

# Panel Discussion: Instructor Stories about Reforming Teaching Practice

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# Perspective from the On the Cutting Edge Classroom Observation Project

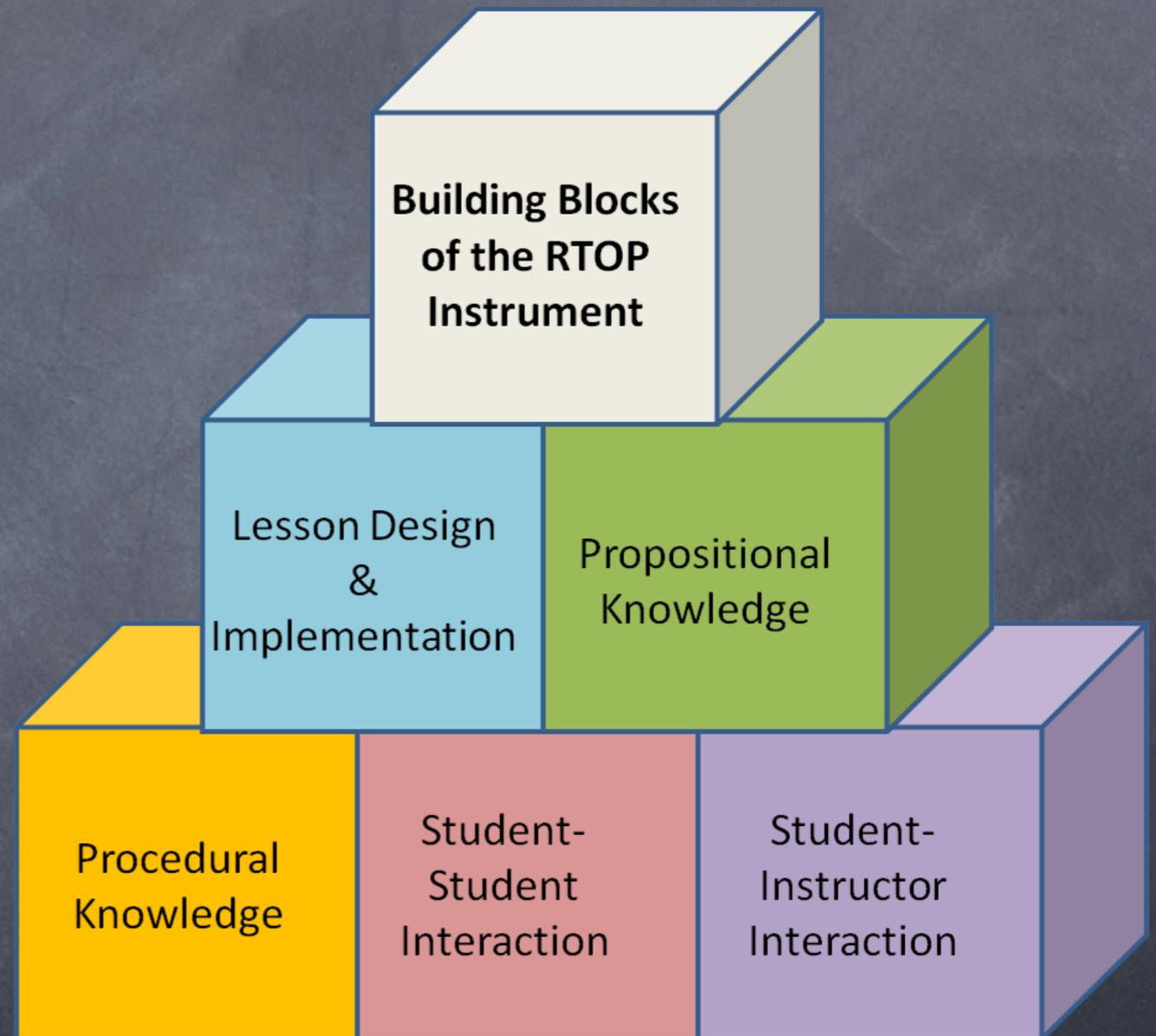
What are the common characteristics of instruction in undergraduate geoscience classes?

To what extent do undergraduate geoscience classes employ active learning?

Project leadership team: Rachel Teasdale, David McConnell, Cathy Manduca, Dori Farthing, Julie Bartley, Katherine Ryker, Monica Bruckner, Ellen Iverson, Karen Viskupic

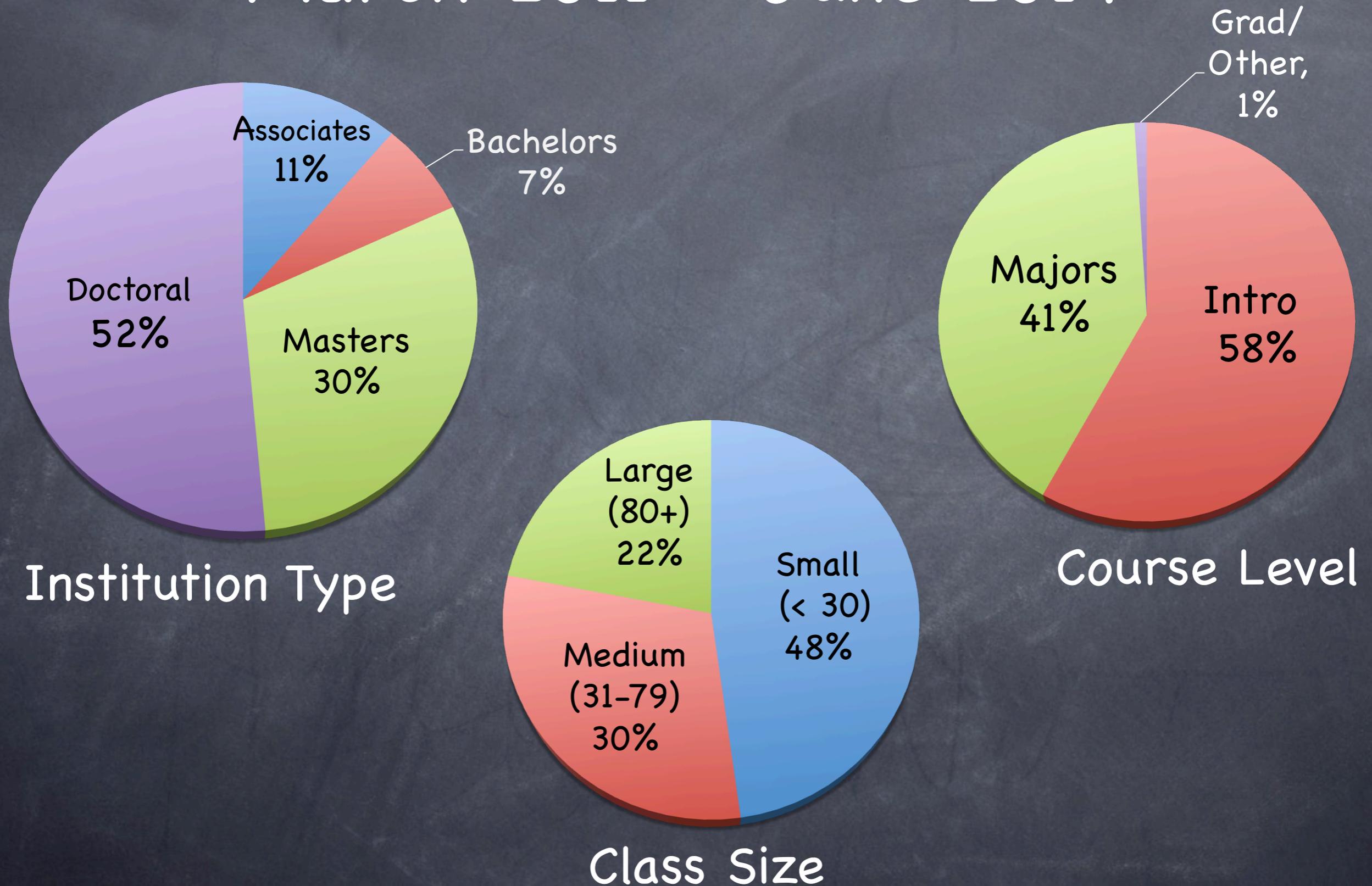
# The Reformed Teaching Observation Protocol (RTOP)

- Standardized way to describe classroom practices
- 25-item rubric; each item scored from 0 to 4
- Items based on evidence-based instructional practices

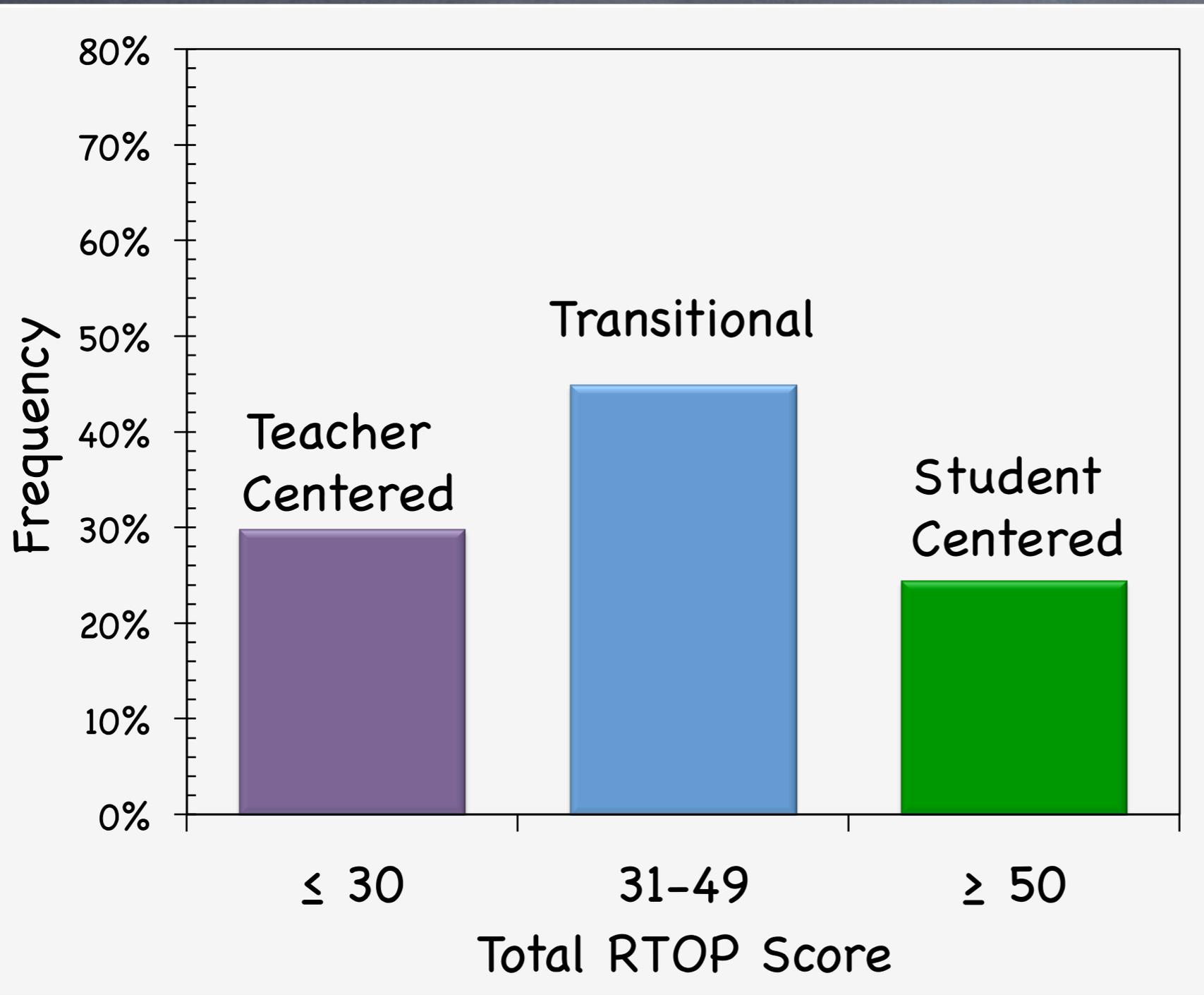


# 204 RTOP observations

## March 2011 – June 2014



# Total RTOP Scores



n = 204  
range = 13-89  
mean = 39

instructional categories of Budd et al., 2013, Journal of Geoscience Education, v. 61., p. 461-475

# Project Data

RTOP scores

What  
distinguishes  
more reformed  
geoscience  
classes?

Observer  
Comments

Instructor  
survey  
responses

... also what I've tried to change in my own teaching based on observing classes and using the RTOP rubric

more reformed geoscience classes?

Observer  
Comments

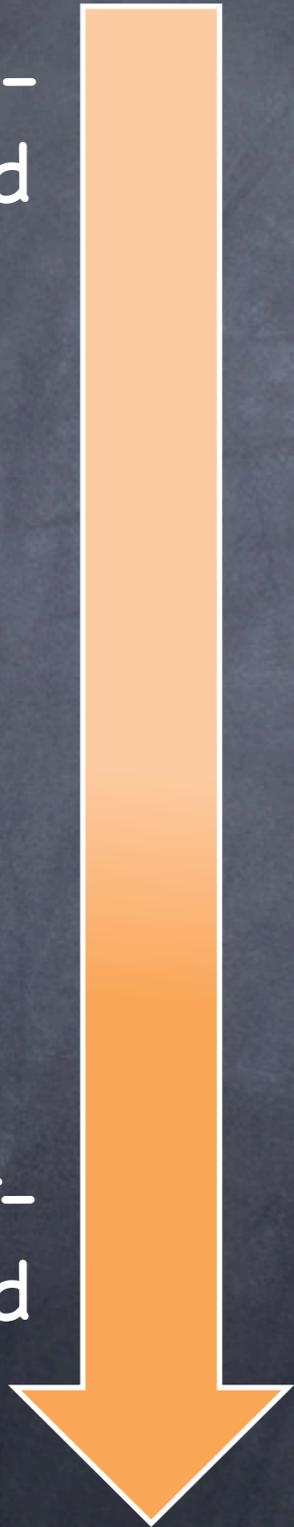
Instructor  
survey  
responses

# Questioning Strategies

Teacher-  
centered

- No/few questions from the instructor or from the students
- Instructor asks "shout out" questions
- Instructor asks questions but "wait time" is short
- Students ask questions or volunteer ideas
- Students answer open-ended questions (often working with each other to do so)

Student-  
centered

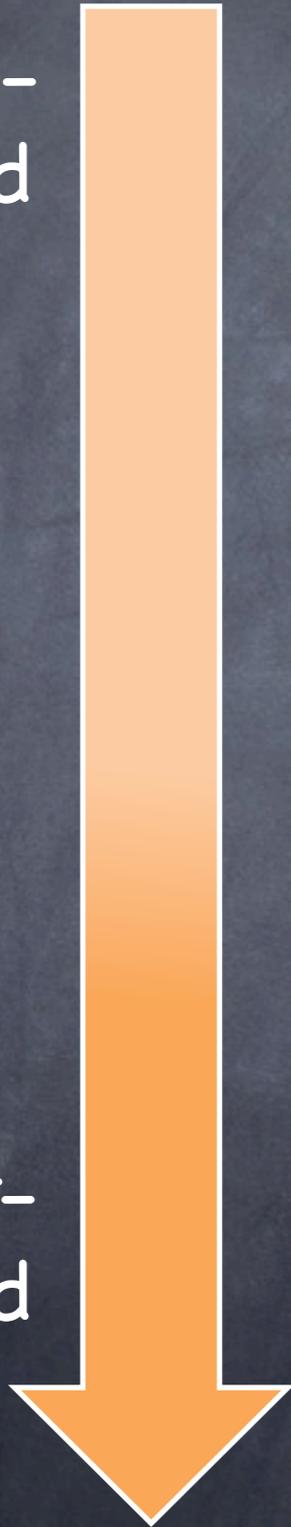


# Student-Student Interactions

Teacher-  
centered

- Students do not interact with each other
- Students talk with each other at least once (perhaps part of think-pair-share)
- Students interact with each other throughout class- answering questions, discussing data, etc.
- Students spend the majority of class time working with each other

Student-  
centered

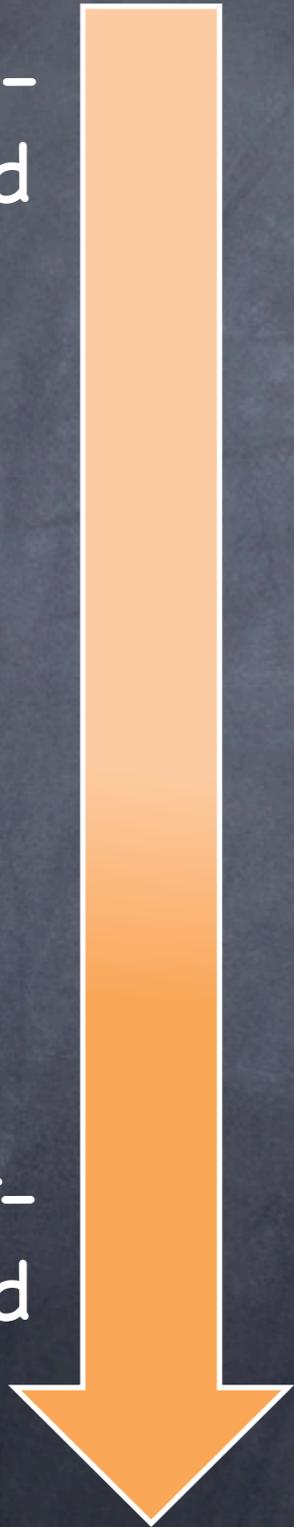


# Type of Student Work and Thinking

Teacher-  
centered

- Students are not asked to do or think about anything
- Students answer recall or fact-based questions
- Students make observations and interpretations
- Students make predictions or hypotheses

Student-  
centered

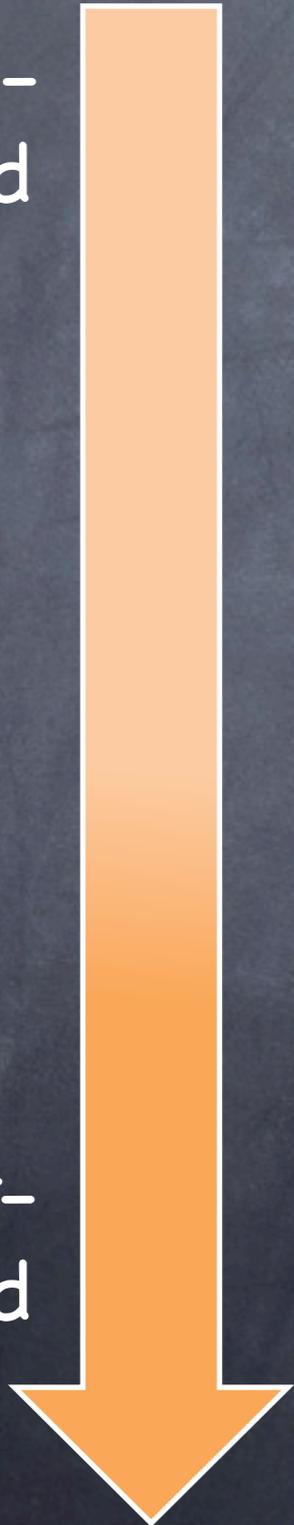


# Incorporation of Student Ideas and Assessment Results into the Lesson

Teacher-  
centered

- Student ideas are not represented. No assessment.
- Student ideas/questions are heard, but there is no adjustment of the lesson
- Lesson is adjusted based on student work or prior knowledge

Student-  
centered



# Amount of Time Spent on Lecture

Teacher-  
centered

- All of class time is spent on lecture
- Lecture is punctuated by questions to or from students
- Class includes lecture and short activities
- Class includes lecture and longer, more in-depth activities in which students work together to solve a problem

Student-  
centered

