

COPUS-TA: An “Entry-Level” Peer Observation Tool to Support Teaching Assistant Professional Pedagogical Development

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INTRODUCTION

In addition to teaching undergraduate students, many instructors coordinate teaching assistants (TAs). Our focus is generally supervisory (e.g., managing grading, preparing for labs/tutorials), but we also mentor TAs in developing their teaching skills, in alignment with current calls to support this aspect of their professional development (1). A common and effective approach in pedagogical development of faculty and preservice K through 12 teachers is classroom observation (2, 3). As a course coordinator of a large lab/tutorial/lecture class, I sought to bring this approach to my team of TAs, within the time and resource constraints of our roles. My teaching team generally ranges from 4 to 12 TAs (undergrad and graduate students, novice to experienced). These TAs attend lectures, guide labs, and independently run tutorial sessions. With this size of group, it is challenging to provide individualized feedback on their teaching; further, the power dynamic of a course supervisor observing a TA's tutorial session can make the TA uneasy (4, 5). I instead aimed to provide opportunities for feedback via reciprocal observation by peers.

Peer observation of teaching is a well established approach for feedback on teaching. One issue in our context is that the feedback can be of limited use if the observer is a novice (at teaching and/or at observation) (4). This can be mitigated by using a structured observational tool, which prompts the observer with objective behavior codes to focus on. These tools generally require training, which may be prohibitive depending on the context.

Several tools have been developed for objective observation of course instruction. Within undergraduate STEM education

alone, protocols include DART (6), RTOP (7), RIOT (8), PORTAAL (9), TA-IOP (10), and COPUS (11). These range dramatically in terms of the richness and specificity of the data collected, the context where used, and the training required by observers (12, 13). The best starting point to adapt to our TA context was COPUS, the Classroom Observation Protocol for Undergraduate STEM. It is objective, provides reasonably rich data across a variety of contexts, and is evidence based. It does, however, require some training (generally 1 to 2 h plus practice sessions), and my TAs initially found it unintuitive—in particular, its abbreviations and its documentation of the flow of class time. In this article, I describe how I adapted COPUS for “entry-level” peer observation and share the modified observation tool for others to use in TA support and training.

PROCEDURE

To develop our modified COPUS for TAs (COPUS-TA), I first removed abbreviations and clarified some codes. I added prompts for pre- and postobservation notes to support structured peer feedback conversations. With this initial draft, I had an ~15-min discussion at our weekly TA meeting on the goals of peer observation and looked over two forms: one blank and one completed (Fig. 1). The TAs then tried out the observation tool in a later class (which they attend normally as part of their contract), and we had follow-up discussion in our subsequent team meeting. Based on this, I added one more section to the tool to note the overall flow of activities/topics taking place during the class. Notably, the TAs expressed concern about being inadequate or inappropriate to “judge” an instructor (or more senior TA). In response, we had a fruitful discussion about the value of a friendly observer of any experience level, and I added notes to the tool emphasizing that none of this observation is about “good” or “bad” teaching but instead is intended to be useful for helpful feedback, as part of reflective practice (14). This helped shape our conversation on how to give and engage with constructive criticism in a supportive community of practice.

Our finalized tool is in Supplemental Materials 1, 2, and 3; we have included two pdf versions (for class sessions that begin

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COPUS for Teaching Assistants - adapted by Megan Barker (megan.barker@sfu.ca) from the Classroom Observation Protocol for Undergraduate STEM (COPUS, by Michelle Smith and others, 2013)

TA name who is leading the tutorial/class/lab TA1
 TA name who is doing the observing TA2
 Course, date, time BIOL 103, June 1 2020
 How many students in the room?
25

Goal of this tool: provide a friendly set of eyes on what's objectively going on in the room.
 Top half - Observer notes: draw lines to show the overall activities during class, & make general notes.
 Bottom half - specific Classroom events: For each box, during a 2-minute interval starting at that minute.
 Check off the box if this activity occurs at all during the 2-minute interval.
 More than one activity can certainly be checked off in the same time interval.
 Note that this not meant to be an indicator of 'good' or 'bad' teaching; instead, it is just a note of what happens during class. These are field notes/data, not a prescription.

Interval of class time, starting minute on the clock =>		:30	:32	:34	:36	:38	:40	:42	:44	:46	:48	:50	:52	:54	:56	:58	:0	:2	:4	:6	:8	:10	:12	:14	:16	:18	:20	:22	:24	:26	:28		
Observer notes, questions	During this chunk of class time, what is generally happening? <i>(e.g. "Intro" or "problem set question 1" or a specific topic or activity...)</i>	Intro Quiz Lecture on photosynthesis Experimental data Lecture Video Lecture																															
	Observer: During this chunk of time, what do you notice? What questions do you have? <i>(e.g. are the students engaged? Do you need something clarified? Do you want to flag something to talk about later?)</i>	Lots of student questions about enzymes Pretty in depth Confused about RF values Student question about Spectra Ideas to keep students engaged? Leading into next week.																															
	This space is for anything else you notice that might be useful																																
Classroom events: During this 2-minute interval: TA is doing...	Listening	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Working individually	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Working in groups																																
	Working on a handout/worksheet																																
	A student answers a question to the class																																
	A student asks a question to the class																																
	Students talking serially to the whole class																																
	Presenting at the board																																
	Test or quiz				✓	✓	✓																										
	Waiting or Other																																
	Lecturing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Writing on the board or a doc cam	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Giving follow-up on something the class has been working on																																
	Asking a question to the class	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Answering a student question																																
Walking around and working with the students																																	
Doing a demo or showing video																																	
Admin (e.g. roll call, handing things out)																																	
Standing back and watching students work				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Other																																	

Instructions to TAs: within the next day or two after doing the observation, bring this sheet and go for a coffee with the person you observed. Please then give this sheet to the person you observed - it's their data. You're both welcome to chat with your instructor about how to include the data in a teaching dossier.

Questions for the observer to consider and answer:

Before your classroom visit, if you have time: Chat briefly with the person you're going to observe:

What is the TA planning for this tutorial? What goals are they hoping to achieve?
 Is there anything they're working on, that they would like help with or would like specific notes on?
(e.g. how some activities go, how engaged the students are, which students are interacting, how the pacing is, how much time different activities take, how they interact with students, how clear a certain presentation/analogy/example/idea is, etc.)

- Intro: types of inhibitors
 - Then quiz
 - Photosynthesis: goal is to familiarize them + set up for lab this week
 - Video on photosynthesis

After you've observed the tutorial, make some overall notes:

What is/are something(s) that you see that the TA is doing really well?	What is an idea for something the TA might want to try in their teaching?	Anything else you notice, that you'd like to comment on?	What questions do you want to ask the TA leading the class, about their teaching decisions?
Explaining concepts Posing questions to the class going over answer key - really clear.	worksheets find ways to get class more involved? → this can be really difficult of course.		what is the hardest part about running a tutorial? what part of tutorial prep takes the longest?

FIG 1. Sample Classroom Observation Protocol for Undergraduate STEM - Teaching Assistant (COPUS-TA) form, front and back, filled in for one 50-minute tutorial session.

on the hour or at 30 min after the hour). The COPUS-TA form can be printed as a single double-sided page and handed out to TAs for essentially immediate use. The Excel file is also provided (for graphing the data or for modifying for your own purposes; Supplemental Materials 3). It is suitable for tutorials and labs (and even guest lectures) for use by observer TAs (or others) with a range of experience (novice to veteran). Additionally, I include a pdf of a sample filled-in form (Supplemental Material 4) to share with TAs during the brief training discussion.

CONCLUSION

In general, the response from the TAs was quite positive. They found the COPUS-TA form simple to use with minimal preparation, which met our goal of having an entry gateway into structured peer observation. Novice TAs liked that it gave them ideas about what to do in their tutorials, and veteran TAs liked the ability to have something tangible (and quantitative) to put in their teaching dossiers. They also appreciated that it was manual (on paper): in practice, the observer TA gave the completed COPUS-TA form to the instructing TA, without keeping a copy. This seemed to change their feelings of being judged/evaluated into being part of a friendly and constructive community. Many TAs expressed interest that (i) you could observe classes in this way and (ii) there are scientists doing research into STEM education. In this way, the tool itself is useful not only for the objective data and a starting point for peer-to-peer discussions but also as a gateway into a community of practice that the TAs had not known existed.

All told, the time investment to use the COPUS-TA peer observation tool for a team of TAs is minimal. The instructor needs ~1 h total of discussion time with the team (~15 min before first use, plus a few later follow-up conversations). If TAs do not attend class as part of their contract, then a short practice observation of any teaching context (online or in-person) would be useful. Each TA then took 1 h to observe another TA's tutorial/lab (which, for us, was included in the professional development hours of their contract).

Given the positive feedback along with the ease of use in the course, we will continue to use COPUS-TA as a regular and sustainable part of the TA role. As an added benefit, it also serves our TAs as an entry into the discipline-based science education community.

SUPPLEMENTAL MATERIAL

Supplemental material is available online only.

SUPPLEMENTAL FILE 1, PDF file, 2.6 MB.

SUPPLEMENTAL FILE 2, XLSX file, 0.04 MB.

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