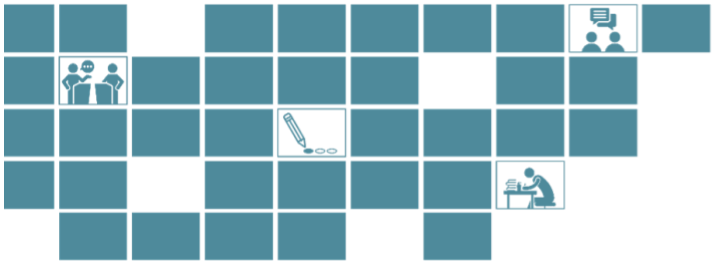

Classroom Observation Report: Combined COPUS/BERI Protocol

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 two research-backed observation protocols: the COPUS and the BERI. During each observation, the class period is divided into 2-minute intervals, and for each time interval an observer records what the students and instructor are doing (COPUS) and how engaged or disengaged the students are (BERI). The COPUS (Classroom Observation Protocol for Undergraduate STEM; Smith, Jones, Gilbert, Wieman, 2013) is made up of 25 different types of activities, or codes (Appendix 1), that can occur at any given time interval. The BERI (Behavioral Engagement Related to Instruction; Lane & Harris, 2015) consists of 6 possible engaged behaviors and 6 possible disengaged behaviors (Appendix 2). BERI uses a sample of 10 students as a proxy for overall student engagement.

The time-locked collection of tandem COPUS and BERI observation data is powerful because it allows an instructor to examine how patterns of variation in student engagement coincide with different instructor actions and classroom activities. The following visualizations are intended to display which of the COPUS activities occurred in your classroom, along with the level of engagement of students during those activities.

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 student engagement over time (top), and which instructor (middle, teal) and student (bottom, purple) COPUS activities occurred in each two-minute time interval across each of your observed class periods. Each colored block indicates that a COPUS activity occurred for at least a portion of that interval. The shading of each block indicates the percent of students (out of the chosen sample of 10) who were engaged (BERI) during that interval. Note that only activities that were observed in your class are included in the visualizations.

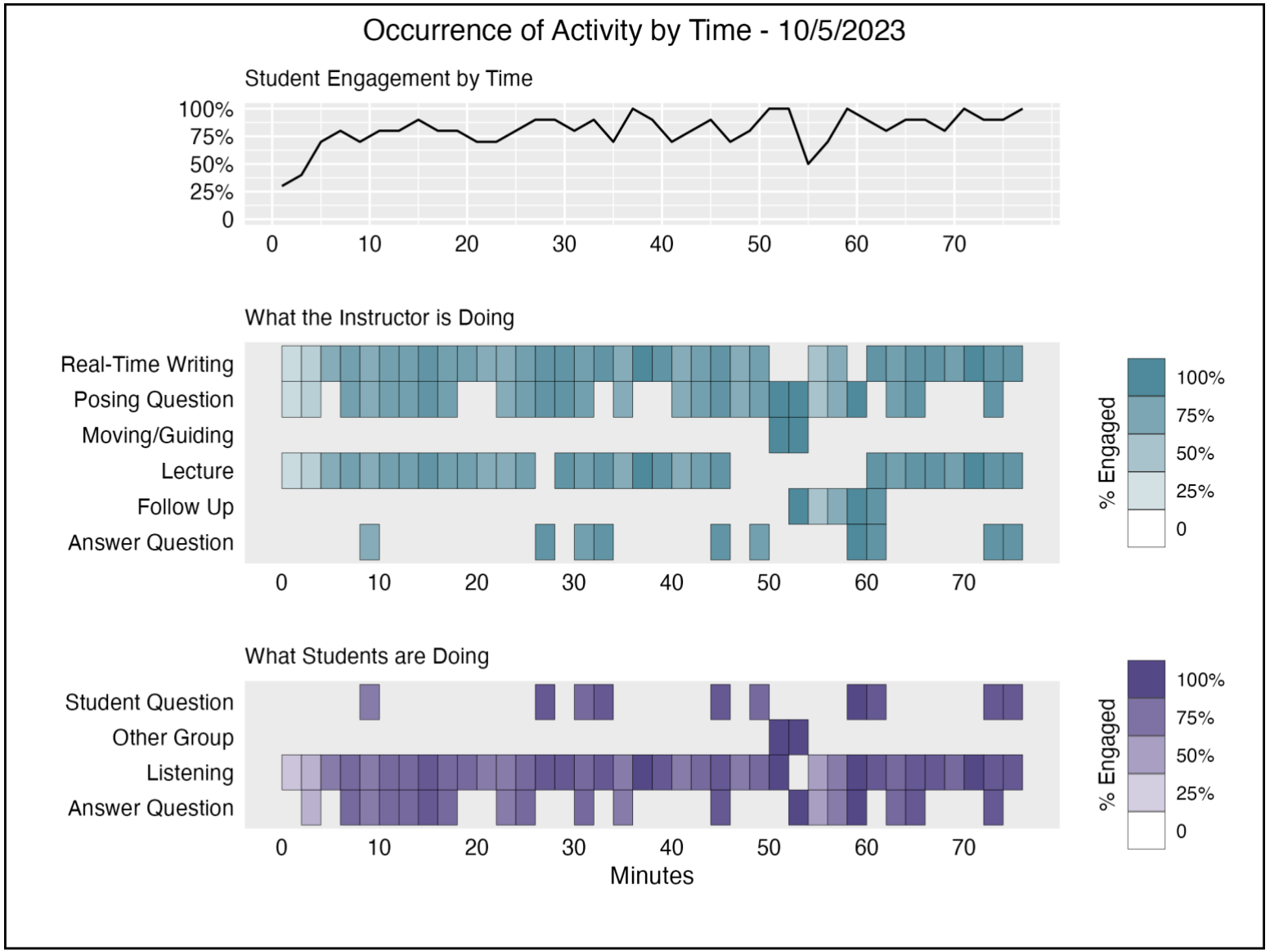

Figure 1. Timeline of instructor and student activities with student engagement during 10/5/2023.
See Appendix 1 for a full description of all COPUS codes.

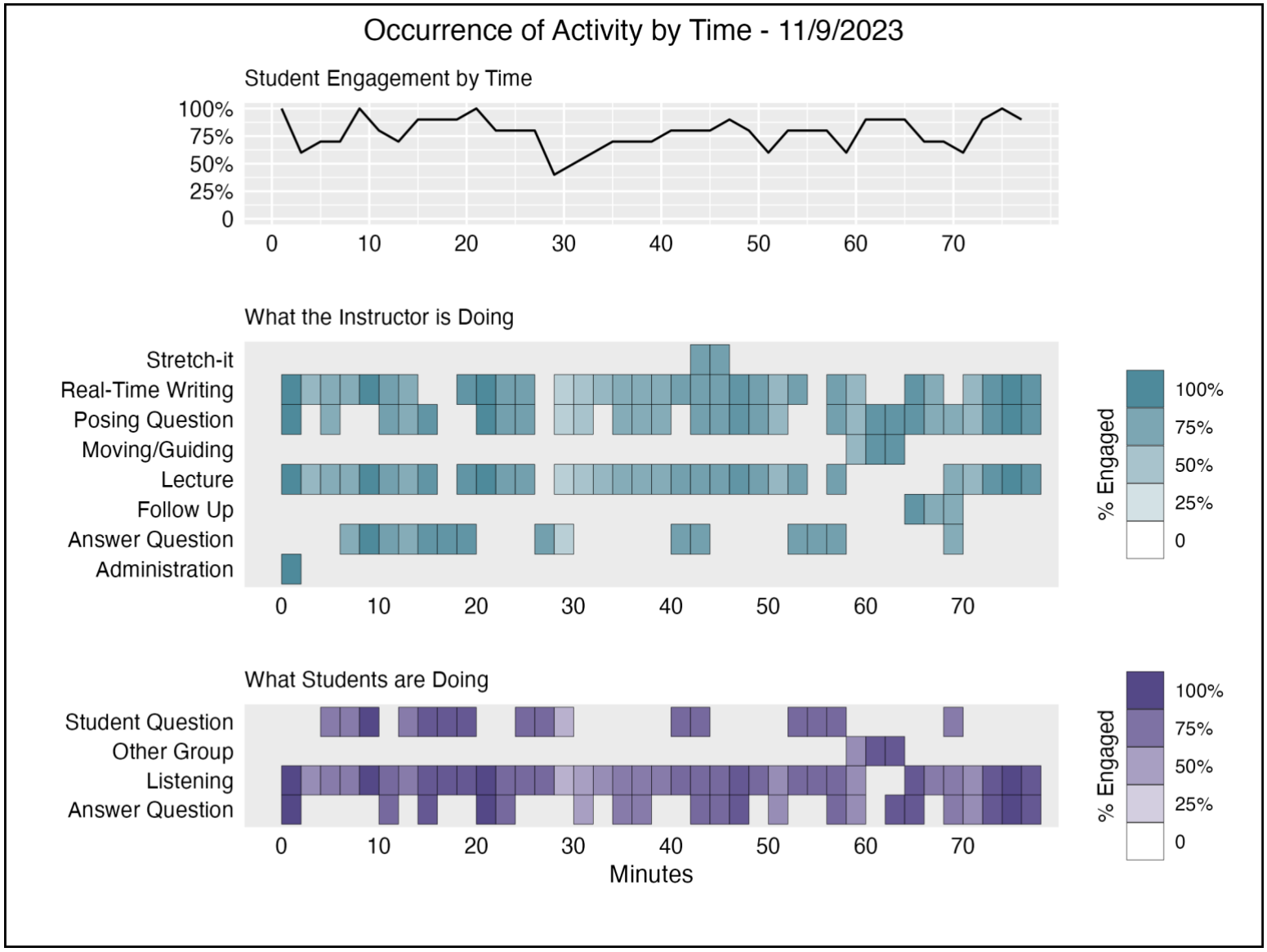

Figure 2. Timeline of instructor and student activities with student engagement during 11/9/2023.
See Appendix 1 for a full description of all COPUS codes.

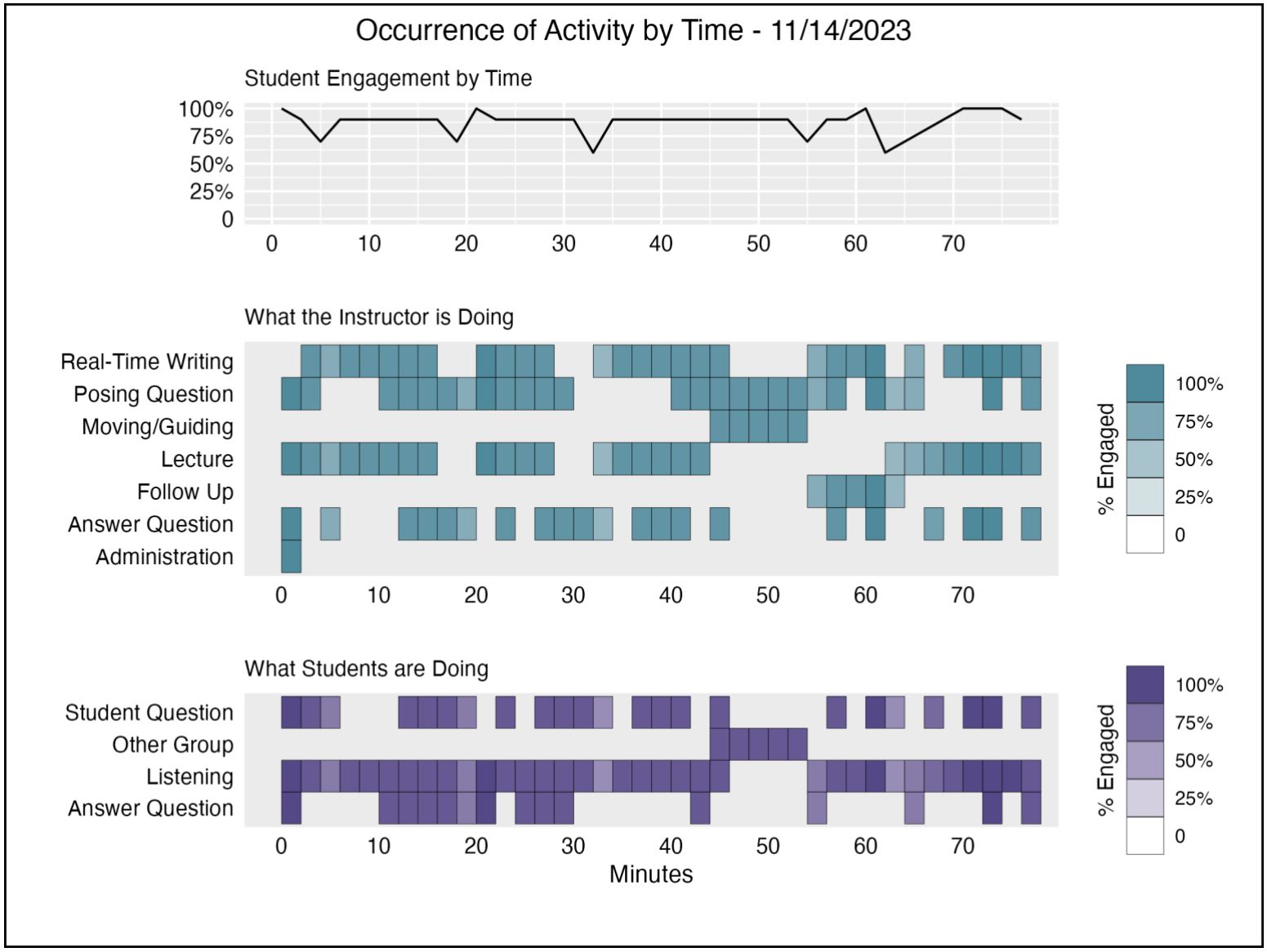

Figure 3. Timeline of instructor and student activities with student engagement during 11/14/2023.
See Appendix 1 for a full description of all COPUS codes.

COPUS 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) COPUS activities were observed. Data are aggregated across all observations, but we can provide similar figures for individual classes upon request.

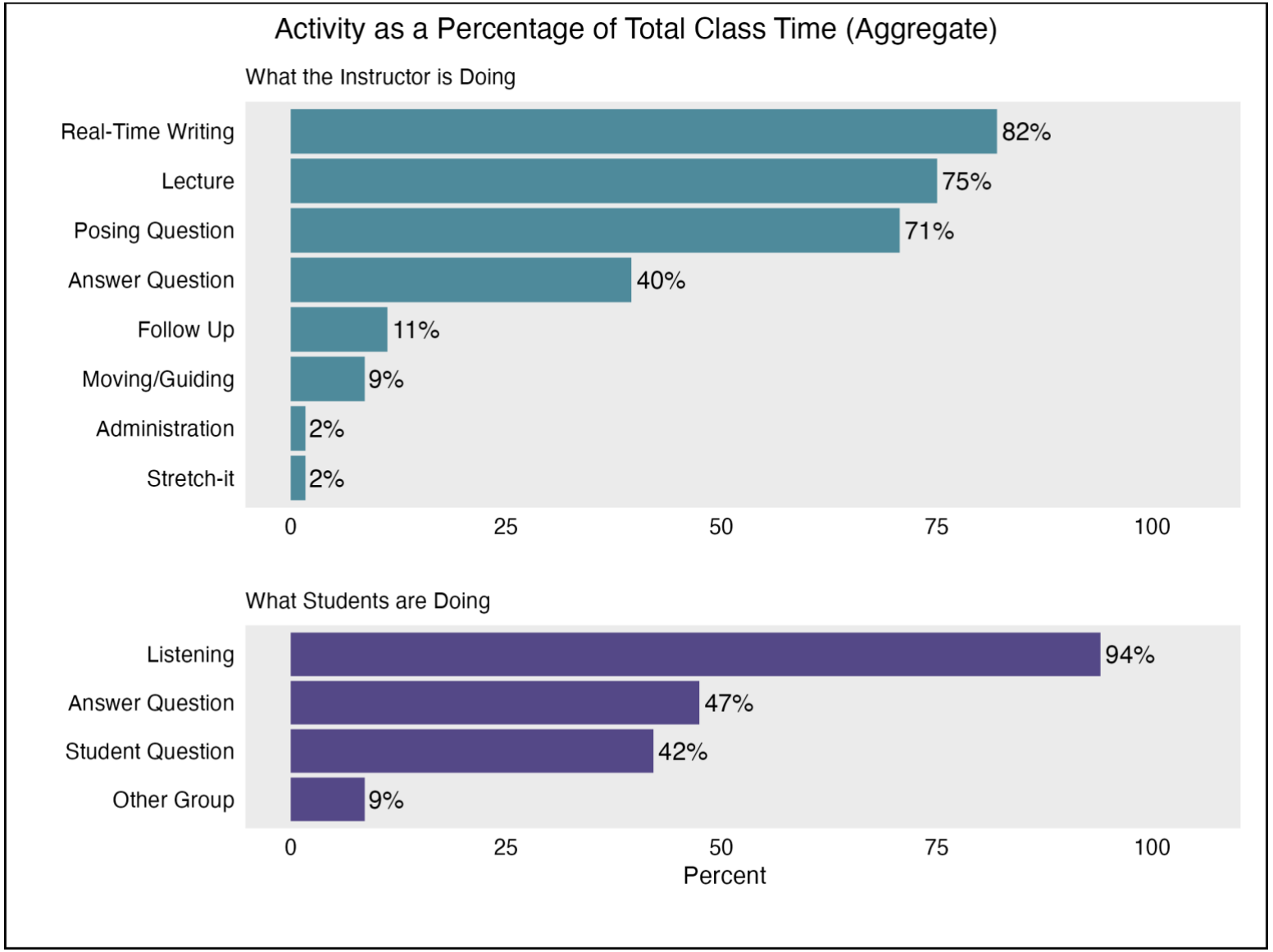

Figure 4. Average percent of time intervals where a given COPUS activity was observed. Because more than one activity can occur per interval, the bars will not sum to 100%. See Appendix 1 for a full description of all COPUS codes

BERI Percentage of Behaviors as Engaged or Disengaged (Aggregate)

The figure below displays the percent of students exhibiting engaged (top, teal) and disengaged (bottom, purple) behaviors on average in class, showing how common or rare it is to observe a given behavior in class. Data are aggregated across all observations, but we can provide similar figures for individual classes upon request.

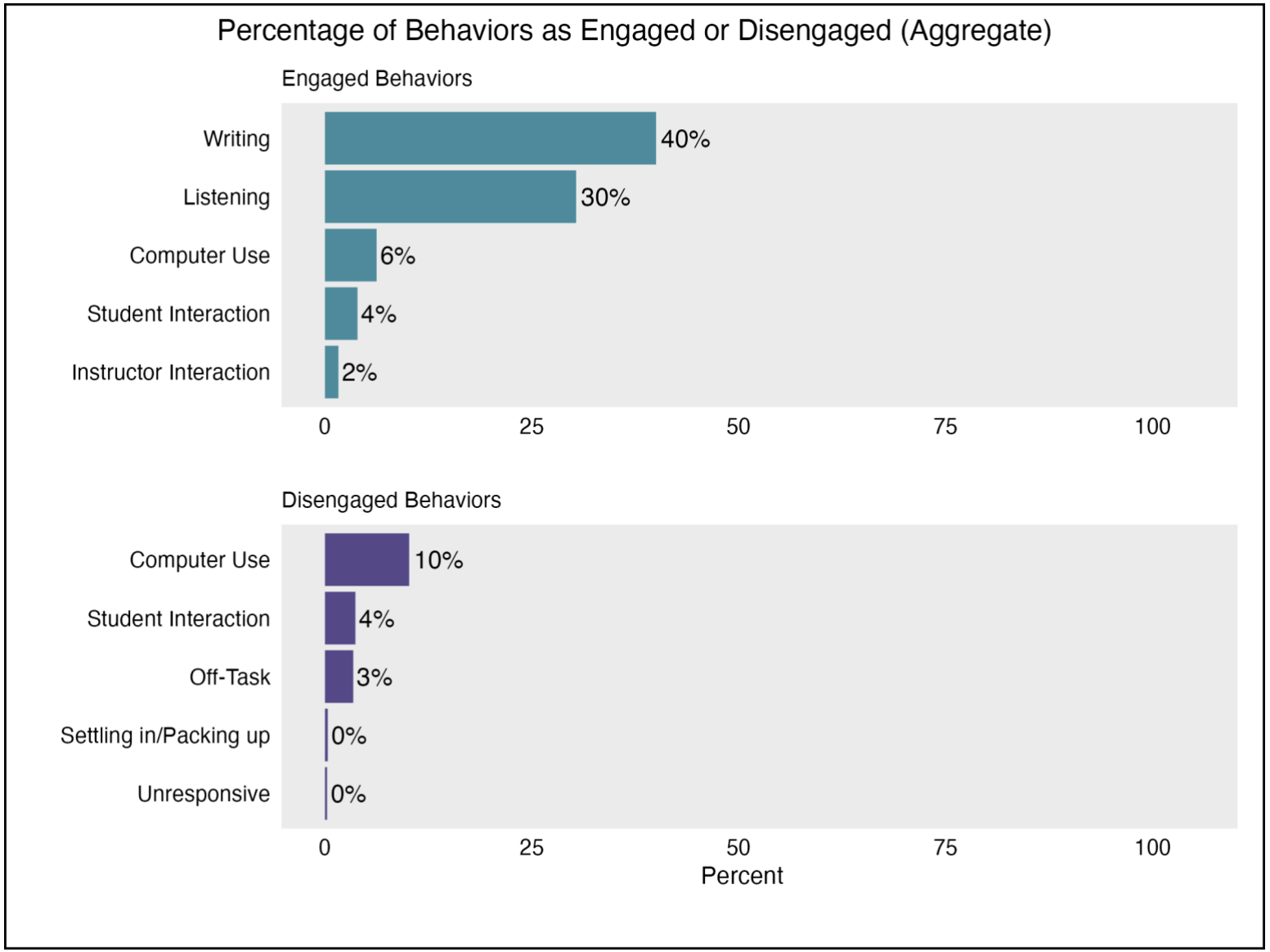

Figure 5. Engaged and disengaged behaviors as a percentage of all behaviors observed.
See Appendix 2 for a full description of all BERI codes

Wrap-up

Caveats

We hope the COPUS and BERI 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 each protocol's code descriptions, sometimes there is an unintentional divergence, or a code definition may be less intuitive than it appears. For BERI, student engagement can sometimes be difficult to assess from observable behaviors, and some behaviors like computer use can shift rapidly between on-task and off-task. 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 and BERI tools are focused on directly observable activities. While they capture some breadth of objective activity in a useful way, they do not provide qualitative information about instructional practices that are more subjective. In their simplicity, they are 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 (or any type of live polling) question (marked 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

Appendix 2. BERI Codes

Codes adapted from:

Lane, Erin S., and Sara E. Harris. “A New Tool for Measuring Student Behavioral Engagement in Large University Classes.” *Journal of College Science Teaching*, vol. 44, no. 6, 2015, pp. 83–91. JSTOR, http://www.jstor.org/stable/43632000.

Table 3. Engaged Behaviors

Code	Description
Listening	Student is listening to lecture as indicated by eye contact, posture, etc.
Writing	Student is taking notes or drawing by hand on paper or with a stylus on a tablet/computer (typing notes is counted as engaged computer use).
Reading	Student is reading material related to class.
Engaged computer use	Student device use is consistent with what is happening in class at that moment (screen content matches lecture/activity content), e.g., following along with lecture slides, participating in a clicker/poll, or typing class notes in a word processor (writing notes by hand is counted as writing; device use inclusive of smartphones, tablets).
Engaged student interaction	Student discussion relates to class material or assigned group activity.
Engaged interaction with instructor	Student is asking or answering a question or participating in a whole class discussion.

Table 4. Disengaged Behaviors

Code	Description
Settling in / packing up	Student is unpacking, downloading class material, organizing notes, finding a seat, or packing up and leaving classroom.
Unresponsive	Student is not responsive to lecture.
Off-task	Student is working what appears to be some kind of course work but it is not related to the current lecture/activity.
Disengaged computer use	Student is using a device in a way that is unrelated to any coursework or educational task (device use inclusive of smartphones, tablets)
Disengaged student interaction	Student discussion does not relate to class material.
Distracted by another student	Student is distracted by other student(s).