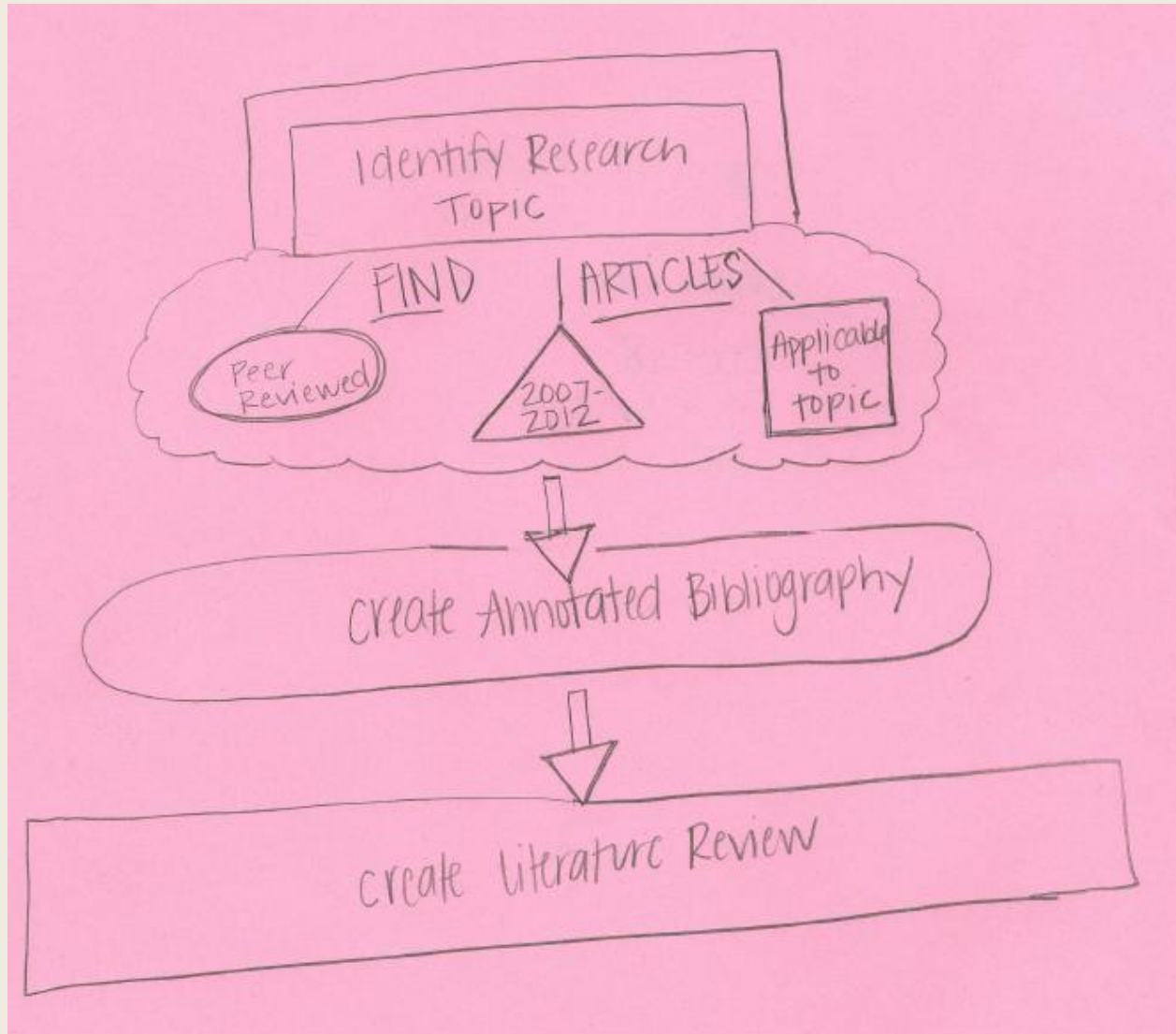
INS 250 pre-map



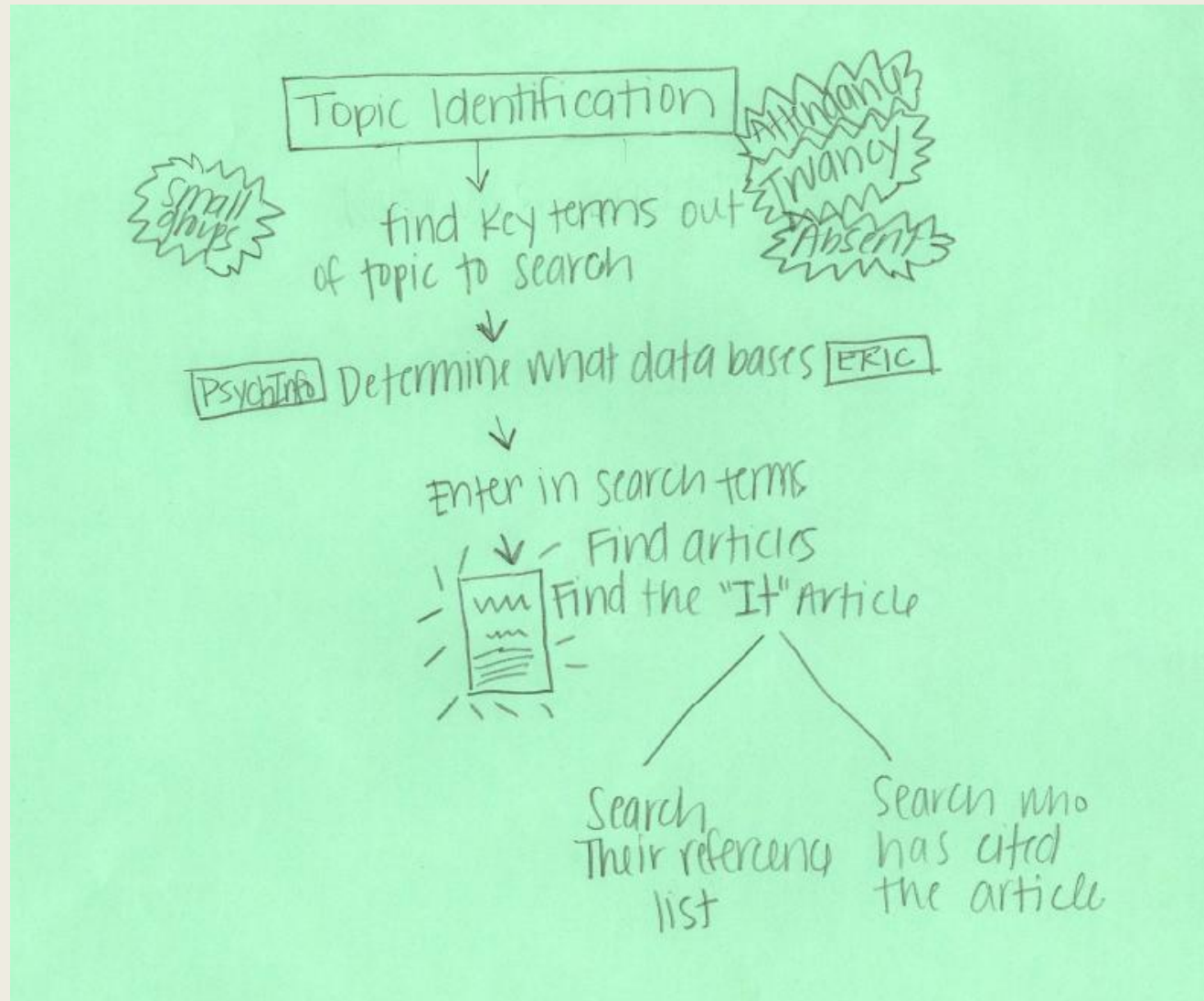
INS 250 post-map



EDC 568 pre-map



EDC 568 post-map



Assessment via Content Analysis

Words, especially when they are organized into incidents and stories, have a concrete, vivid, meaningful flavor that often proves far more convincing...than pages of numbers.

-- Miles & Huberman, 1994

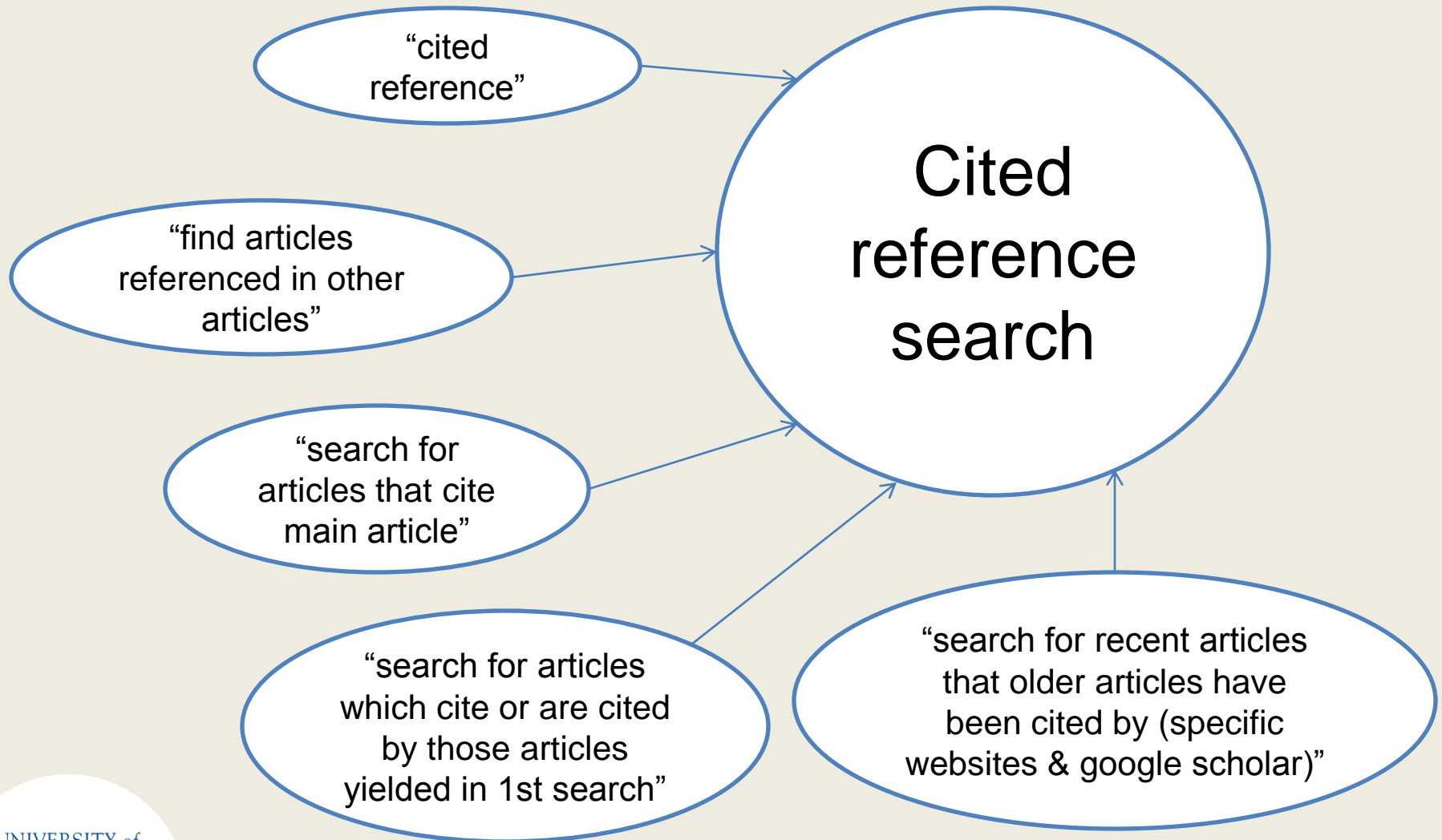
From *Qualitative data analysis: an expanded sourcebook*.
Used in MacDonald & Gass 2012 presentation.

Content Analysis

Analyzing textual data:

- Know the data (examine repeatedly)
- Focus the analysis (identify purpose, key questions)
- Categorize information—LOTS OF WORK
- Identify patterns and connections
- Bring it all together

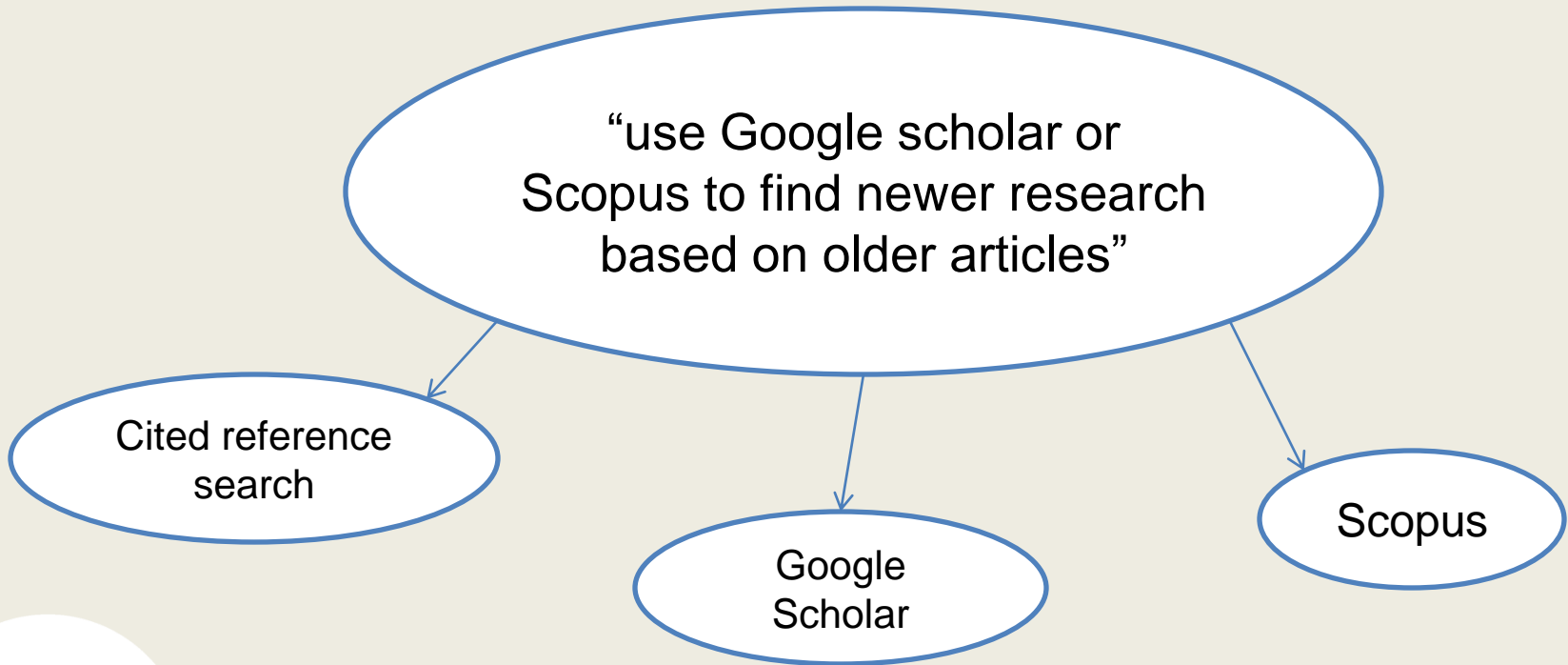
Coding Process



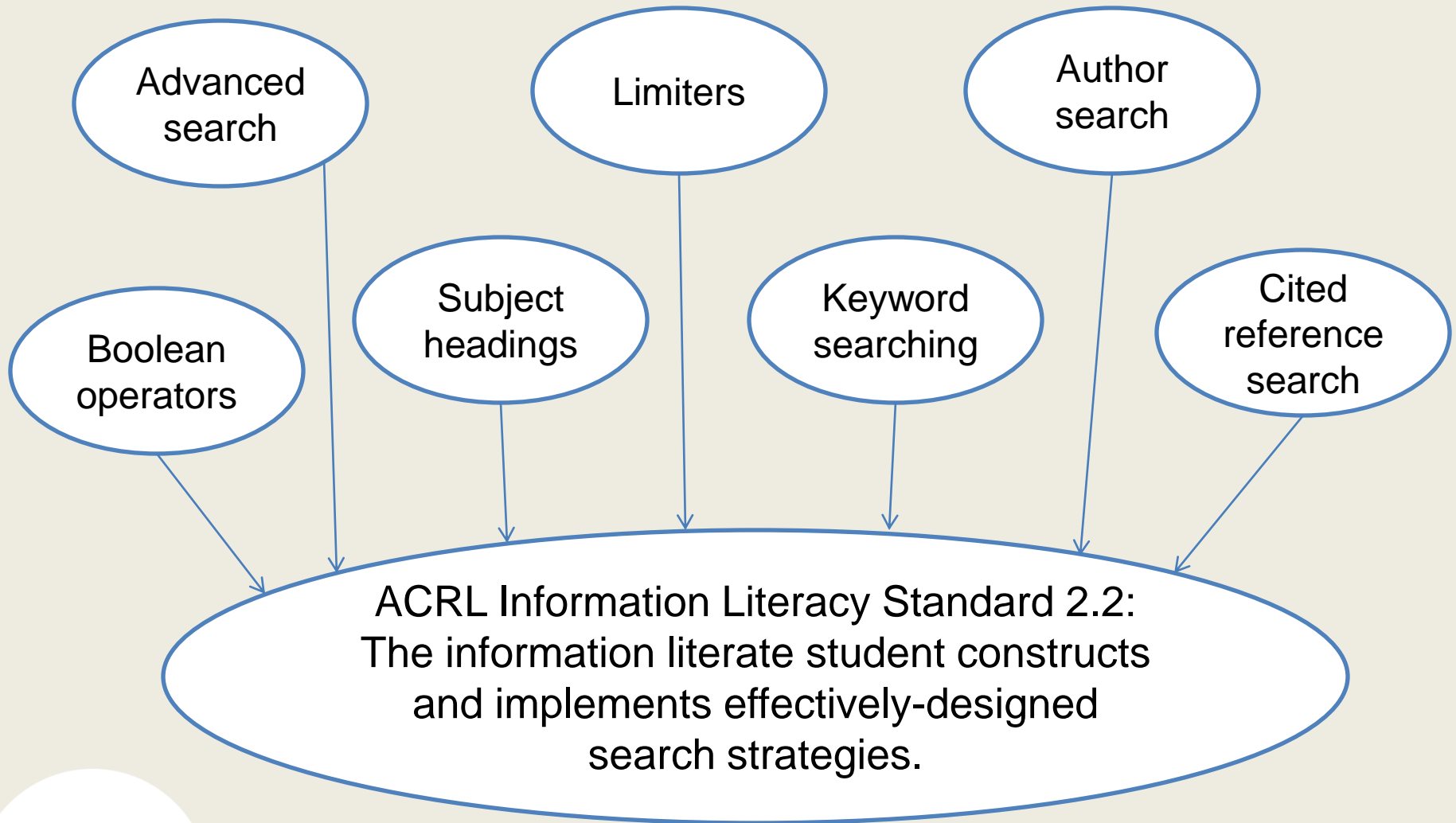
Coding Process

One “node” might have several ideas
BUT

Not more than one taxonomy term per idea



Taxonomy Applied to Framework



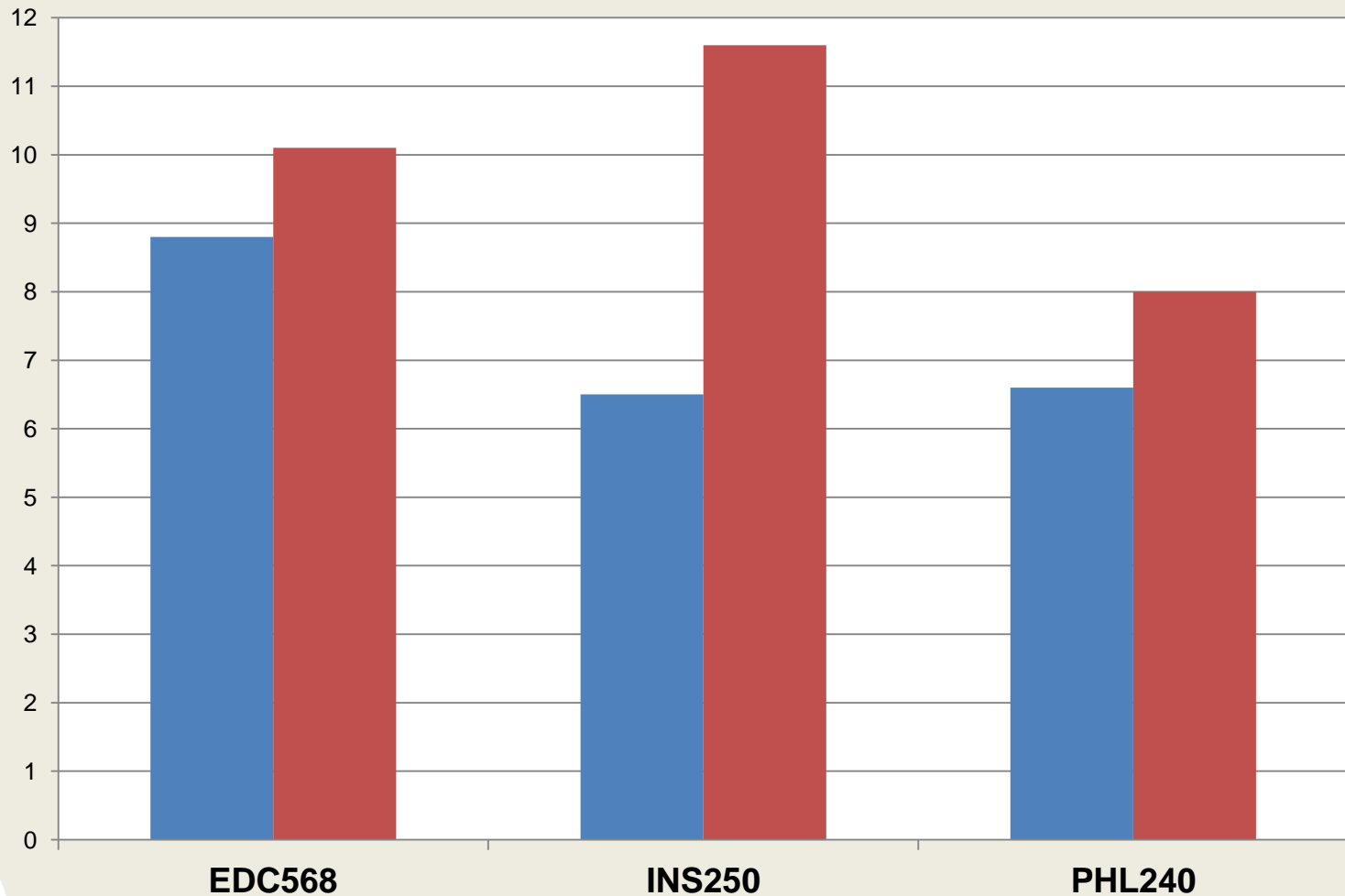
What Did the Data Show?

Average number of post concept map terms increased in all 3 courses

Instruction-related terms increased on post concept maps

Pre- and Post-map Terms

Average number of terms used per course, pre- and post-map

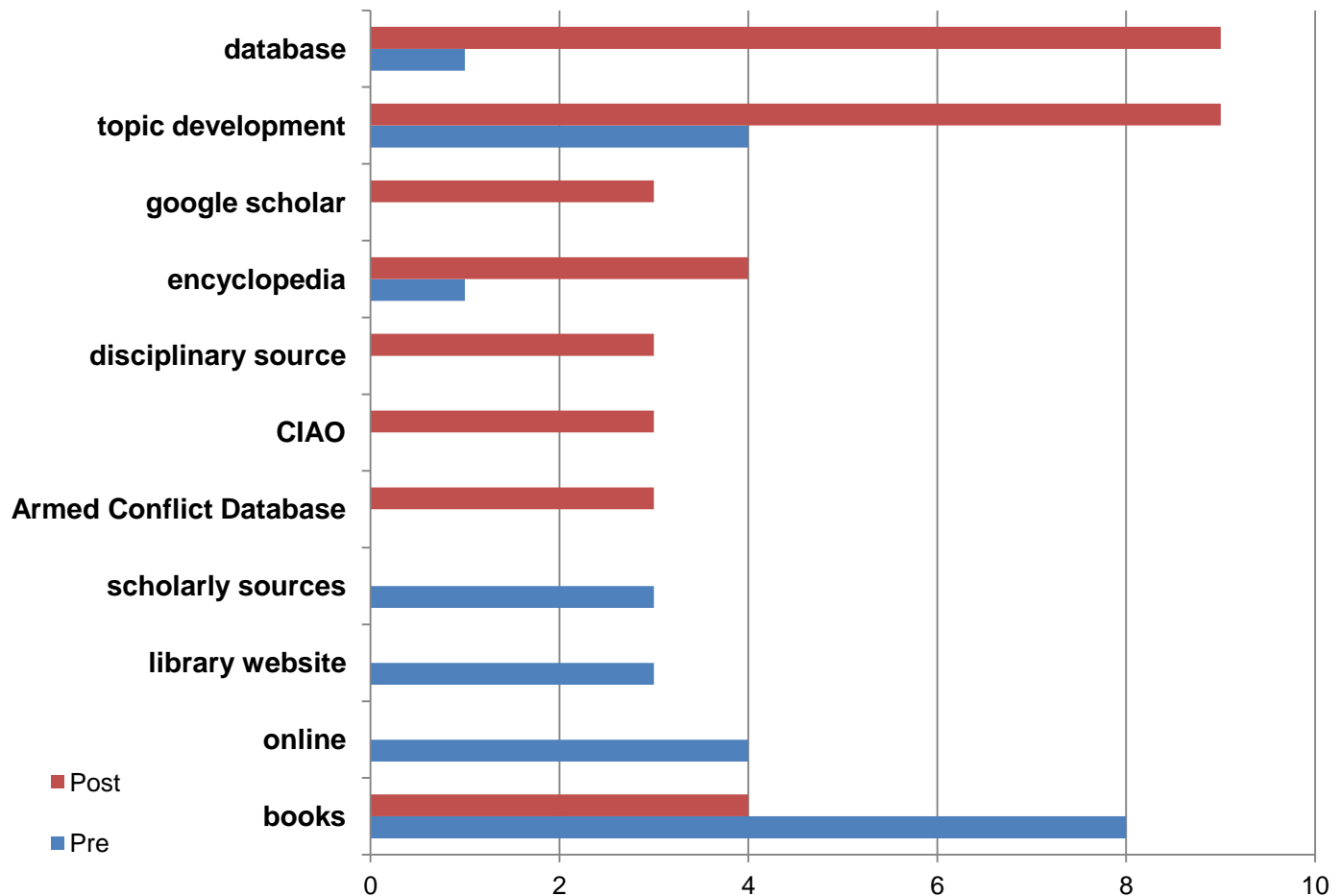


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multiple
check
compile
writing
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problem
talk
outline
write
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know
key info
read
academic
internet
organize
paper
think
scholar
journals
draft
article
keywords
ebSCO
narrow
see
ideas
look
pick
start
ebSCOhost
multiple
reference
online
topics
database
sources
library
books
topic



INS 250 Terms

Word occurrence pre- and post-maps, INS250

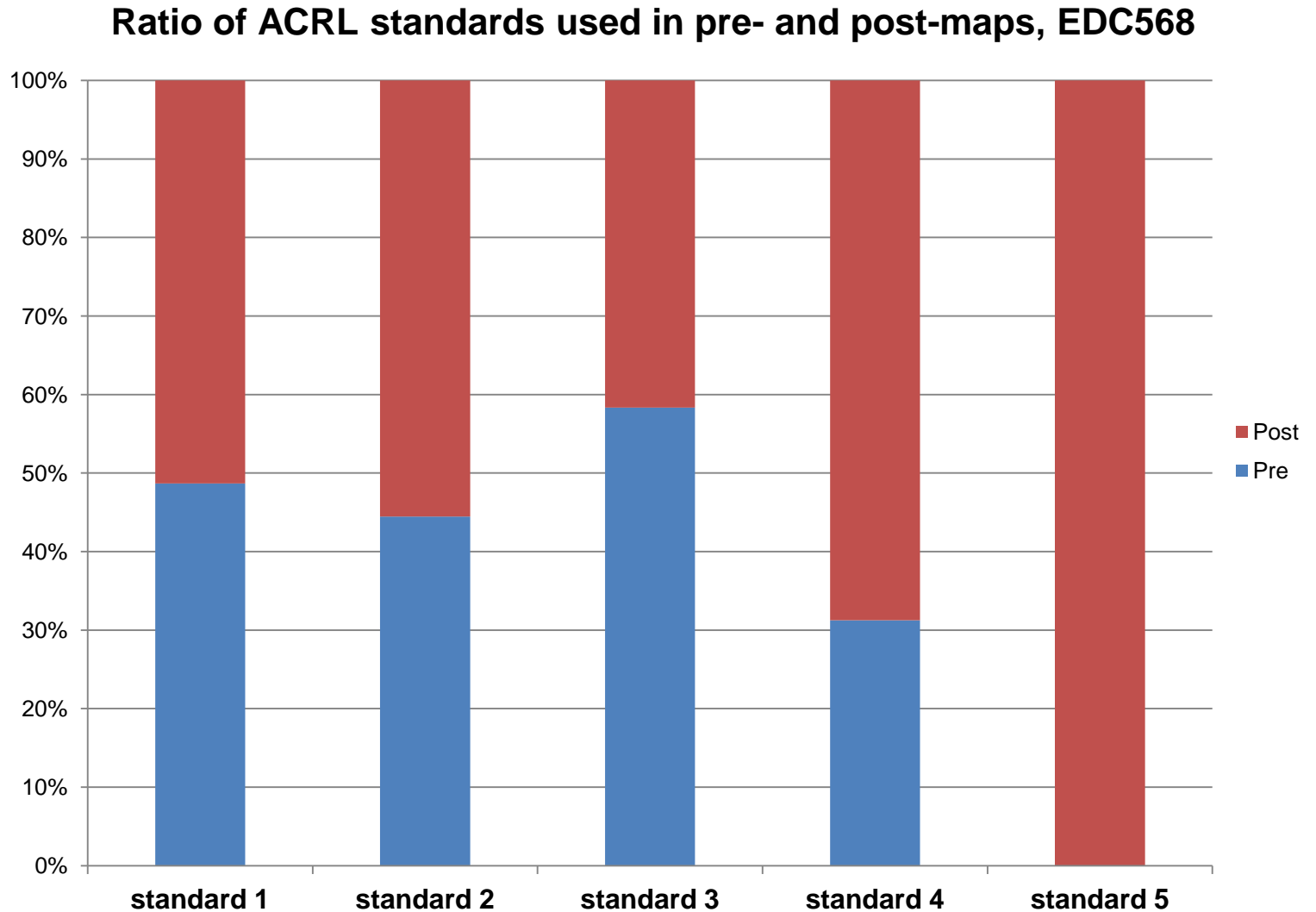


Overall Results

Sample showed improvement in these ACRL Information Literacy Performance Indicators

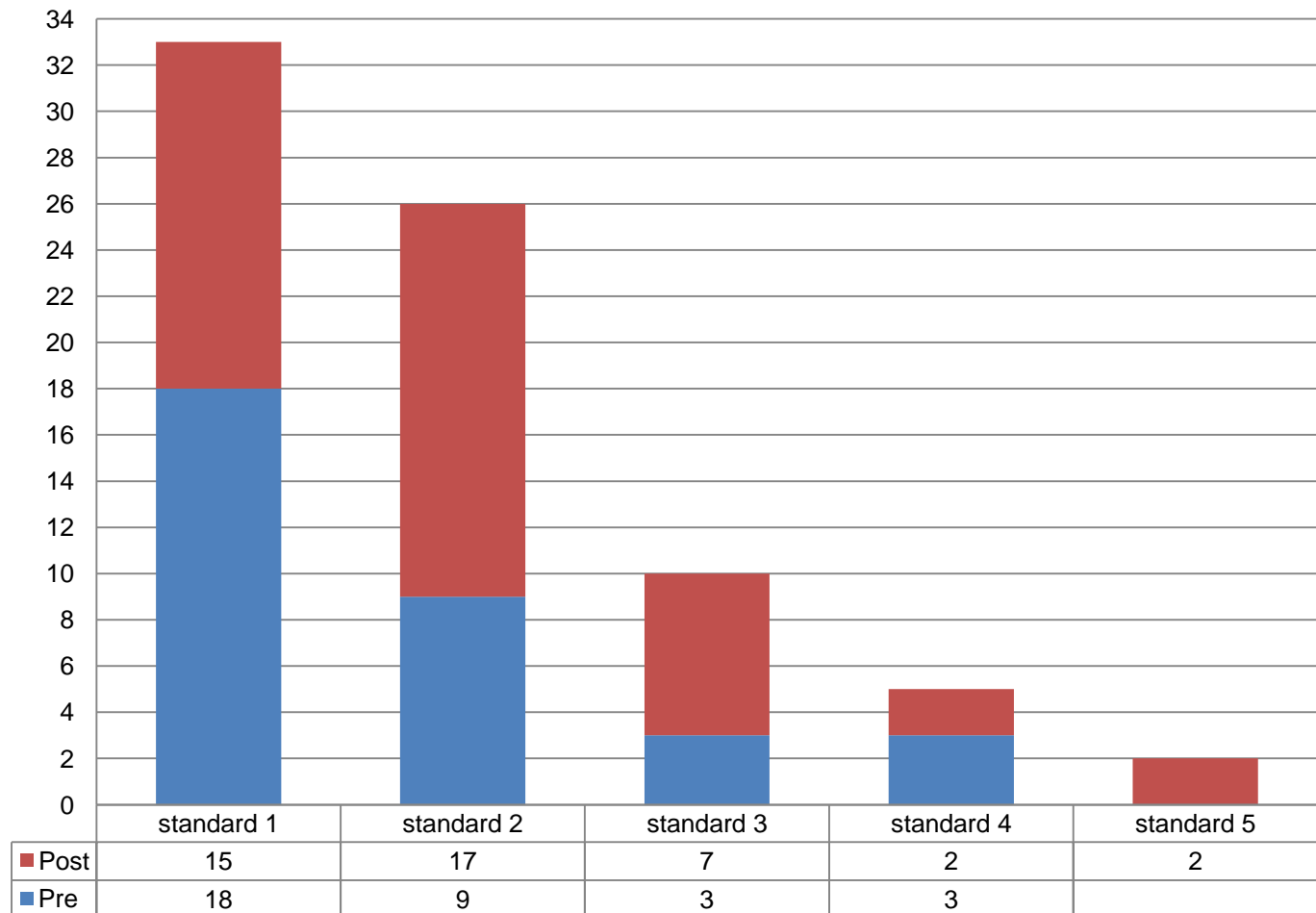
- Types & formats of potential sources (1.2)
- Nature & extent of information need (1.4)
- Effective search strategies & techniques for refinement (2.2, 2.4)
- Management of information & sources (2.5)

EDC 568 & ACRL Standards



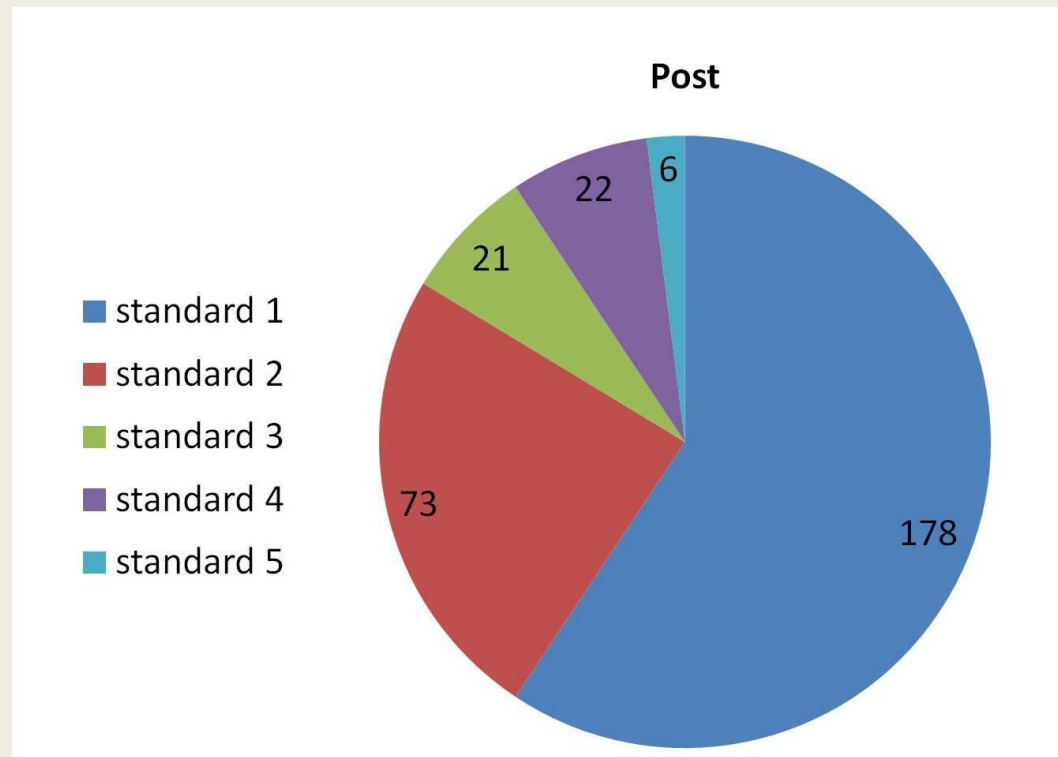
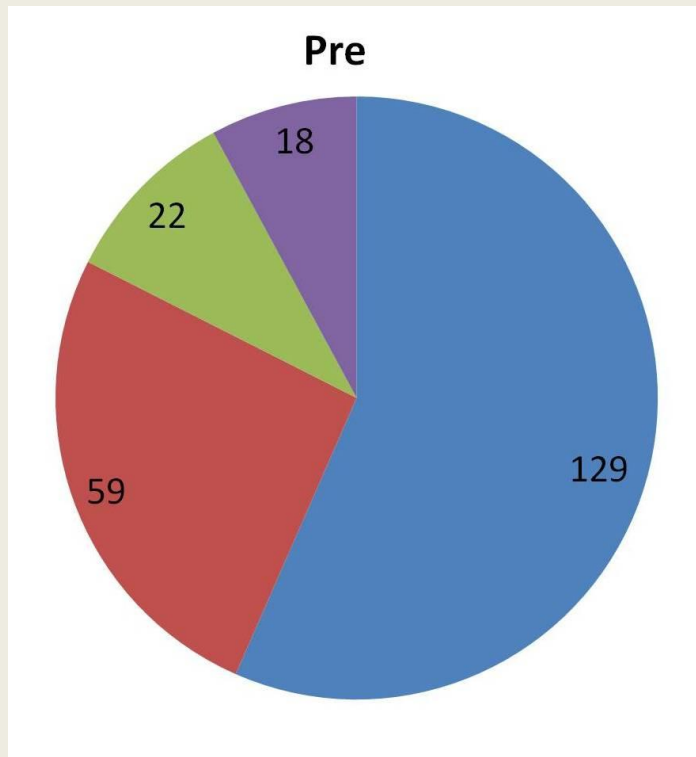
PHL 240 & ACRL Standards, Pre- & Post-

Number of ACRL standards used in pre- & post-maps, PHL240



ACRL Standards, Pre- and Post-

Number of ACRL Standards used in pre- and post-maps, all samples

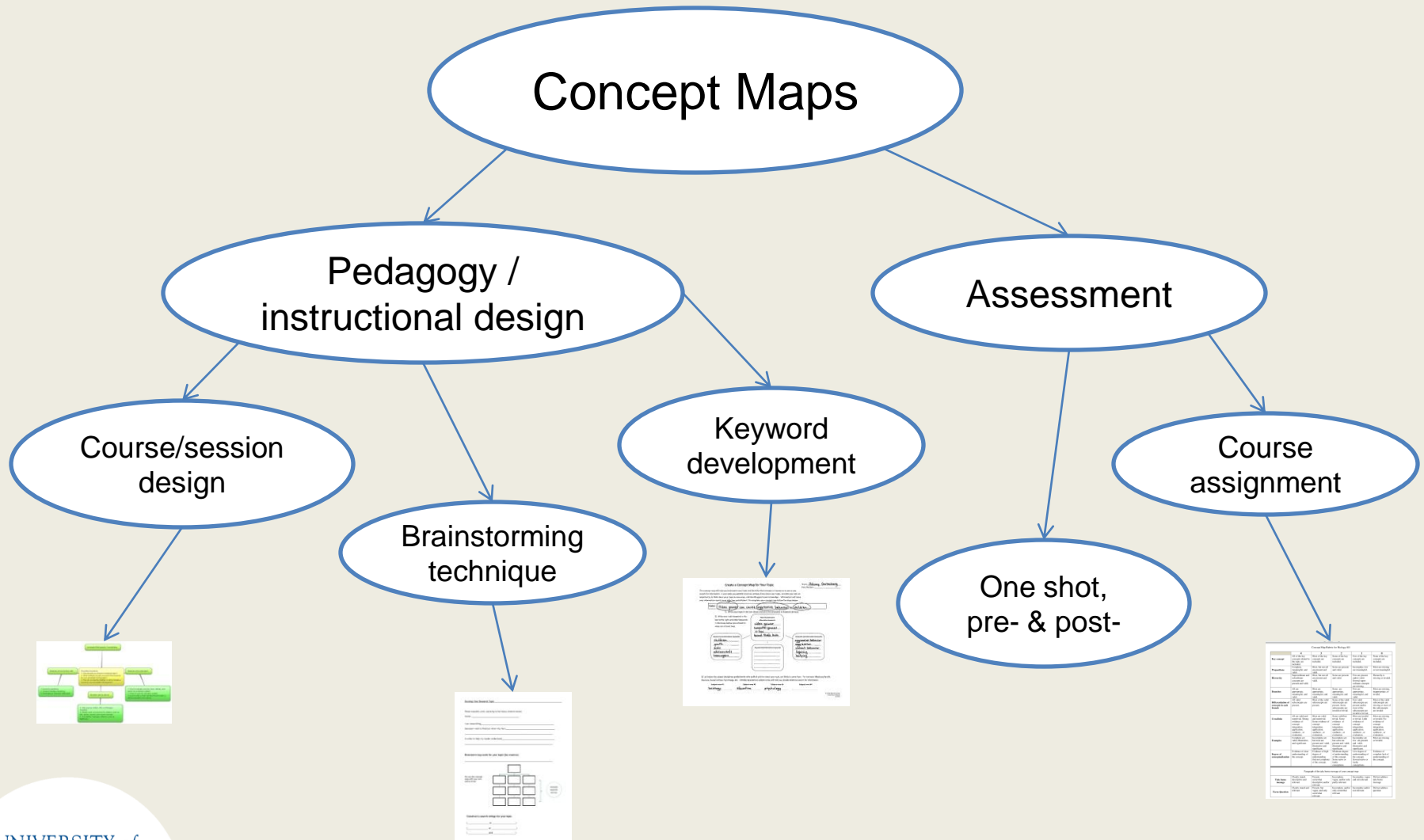


Considerations

Norming: Takes time to get things right

Interrater reliability: Takes time to get things right

Other Uses



Questions?

Thank you!

Heidi Gauder, Coordinator of Research & Instruction

Fred Jenkins, Associate Dean for Collections & Operations