Classroom Observation Protocol for Undergraduate STEM – COPUS

Smith MK, Jones FHM, Gilbert SL, and Wieman CE. 2013. The Classroom Observation Protocol for Undergraduate STEM (COPUS): a New Instrument to Characterize University STEM Classroom Practices. CBE-Life Sciences Education

Date and time of Observation: _____

1) Background Information

a) **Observer Name:** _____

b) **Class No./name/section:** _____

c) **Observer's location in the class**: _____

2) Classroom and background

a) Room location and layout (e.g., type of student seating, instructor on podium, etc.).

b) Note if there is anything unusual about this particular class/lecture (e.g., quiz day, first day of semester, etc) (try to avoid observing classes that are particularly anomalous)

c) **(Optional, if known)** What goes on out of class? ☐Homework? ☐Pre-readings? ☐Labs? ☐Projects? ☐Other? Explain briefly.

d) **(Optional, if know)** How varied are classes for this course? Circle one each, to show balance of ***Active Students / Instructor Delivery*** …

i) for the **Whole Course,** balance approximates: 0%/100% 20/80 40/60 50/50 60/40 80/20 100%/0%

ii) in **Today's Class Only,** balance approximates: 0%/100% 20/80 40/60 50/50 60/40 80/20 100%/0%

3) Narrative Description of Class (also known as field notes) (optional)

Information could include …

- The structure of the lesson (e.g., how the instructor sequenced material, the narrative arc of the class)
- The range and nature of activities that occurred.
- Dialog/behaviors that illustrate codes you gave, especially for teaching techniques and student engagement.
- Instructor's actions that appear to have affected students' engagement.
- Evidence of variability among students (e.g., if small groups, to what extent did groups behave and engage similarly?)

Observation codes

1. Students are Doing

- **L** Listening to instructor/taking notes, etc.
- **Ind** Individual thinking/problem solving. Only mark when an instructor explicitly asks students to think about a clicker question or another question/problem on their own.
- **CG** Discuss clicker question in groups of 2 or more students
- **WG** Working in groups on worksheet activity
- **OG** Other assigned group activity, such as responding to instructor question
- **AnQ** Student answering a question posed by the instructor with rest of class listening
- **SQ** Student asks question
- **WC** Engaged in whole class discussion by offering explanations, opinion, judgment, etc. to whole class, often facilitated by instructor
- **Prd** Making a prediction about the outcome of demo or experiment
- **SP** Presentation by student(s)
- **TQ** Test or quiz
- **W** Waiting (instructor late, working on fixing AV problems, instructor otherwise occupied, etc.)
- **O** Other – explain in comments

2. Instructor is Doing

- **Lec** Lecturing (presenting content, deriving mathematical results, presenting a problem solution, etc.)
- **RtW** Real-time writing on board, doc. projector, etc. (often checked off along with Lec)
- **FUp** Follow-up/feedback on clicker question or activity to entire class
- **PQ** Posing non-clicker question to students (non-rhetorical)
- **CQ** Asking a clicker question (mark the entire time the instructor is using a clicker question, not just when first asked)
- **AnQ** Listening to and answering student questions with entire class listening
- **MG** Moving through class guiding ongoing student work during active learning task
- **1o1** One-on-one extended discussion with one or a few individuals, not paying attention to the rest of the class (can be along with MG or AnQ)
- **D/V** Showing or conducting a demo, experiment, simulation, video, or animation
- **Adm** Administration (assign homework, return tests, etc.)
- **W** Waiting when there is an opportunity for an instructor to be interacting with or observing/listening to student or group activities and the instructor is not doing so
- **O** Other – explain in comments

3. Student Engagement (optional)

- **L** Small fraction (10-20%) obviously engaged.
- **M** Substantial fractions both clearly engaged and clearly not engaged.
- **H** Large fraction of students (80+%) clearly engaged in class activity or listening to instructor.

Student engagement alternatives:

(1) Just mark when engagement is obviously high or obviously low.

(2) Count "N" students near you (~10) and assess how many appear engaged at every 2 minute interval. Enter value for all engaged instead of L/M/H. NOTE what your value of N was.

Suggestions regarding codes and comments:

- Clarify code choices with comments.
- Consider indicating your confidence regarding coding, especially when you aren't sure about choice of codes.

HOW TO USE OBSERVATION MATRIX: Put a check under all codes that happen anytime in each 2 minute time period (check multiple codes where appropriate). If no codes fit, choose "O" (other) and explain in comments. Put in comments when you feel something extra should be noted or explained.

Date:_____ Class: _____ Instructor: _____No. students _____ Arranged how? _____

1. **L**-Listening; **Ind**-Individual thinking; **CG**-Clicker Q discussion; **WG**-Worksheet group work; **OG**-Other group work; **AnQ**-Answer Q; **SQ**-Student Q; **WC**-Whole class discuss; **Prd**-Predicting; **SP**-Student present; **TQ**-Test/quiz; **W**-Waiting; **O**-Other

2. **Lec**-Lecturing; **RtW**-Writing; **FUp**-Follow-up; **PQ**-Pose Q; **CQ**-Clicker Q; **AnQ**-Answer Q; **MG**-Moving/Guiding; **1o1**-One-on-one; **D/V**-Demo+; **Adm**-Admin; **W**-Waiting; **O**-Other

For each 2 minute interval, check columns to show what's happening in each category (or draw vertical line to indicate continuation of activity). OK to check multiple columns.

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	1. Students doing													2. instructor doing											3. Engagement			Comments: EG: explain difficult coding choices, flag key points for feedback for the instructor, identify good analogies, etc.
min	L	Ind	CG	WG	OG	AnQ	SQ	WC	Prd	SP	T/Q	W	O	Lec	RtW	Fup	PQ	CQ	AnQ	MG	1o1	D/V	Adm	W	O	L	M	H	
0 - 2																													
2																													
4																													
6																													
8 - 10																													
	L	Ind	CG	WG	OG	AnQ	SQ	WC	Prd	SP	T/Q	W	O	Lec	RtW	Fup	PQ	CQ	AnQ	MG	1o1	D/V	Adm	W	O	L	M	H	
10 - 12																													
12																													
14																													
16																													
18 - 20																													
	L	Ind	CG	WG	OG	AnQ	SQ	WC	Prd	SP	T/Q	W	O	Lec	RtW	Fup	PQ	CQ	AnQ	MG	1o1	D/V	Adm	W	O	L	M	H	
20 - 22																													
22																													
24																													
26																													
28 - 30																													

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30 - 32																													
32																													
34																													
36																													
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40 - 42																													
42																													
44																													
46																													
48 - 50																													

Further comments:

If you would like to have a protocol sheet that extends beyond 50 minutes, please check the following website: www.cwsei.ubc.ca/resources/COPUS.htm or contact the corresponding author (michelle.k.smith@maine.edu) for a modifiable spreadsheet.