

# Mixed Up about Mixed Methods? An Overview of Mixed Methods Research Designs

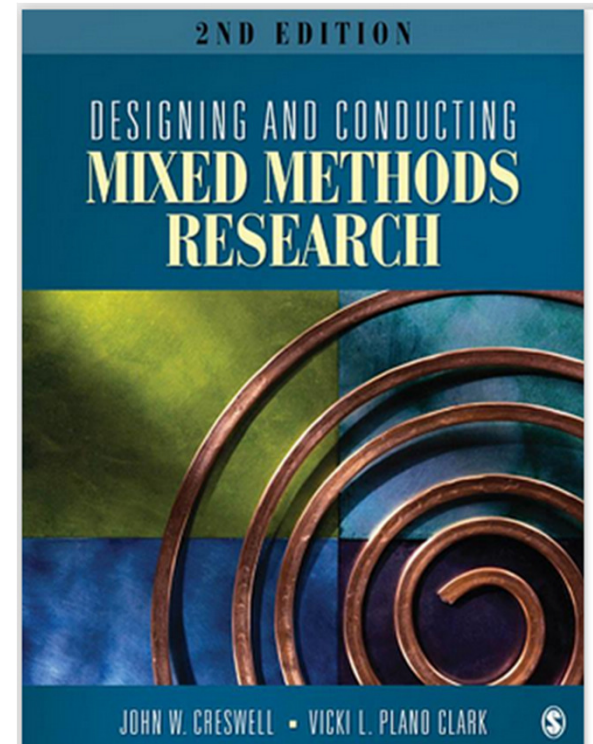
Heather Petcovic, Western Michigan University

Julie Sexton, University of Northern Colorado



# Rationale of Presentation

- Provide overview of mixed methods
  - Philosophical foundation
  - Research designs
  - Examples from our work
- Encourage broader use of the design



Creswell & Plano Clark, 2010

# What and Why?

## What is mixed methods?

- Study that includes quantitative and qualitative *research designs*\*
- Single study or serial design

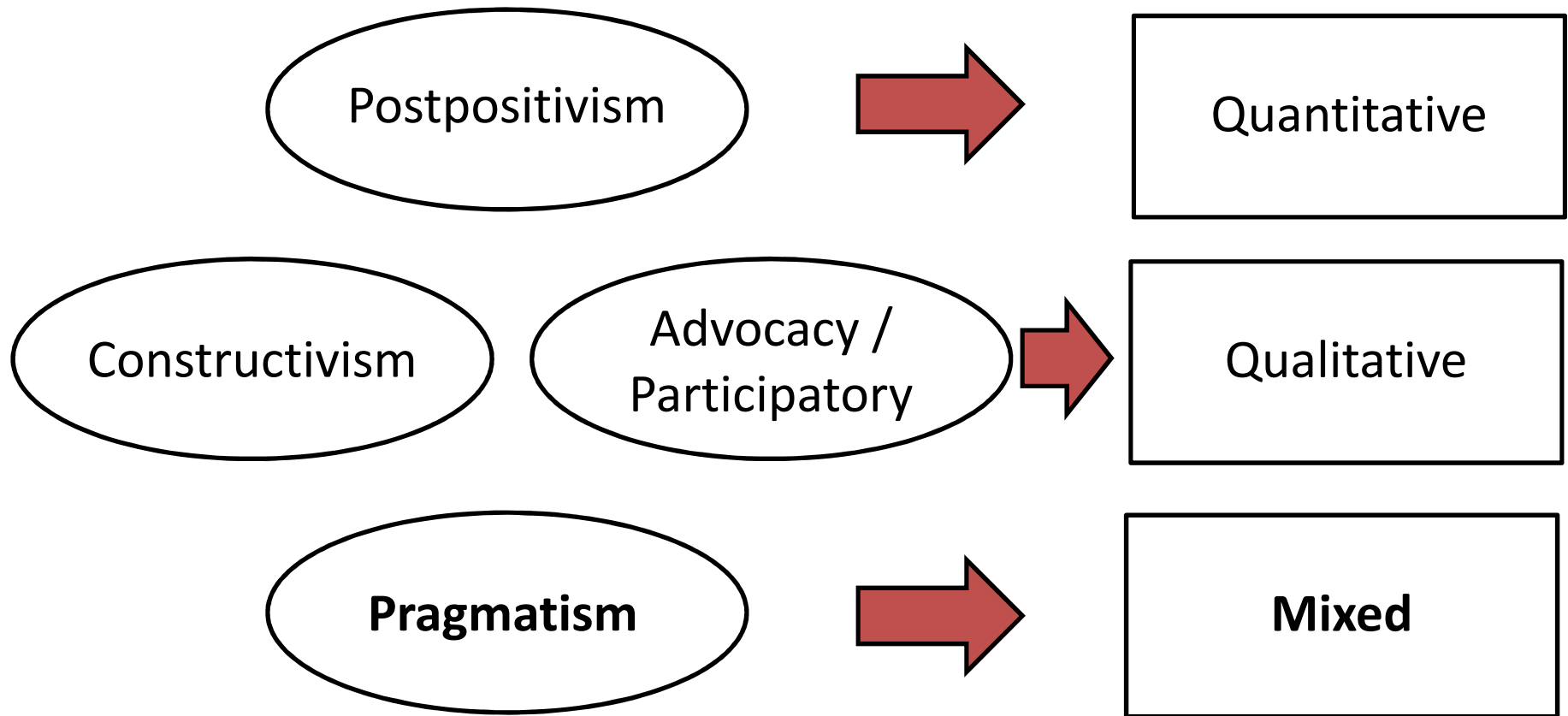
## Why use mixed methods?

- Combined approach provides a better understanding of the research problem than a single approach

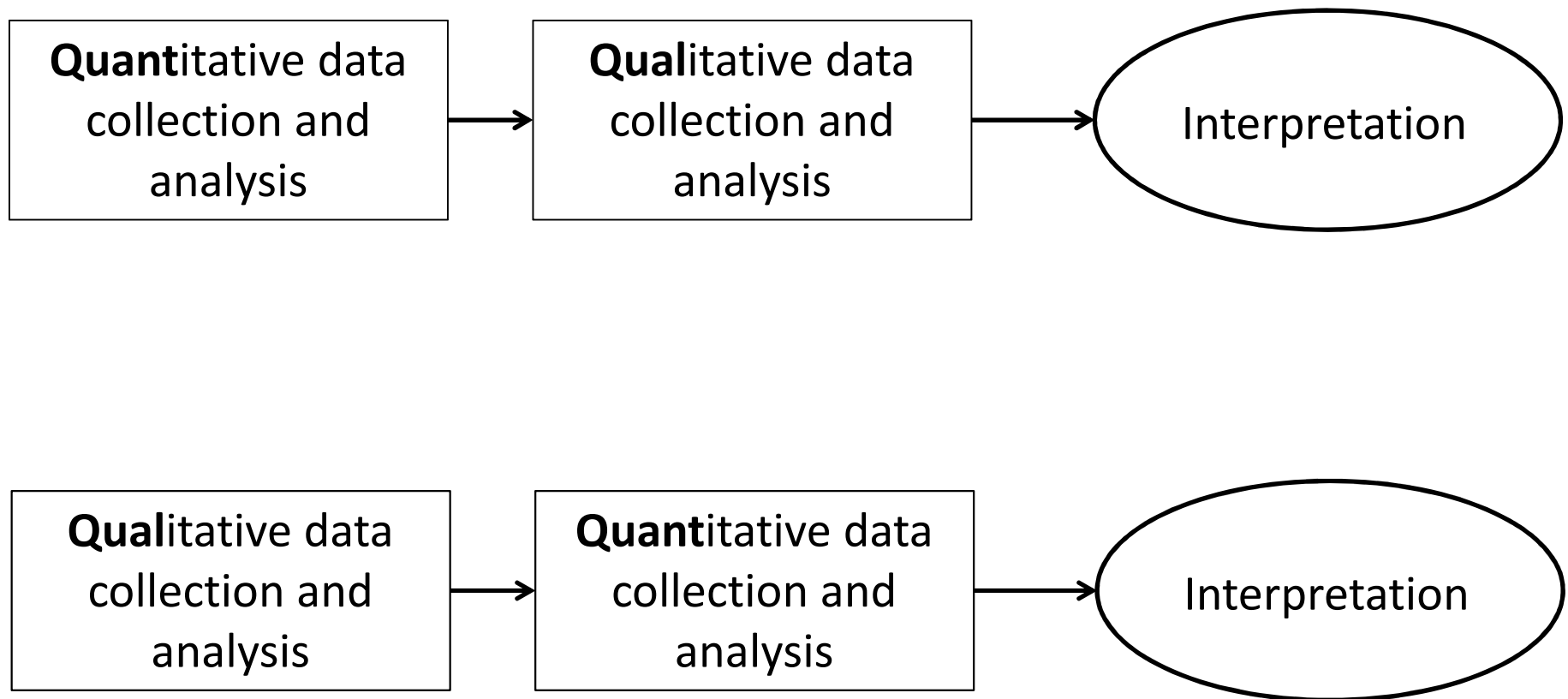
**\*NOT just qualitative and quantitative data!**

# Philosophy

Worldview influences personal choices in research

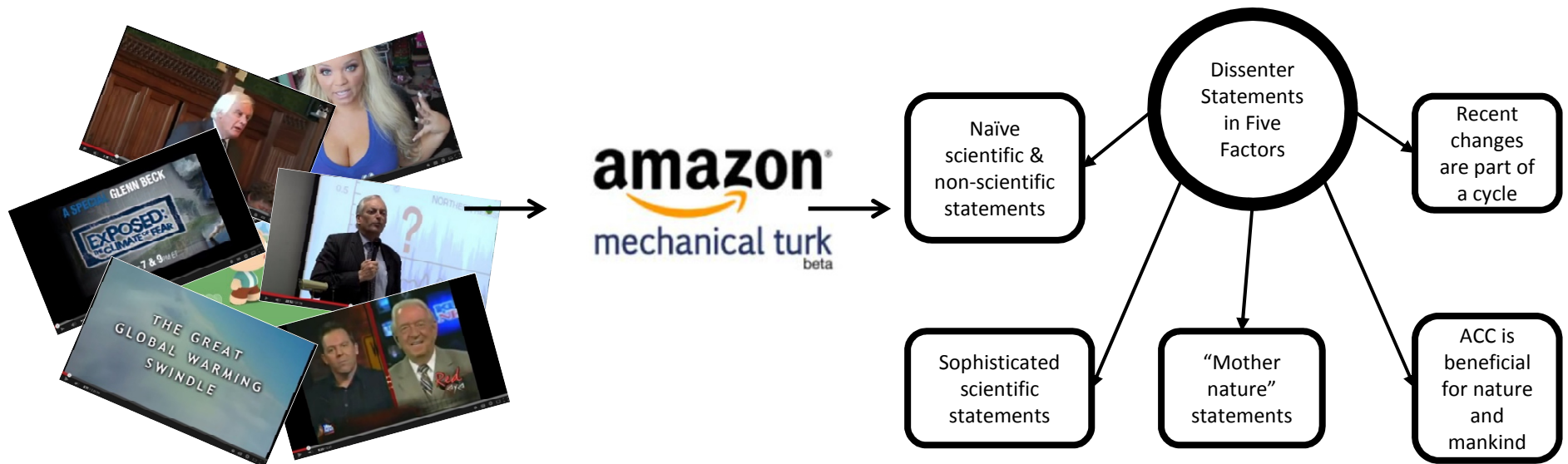
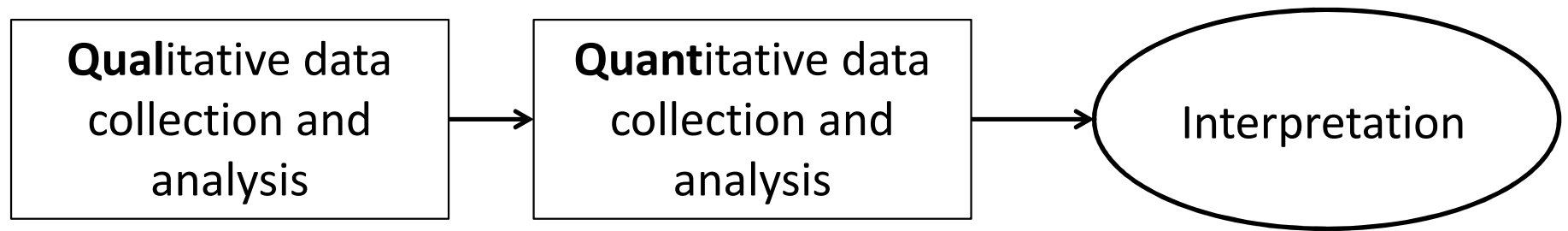


# Designs: Explanatory and Exploratory



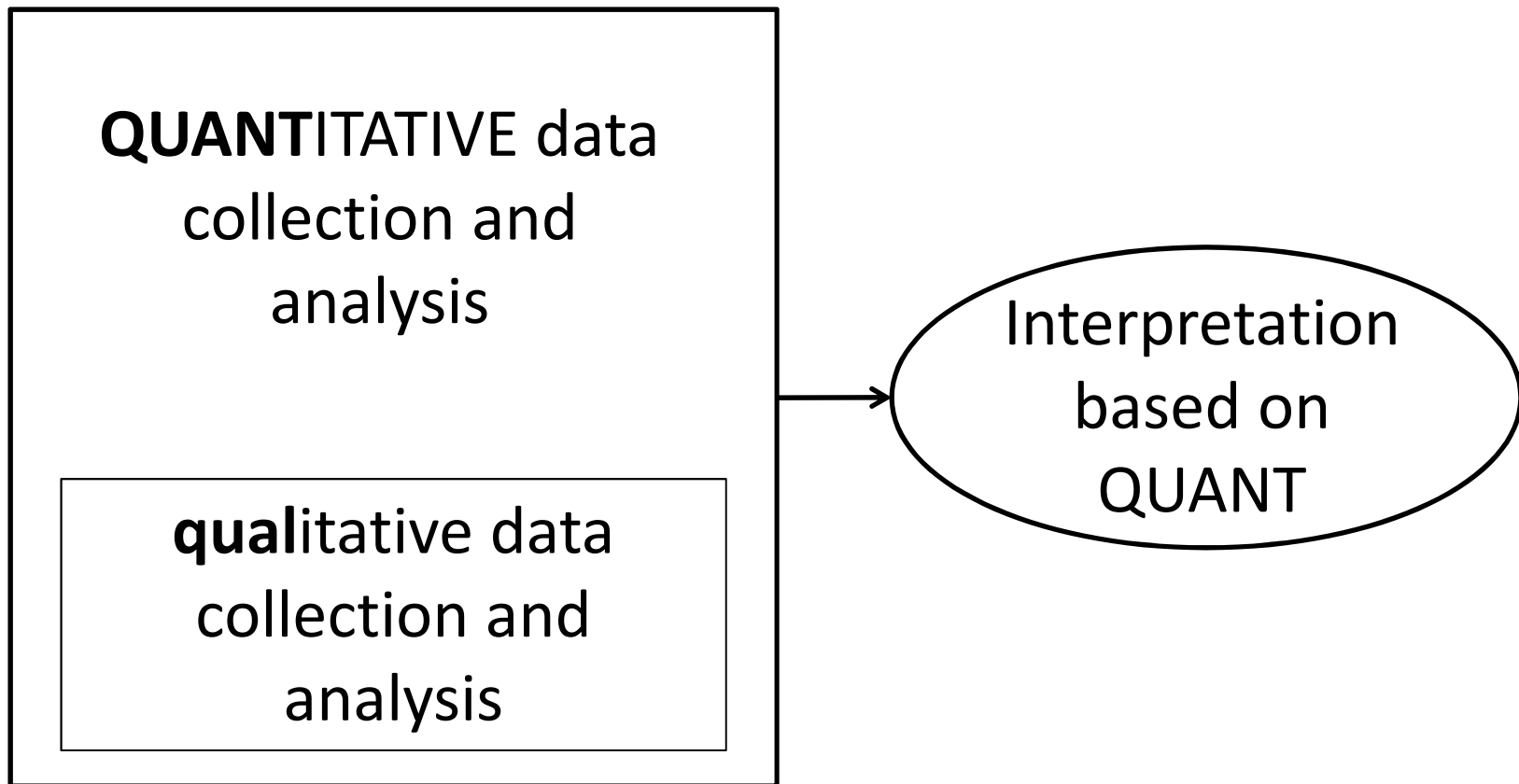
# Design: Exploratory Example

Topic: To what extent do individuals agree with climate change skeptic messages?



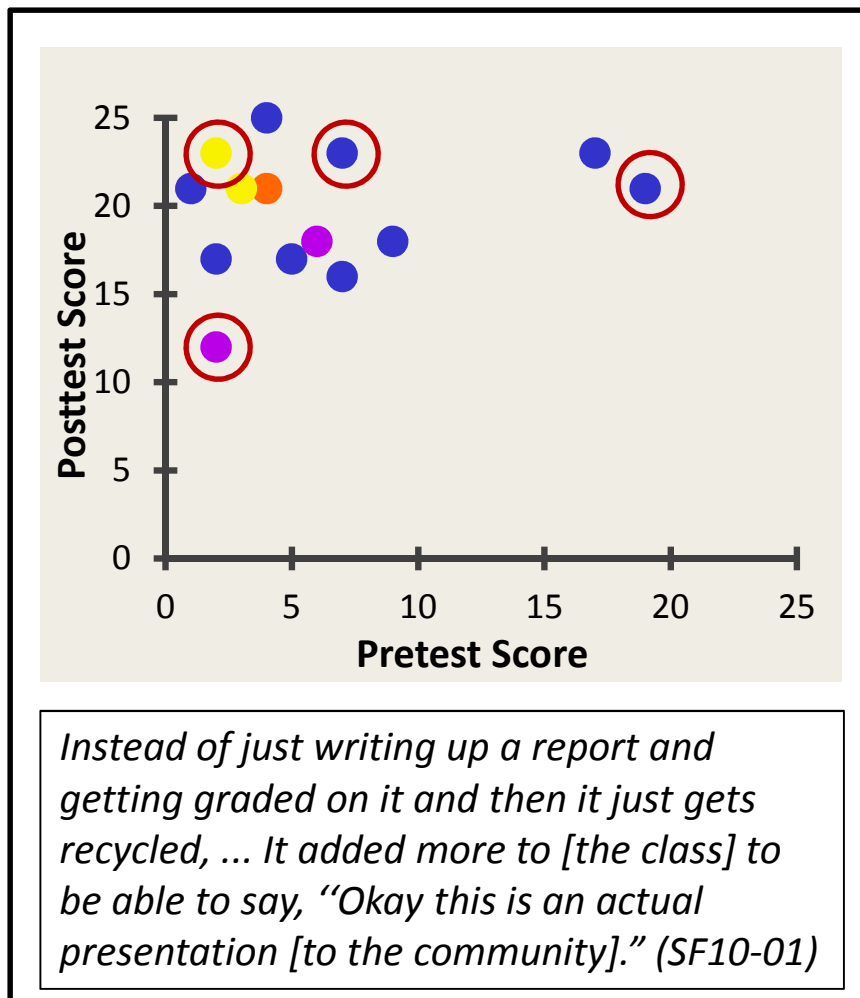
For more: Bentley et al., Tuesday, 9:50 am

# Design: Embedded



# Design: Embedded Example

Topic: Does a field course improve concepts of lake systems?

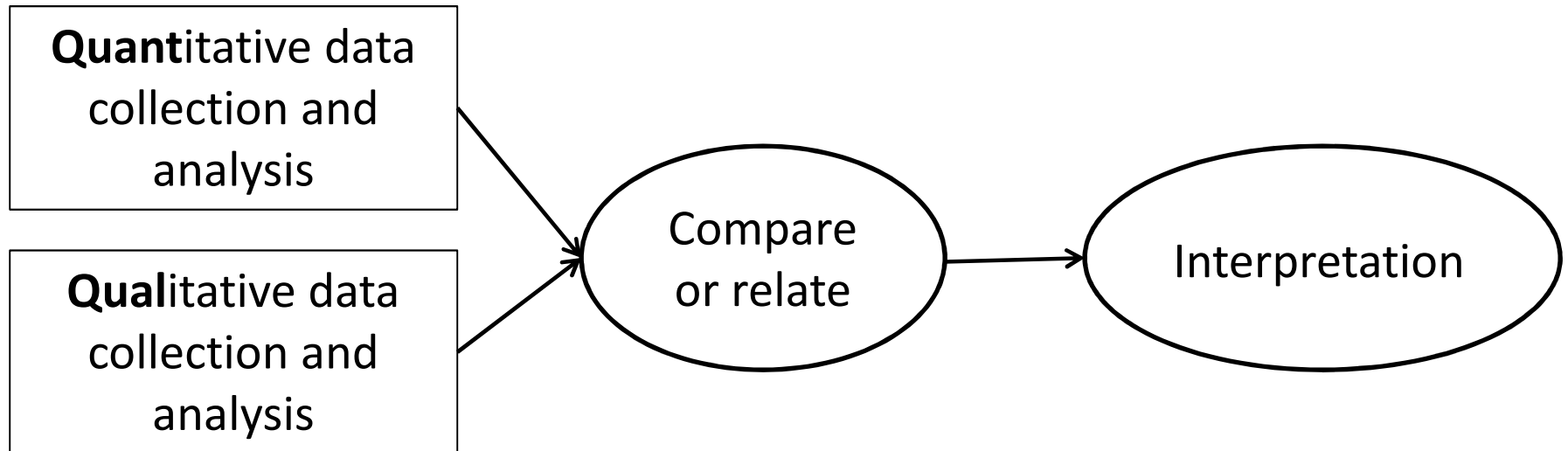


Significant learning gains in content are likely connected to the service learning aspect of this course

Koretsky et al., 2012

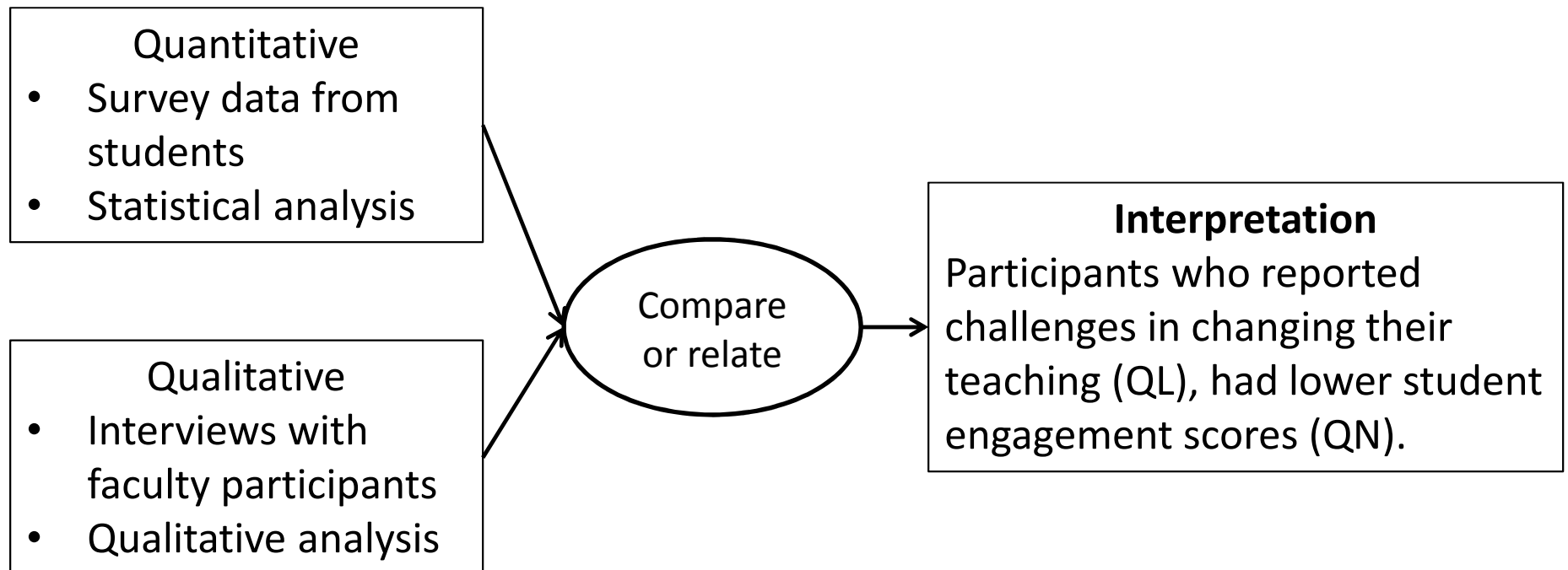


# Design: Triangulation



# Design: Triangulation Example

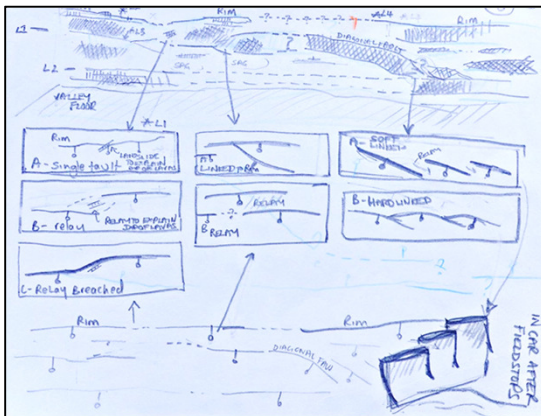
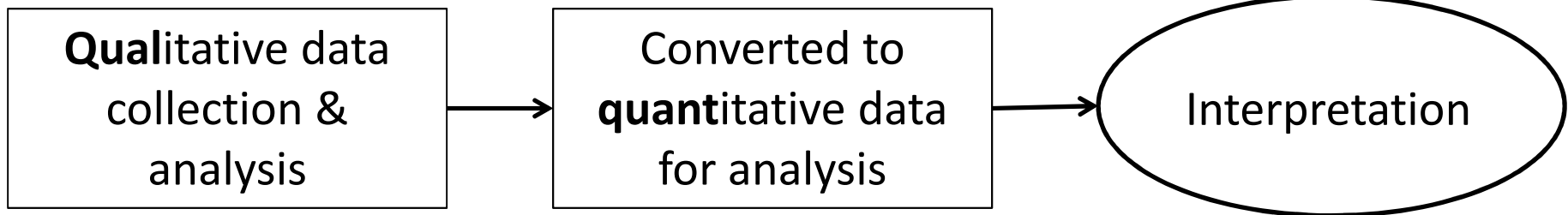
Topic: Does participation in professional development improve participants' teaching practices?



Reid, Sexton, Orsi , 2015

# Real World

Some studies may appear to be mixed methods,  
but may not actually be



361 sketches

Sketch or Annotation Type	IndGeo (%) k=183	AcGeo (%) k=149	$\chi^2$ Statistic (2,K=361)
Landscape (actual)	30.1	26.8	14.27, $p < .01$
Fault symbols	49.7	48.3	16.19, $p < .01$
Related sketches	36.1	48.3	9.99, $p < .01$
Edits or alternates	30.1	16.8	12.74, $p < .01$
Explain thinking	42.6	34.9	14.08, $p < .01$

Petcovic et al., 2016 in press

Industry and  
academic  
geologists  
sometimes  
sketch differently

# Real World

**Is this embedded or triangulation?**

Study: Why do students select a geoscience major?

## **QUANTITATIVE**

- Close-ended survey data
- Multiple regression analysis

## **QUALITATIVE**

- Interviews with students
- Constant comparative analysis

## **OPTIONS**

- **Embedded**
- **Triangulation**

# Conclusion

- Mixed method research can be a powerful tool
  - Yields greater insight than a single approach study
  - Overcomes limitations of a single approach
- Is mixing for you? Consider your:
  - Worldview
  - Research question / purpose
  - Comfort and familiarity with both qualitative and quantitative designs/methods

# Questions?

## Contact

Heather Petcovic

Western Michigan University

[heather.petcovic@wmich.edu](mailto:heather.petcovic@wmich.edu)

Julie Sexton

University of Northern Colorado

[Julie.sexton@unco.edu](mailto:Julie.sexton@unco.edu)