Essay exams in introductory courses:
Peer graders as assistant evaluators

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Abstract: The use of peer graders can help instructors to use essay exams in large classes without being overwhelmed and still treating students fairly.

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"Should I use a multiple choice, matching or true/false exam, or subjective short answer and essay exam?" The answer to this question is too often dependent upon the number of students in a class. In a large class, the idea of grading 30, or 40, or 50... essay exams is daunting! It is enough to make most of us think twice about the value of subjective assessment tools. The prospect of sorting through all those different handwriting samples alone is enough to make one quake at the thought of an all essay exam. Yet, I usually find that I am frustrated with the level of assessment of knowledge I attain with objective exams, and I find that it is more difficult for me to get a handle on what students are not picking up from lecture with an objective evaluation format.

Major's introductory biology courses are a challenge in any university setting. In schools with a medium to large biology program these courses are often quite large, where all the students meet for a common lecture and are then distributed into smaller laboratory sections (or in some cases there is no longer a laboratory component for the freshman year!). Another option is to have several faculty teach different sections in order to bring the class size to more reasonable levels. At Truman State University we have six to eight different faculty members teaching the Introductory Biology for Majors (a two semester sequence) class each semester. The lecture class size generally ranges from 24 (one laboratory section) to 72 (three laboratory sections). Even in a smaller class of 24, it is difficult for most faculty to envision giving essay exams to their introductory students, particularly in light of the fact that they are also teaching several other demanding, and generally upper level, courses.

During my third year at TSU, I began experimenting with the use of peer graders in the essay exam format. I started with one trusted junior level student who met me in my office after the exam, prepared a well written answer to one of the exam questions that I then critiqued, and then began reading student exams (again, a freshman level course with about 50 students). I directed the student to find three exams that answered the question well, and three that were poor. We then critiqued those together and the student then felt prepared and competent to work through the others. We used a "code" of + and - signs for strong and weak parts of the answers, and question marks for confusing passages. Occasional comments were written to indicate an omission of grave consequence. Unreadable exams due to atrocious handwriting were given a note of caution by the grader. We graded together for three to four hours - I could generally work through most of two questions in the time my student could finish one. Once a student had read about 10 exams, it became clear to her what constituted a "good" answer (concise but complete, thoughtful, creative, etc.) and what was a less than complete answer. I was always present to answer questions, or to read through a particularly difficult exam and offer direction.

The faculty perspective...

Did this original student, and subsequent peer evaluators benefit from this task? Yes! There is nothing like reading through many poor and mediocre exams to make one realize how important it is to have a clear understanding of the problem at hand. The past two years I expanded my student graders to two to four students per exam, depending upon their and my time, the number of questions per exam, and the difficulty or potential variability of the answers. I now invite the students to come to my home for an evening of grading and eating, and we work through the majority of an essay exam in one evening. This does not necessarily save me a great deal of time, but it is time that I feel is more usefully spent. Instead of examining every question on every exam for each of my introductory students, I have input into parts of each exam, and more input into the future teaching careers of my student workers. We are all more excited about essay exams!
Are there problems with this approach? Some of the student graders are "better" than others. Just as faculty members tire after looking at the same question 50 times, so does a student. I periodically spot check the current exam worked on by each student grader to check for consistency, accuracy, good judgment, etc. Occasionally (but rarely), I have had to review all the exams for a particular student graded question. Some questions I have pondered: if one student grader is much slower than the others, should I help them through their stack so that everyone finishes at about the same time? Or is consistency in who is grading the exam an essential component? Should the students in the introductory course be informed of the fact that a portion of their exam will be graded by another undergraduate? It is not uncommon for students to grade objective test questions, but it might disgruntle a few students to think that their essay question might be peer evaluated. I inform the students about peer graders before their first exam, and I maintain an open door policy with my students for discussion of any complaints or criticisms concerning grades. In three years of using this method, I have not yet had a single student voice concern about this method of grading.

The student perspective...

From the perspective of a student who served as a peer grader for several semesters, I considered this method of assessment valuable from several vantage points. Namely, the integration of subjective evaluations, peer grading and the student-instructor rapport that this method generates has benefited me as a student, a "teacher in training", and fostered a unique classroom environment in the major's classroom. Clearly, being confronted with students' answers to exam questions and learning to recognize concise, thoughtful and confident responses, as well as facing responses of considerably lower quality, provided some real insight about my own progress as a student. Gaining appreciation for both the student's and the instructor's responsibilities throughout the learning process aided my ability to improve my performance in my own undergraduate courses.

Additionally, using peer graders in the university classroom is a unique method to cultivate young teachers. Pursuing a science degree in a liberal arts based curriculum grants exposure to diverse studies; however, in lieu of pursuing a specific education curriculum, it might be difficult for a student such as myself to gain meaningful "hands-on" teaching experience at the undergraduate university level. Equipped with guidance and training about how to effectively evaluate the written exams of my peers, my collaboration with the instructor cultivated a student-mentor relationship that has been essential to my growth.

Finally, beyond my personal growth through my experience as a peer evaluator, the benefits of this method extend to the entire major's classroom environment. For example, the peer evaluator in this scenario generates a liaison figure between the instructor and the students. Whilst it might be expected that some students would object to another student evaluating their exams, none as of yet have voiced protest. Likely, I presume the outstanding guidance provided to peer evaluators by the instructor has eliminated poor quality grading.

Perhaps the students are comfortable with this system because of the rapport that develops with their instructor. Specifically, from a student's vantage point, the instructor is seen as one who respects other students' (alumni to that class) abilities to the extent that those students would participate in the teaching responsibilities for that class. Perhaps to an undergraduate taking the course, the employment of peers as evaluators of exams would incorporate student expectations of the students taking the course is remarkably high.

Essentially, the cooperation between the instructor, the peer grader, and the student not only facilitates an effective method of administering and evaluating subjective exams, but also cultivates mutual respect in the classroom. The combination of respect, confidence and efficiency, enhances not only the personal growth of individuals, but also the quality of the teaching environment.

Conclusion

Each semester I evaluate this approach, and I come up with ways of improving this method. It saves me valuable time, the students get their exams back in a reasonable amount of time, and the student graders learn one facet of biology in a unique way (from a student's perspective). Do other people use this approach? I would be happy to discuss the topic of peer graders for subjective exams with anyone who is interested - I appreciate any comments and suggestions from colleagues! I can be contacted:

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