Classroom Observation Report: COPUS Protocol

November 17, 2023

Dear Dr. Doe,

Thank you for participating in the CTL's Classroom Observation Service! We hope you found the experience useful. The Visualizing Instructional Practices (VIP) style data presented in this report should allow you to examine various patterns of behaviors and activities that occur in your classroom and help you answer pointed teaching questions. Importantly, you have complete ownership of these data and are free to share and use them in any way you see fit.

Trained observers attended 3 of your CRSE 1000 class periods (10/5/2023, 11/9/2023, 11/14/2023) and recorded classroom events using the COPUS (Classroom Observation Protocol for Undergraduate STEM; Smith, Jones, Gilbert, Wieman, 2013). COPUS is a widely used and validated tool that enables an observer to record pre-established types of student and instructor activities throughout a class period. The instrument is designed to extract as objective data as possible from a relatively subjective classroom experience. Each class period is divided into 2-minute intervals, and for each time interval the observer records both what the students are doing and what the instructor is doing. The COPUS protocol is made up of 25 different types of activities, or codes (Appendix 1), that can occur at any given time interval. The visualizations in this report are intended both to display which of these activities occurred in your classroom and help you identify any potential patterns.

If you have any questions, comments, or requests about this report or your data, please don't hesitate to reach out!

Sincerely,

Sarah Andrews, *CTL, Teaching, Learning, & Technology Assessment Consultant*
Matthew Nesselrodt, *CTL, Instructional Practices Support Specialist GA*
Amanda McAndrew, *CTL Assistant Director - ASSETT*

Instructor	Course	Observation Dates
Dr. Doe	CRSE 1000	10/5/2023, 11/9/2023, 11/14/2023

Occurrence of Activity by Time

Figures 1-3 show which instructor (top, teal) and student (bottom, purple) activities (y-axis) occurred in each two-minute time interval (x-axis) across each observed class period. A colored block indicates that an activity occurred for at least a portion of a given interval. Note that only activities that were observed in your class are included in the visualizations.

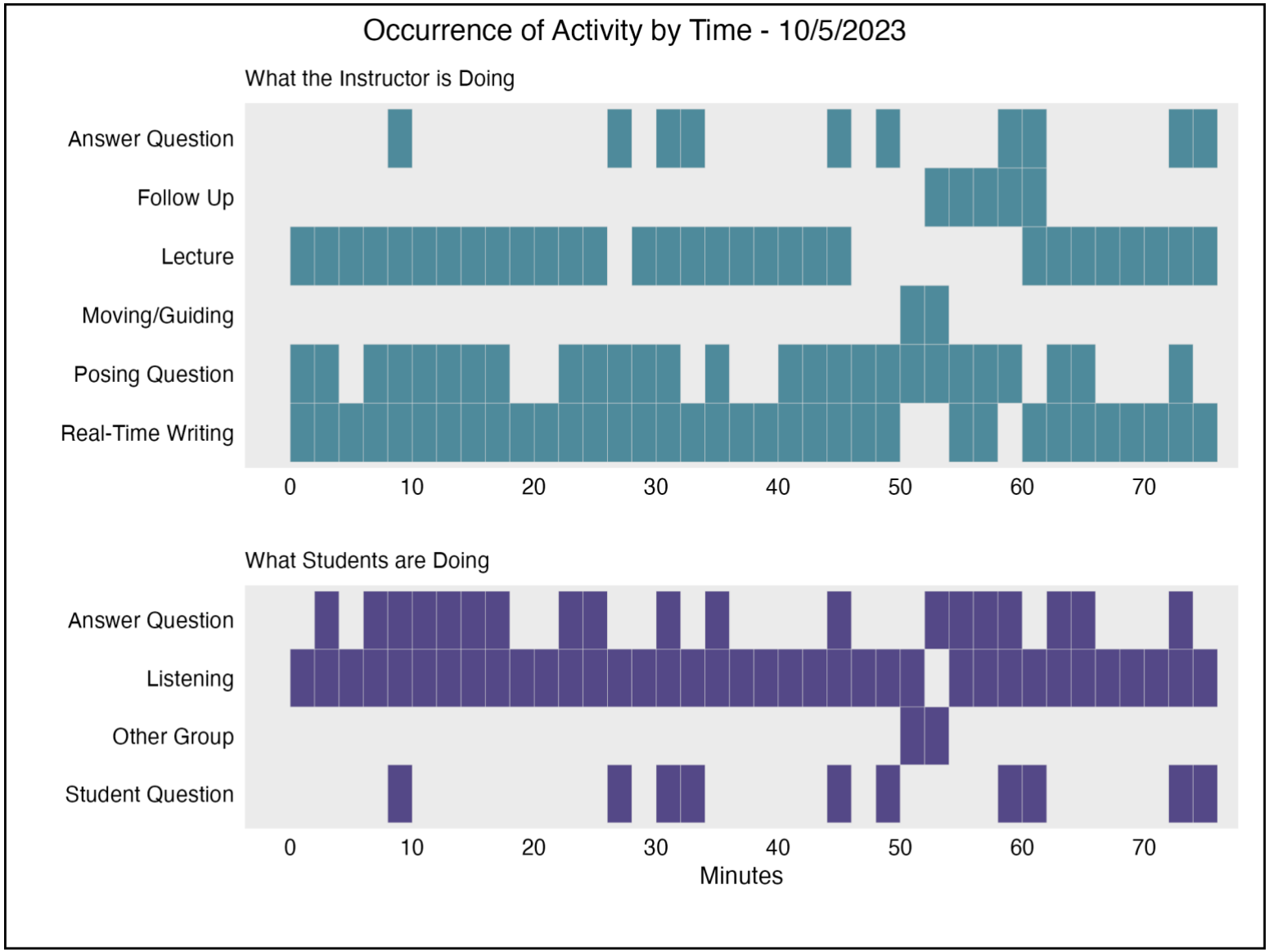

Figure 1. Timeline of instructor and student activities during 10/5/2023.
See Appendix 1 for a full description of all codes.

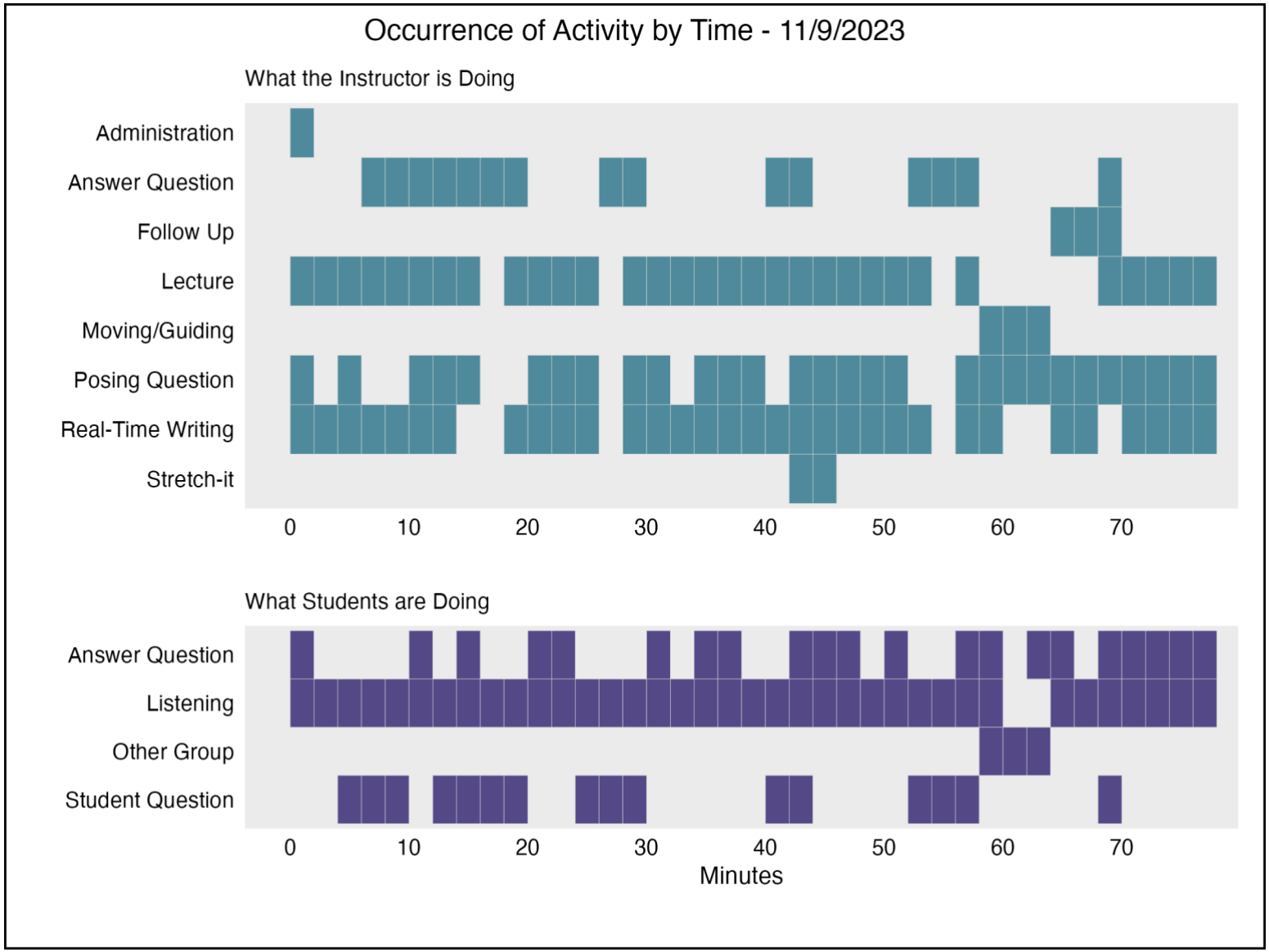

Figure 2. Timeline of instructor and student activities during 11/9/2023.
See Appendix 1 for a full description of all codes.

Figure 3. Timeline of instructor and student activities during 11/14/2023.
See Appendix 1 for a full description of all codes.

Activities as Percentage of Total Class Time (Aggregate)

The figure below shows the percentage of time intervals during which each of the instructor (top, teal) and student (bottom, purple) activities were observed. Data are aggregated across all classroom observations, but we can provide figures for individual classes upon request.

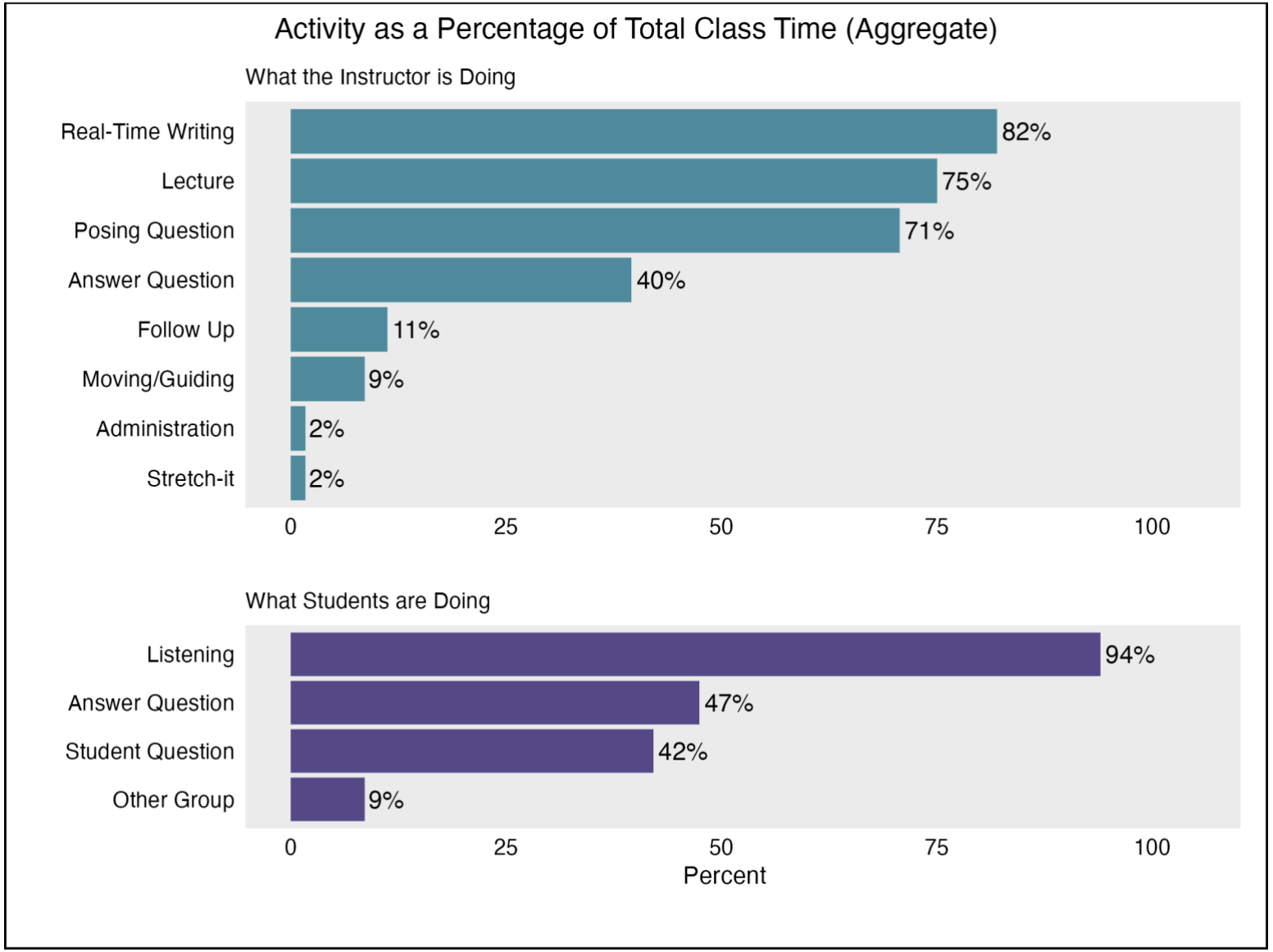

Figure 4. Average percent of time intervals where a given activity was observed. Because more than one activity can occur per interval, the bars will not sum to 100%. See Appendix 1 for a full description of all codes.

Wrap-up

Caveats

We hope the COPUS results provide a useful window into your instruction, but please note there are some limitations on what that "window" can see. While observers are trained to follow the COPUS code descriptions, sometimes there is an unintentional divergence, or a code definition may be less intuitive than it appears. When a pattern seems off-kilter from your knowledge of the class, it makes sense to trust your interpretation.

No observation tool can capture everything that is happening in a classroom. The COPUS tool is focused on directly observable activities. While it captures some breadth of objective activity in a useful way, it does not provide qualitative information about instructional practices that are more subjective. In its simplicity, it is not able to capture complex student-instructor interactions, mood and atmosphere, the full range of student engagement and participation, and higher level pedagogical strategies.

Assessment, Consultations, and Other Services

These observations are confidential and will only be used in aggregate for internal research purposes, unless otherwise notified. While the CTL appreciates any willingness to share your data for internal research and assessment purposes, we fully respect your wishes and will manage your data in whichever manner you select on the CTL VIP Data Management Agreement (Note: We will discuss this in your post observation consultation).

We are happy to continue our engagement with you and/or point you towards additional helpful resources. CTL staff specialize in pedagogical strategies, classroom assessment, integrating academic technologies into your course, and changing methods of course delivery (i.e., creating flipped or hybrid courses). We are here to support you in pursuit of your teaching goals, so please feel free to visit our consultations page to learn more or request a consultation.

If you are interested in gaining additional insights into your teaching, we highly recommend:

- Asking a peer to observe your class, keeping an eye toward specific patterns that you are most interested in learning about
- Talking with peers about how they tackle teaching challenges, and sharing each other's strategies
- Observing other classes on campus to explore new ideas and/or further refine your teaching goals

The CTL also offers a variety of teaching and learning communities, workshops, consultations, and various other events geared toward faculty members. Visit https://www.colorado.edu/center/teaching-learning/ for more information.

We greatly appreciate hearing about any insights or impacts that result from your participation in our Classroom Observation Service and/or the VIP-style data in particular, and truly appreciate your responses to the follow-up survey that you'll receive prior to the end of the semester. We are also interested to hear about any other observation protocols you would be interested in us adopting or any further feedback you have about your observations, visualizations, and consultation (if applicable). Feel free to contact sarah.andrews-1@colorado.edu with your thoughts, comments, and questions - we'd love to hear from you!

Appendix 1. COPUS Codes

Codes adapted from:

Smith, Michelle K., et al. "The Classroom Observation Protocol for Undergraduate STEM (COPUS): A new instrument to characterize university STEM classroom practices." *CBE—Life Sciences Education* 12.4 (2013): 618-627. https://www.lifescied.org/doi/full/10.1187/cbe.13-08-0154

Table 1. Student Codes

Code	What Students are Doing
Listening	Listening to instructor/taking notes, etc.
Individual Thinking	Individual thinking/problem solving. Only marked when an instructor explicitly asks students to think about a clicker question or another question/problem on their own.
Clicker Group	Discuss clicker (or any type of live polling) question in groups of 2 or more students
Worksheet Group	Working in groups on worksheet activity
Other Group	Other assigned group activity, such as responding to instructor question
Answer Question	Student answering a question posed by the instructor with rest of class listening
Student Question	Student asks question
Whole class discussion	Engaged in whole class discussion by offering explanations, opinion, judgment, etc. to whole class, often facilitated by instructor
Prediction	Making a prediction about the outcome of demo or experiment
Student Presentation	Presentation by student(s)
Test or Quiz	Test or quiz
Waiting	Waiting (instructor late, working on fixing AV problems, instructor otherwise occupied, etc.)
Other	Other – explain in comments

Table 2. Instructor Codes

Code	What the Instructor is Doing
Lecture	Lecturing (presenting content, deriving mathematical results, presenting a problem solution, etc.)
Real-Time Writing	Real-time writing on board, doc. projector, etc. Includes live typing into a digital document as long as it is displayed on a projector in real time for all students to see.
Follow Up	Follow-up/feedback on clicker question or activity to entire class
Posing Question	Posing non-clicker question to students (non-rhetorical)
Clicker Question	Asking a clicker question (or any type of live polling) - marked for the entire time the instructor is using a clicker question, not just when first asked.
Answer Question	Listening to and answering student questions with entire class listening
Moving/Guiding	Moving through class guiding ongoing student work during active learning task
1-on-1	One-on-one extended discussion with one or a few individuals, not paying attention to the rest of the class
Demo/Video	Showing or conducting a demo, experiment, simulation, video, or animation
Administration	Administration (assign homework, return tests, etc.)
Stretch-It	Student follow up—a series of questions targeted to an individual student to really flesh out their thinking on an idea or topic.
Waiting	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
Other	Other – explain in comments