

Synthesis of Student Assessment

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BIOL 2100 - Introduction to Biology Lab

Student feedback provides valuable empirical data and helps educators assess the quality of instruction. If assessments are administered mid-semester, then teachers have the ability to make real-time adjustments to their curriculum. Evidence suggests that formal student evaluations can provide important data to improve teaching quality; however, the benefits can be limited if teachers do not take the time to critically analyze and reflect on results (Kember *et al.* 2002; Richardson 2005). In this assessment, students were given the opportunity to anonymously evaluate the teaching quality of my teaching assistantship (TA) in the Introduction to Biology Lab (BIOL 2100). As a young instructor, student feedback is particularly valuable to help me refine my teaching methods and evaluate my weaknesses. Rather than a perfunctory assessment at the end of the year, mid-semester feedback (coupled with critical analysis) will help me improve the learning environment in my lab *this semester*. My role as a laboratory TA is to help students through their weekly experiments. Therefore, I chose to focus my synthesis of feedback on the students' perceived role of the TA in lab.

Students were administered an anonymous electronic survey during their scheduled lab period. The survey contained 22 quantitative questions, wherein students ranked statements about the TA's performance in lab on a 1-6 scale (1=strongly disagree; 6=strongly agree). Students were also given seven qualitative open-response questions about their learning experience. To analyze the quantitative data, I calculated the mean and standard deviation of responses to each question. I then performed a qualitative analysis on the open-response questions. I looked for recurring patterns and themes, with an emphasis on references to my role as a TA during experiments.

A total of 33 students responded to the survey. The mean responses to

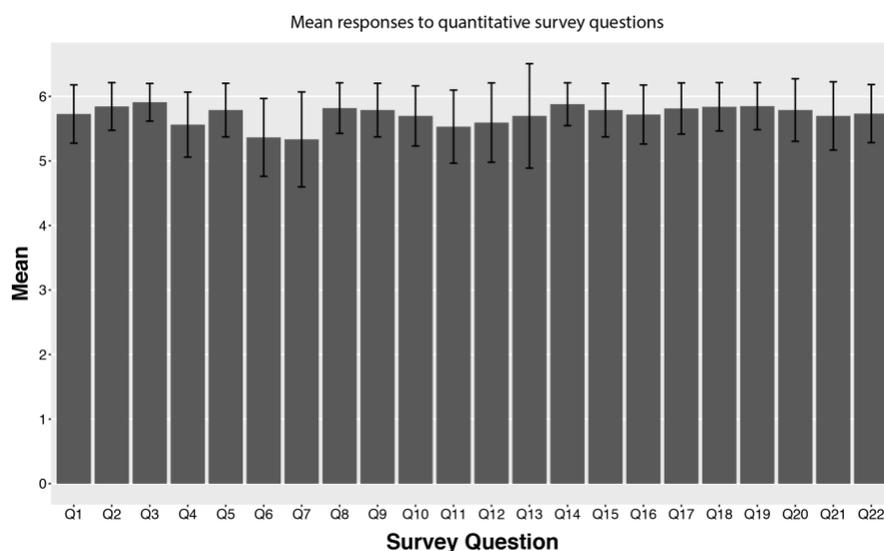


Figure 1. Means and standard deviations of responses to the 22 quantitative survey questions.

quantitative questions were overall very positive (Figure 1). All 22 means ranged between scores of 5 and 6, and the variance was generally low. Responses to questions about the TA's role in lab were also positive. For example, the statement in

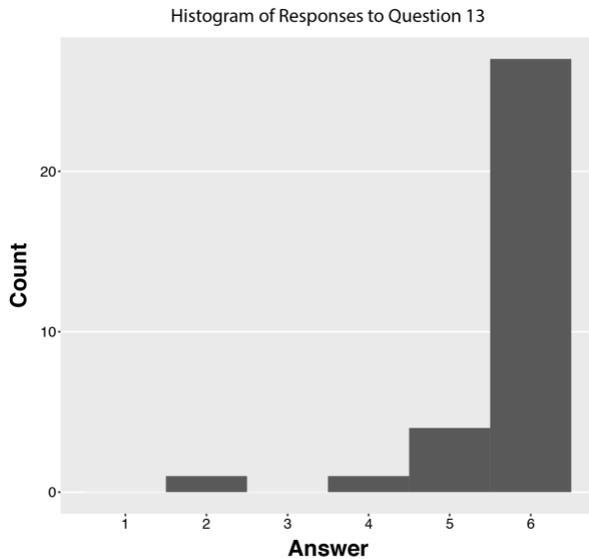


Figure 2. Distribution of responses to question #13.

question 5, “My TA spends the right amount of time interacting with me/my group,” had a mean response of 5.79. The statement in question 8, “I feel my TA is an effective instructor,” had a mean of 5.82. Responses to question 13 had the highest variance, so I generated a histogram to examine the distribution of responses (Figure 2). Question 13 stated, “My TA returns graded assignments on time.” The high variance was driven by one low value of 2.

Answers to the open-response questions were also generally positive. Responses to the first question (“What is your TA’s role in

lab?”) indicated that students view my role as a guide or facilitator of lab experiments. One student wrote, “[He is] the tour guide. He helps explain what we need to do and clarifies confusing concepts in lab.” This theme of a “guide” was also prevalent in other questions focused on how I interact with students and influence learning in lab. Students emphasized the importance of my ability to both ask questions throughout lab, and answer questions in a clear and concise fashion. Another recurring theme throughout open-response questions was the lab climate or culture. One student wrote, “His enthusiasm for science makes me enthusiastic about it as well.” Another wrote, “He is friendly, approachable and helpful.” These responses highlighted how students often perceived a positive learning environment in lab, where they were comfortable to ask questions. Finally, the last questions asked, “What is one thing your TA could do to improve their teaching?” The one recurring answer suggested I should provide extra help to slower lab groups so they can better keep pace with the rest of the students.

The results from the survey indicate that students perceive the BIOL 2100 TA as a guide through lab who should be available for questions and clarifications. The TA should also actively engage students with questions that test their understanding of underlying biological concepts in each experiment. The majority of BIOL 2100 labs are designed as either structured or guided inquiry (levels 2 and 3). This survey suggests that when students are asked to develop their own experimental methods or results, the TA plays a critical role in keeping the direction of learning and inquiry on track in lab. For example, I learned I need to devote more attention to slower groups who might be struggling. Finally, I think the most valuable piece of teaching advice that can be gleaned from this dataset is the importance of classroom culture. In the survey, students really seemed to appreciate the approachability and enthusiasm of the TA. When the teacher is passionate and excited about science, it translates into a positive environment that motivates student inquiry.

Literature Cited

- Kember D, Leung DYP, Kwan KP (2002) Does the Use of Student Feedback Questionnaires Improve the Overall Quality of Teaching? *Assessment & Evaluation in Higher Education*, **27**, 411–425.
- Richardson JTE (2005) Instruments for obtaining student feedback: a review of the literature. *Assessment & Evaluation in Higher Education*, **30**, 387–415.