

TABLE 1**Overview of observation instruments.**

	TDOP	COPUS	PORTAAL	DART
Level of inference	low	low	medium	none
Sampling rule/ recording rule	behavior/one-zero	behavior/one-zero	behavior/continuous	behavior/continuous
Training time	multi-day	1–2 hours	5 hours	none
Observer	some disciplinary experience	undergraduate and above	undergraduate and above	audio recording device
Class setting	any, but challenging in larger courses	any, but challenging in larger courses	large active-learning courses	any
Behaviors coded	22 instructor behaviors and 6 student behaviors, excluding optional dimensions	12 instructor behaviors and 13 student behaviors	mainly instructor focused	how many people are speaking (0, 1, multiple)
Recorded or live observations	either	either	recorded recommended; additional class documents needed	recorded
Theoretical lens	absent	absent	present	absent

TABLE 2**Example PORTAAL elements for a sample course (Mazur, 2012).**

Dimension	Element	Measure (%)
Practice	P1. Frequent practice; time any student has the possibility to talk through class content	61
Logic development	L1. Frequent opportunities to practice higher-order skills in class; percentage of activities where students use higher-order skills	100
	L2. Prompt students to explain their answers; percentage of activities where students are reminded to use logic	100
	L3. Allow students time to think before discussing answers; percentage of activities where students have time to think alone before discussions	100
Accountability	A2. Activities involve small-group work so more students have opportunity to participate; percentage of activities where students work in small groups	100
Apprehension reduction	R2. Student confirmation: provide praise to whole class for their work; percentage of activities where class received positive feedback or encouragement	0
	R5. Error framing: emphasize errors are natural and instructional; percentage of activities where instructor reminds students that errors are okay	0
	R6. Emphasize hard work over ability; percentage of activities where instructor praises student effort or improvement	0