



Exam Wrappers: Reflecting on Study Skills

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Context: Out of class; Introduction to Chemistry series

Keywords: exam wrapper, study skills, exam-taking skills, first-year experience, metacognition

Student Activity Time: 10 minutes outside of class

After an exam, students reflected on their exam preparation, their performance on the exam, and their preparation for future exams.

Introducing the Reflection Activity

In an introduction to chemistry series, after taking exams, first-year students reflected on the exam content and their experience taking the exam in exam wrappers. The purpose of this reflection activity was for students to evaluate what they know; take ownership of what they know and don't know; and examine their exam performance.

After each exam, students reflected on their experience taking the exam by responding to a series of questions including:

1. Estimate the time you spent studying for the exam.
2. Estimate the percentage of test-preparation time spent in different activities (e.g., setting goals for studying; creating practice problems; writing summary notes).
3. Estimate the percentage of points lost due to various reasons (e.g., balancing equations, definitions, wrong application of concept).
4. Identify three things you plan to do differently in preparing for the next exam.
5. Identify what the educator or the teaching team can do to support your learning and preparation for the next exam.

After students submitted their exam wrappers, the educator read them with an eye towards emerging themes. In the next class session after the exam wrappers were submitted, the educator debriefed the students on themes from the exam wrappers. The purpose of this discussion was for the educator to acknowledge students' feedback and provide rationale to students for decisions the educator has made. This approach closed the feedback loop, modeled reflective behavior for students, and provided students with the educator's perspective.

The educator graded these reflection activities using a completion approach and counted the five points towards students' overall daily work points for the class (they could receive daily work points for a variety of class related activities, so the exam wrapper wasn't required with respect to their daily points for the class). Students were not required to complete an exam wrapper, but were encouraged to do so because of the potential benefits.

In terms of outcomes, these exam wrappers provide students with an opportunity to evaluate their experience taking the exam; see areas for improvement; and develop a strategy for more effective approaches to studying. In seeing areas for improvement, often after the first exam the majority of students describe activities the educator could do to help them improve on the exam—placing more ownership on the educator. By the third exam wrapper, most students are taking more ownership of their learning and identifying things they can do to better prepare for their exams.

Recreating the Reflection Activity

	Description
1	Introduce students to the optional exam wrapper assignment.
2	Grade the exam wrapper assignment using a credit for completion approach.
3	Debrief students based on what you see in the exam wrappers.

In the words of the Educator: Tips and Inspiration

Model reflective behavior through closing the loop. I believe it is important to model the same behavior we are expecting from the students. Show them that you are reflecting on the feedback they are giving you by debriefing students on themes from the exam wrappers. Otherwise, the exam wrapper discussion becomes more talking that students don't pay attention to.

Provide more opportunities for reflection. While the exam wrapper is a great reflection activity, I believe it is important to integrate reflection throughout the course. For example, I use muddiest points every Friday to better understand what topics are “muddy” or unclear for student.

Use a learning management system. I have found that using a learning management system for implementation of exam wrappers simplifies the administration and data collection.

Be willing and open to critical feedback. The student feedback in the exam wrapper forces you to think about what you are willing or not willing to change in your approach to teaching. You will have to think about valid reasons for not doing something in the class. While students may not agree with your rationale, it is important to share this rationale with them.

Talk to students about important details. In my opinion, the activity is relatively meaningless without the debrief by the educator. I also try to emphasize that exams are the vehicle for this reflective exercise, but the end goal is to develop strong study skills that will benefit students throughout college. In other words, this isn't an exercise that focuses just on improving exam scores; rather, it is an exercise that we hope to lead to overall development as a learner.

What was the inspiration for the reflection activity? The exam wrapper process was suggested by a former colleague, Cianan Russell, and it is taken from *How Learning Works: 7 Research-Based Principles for Smart Teaching* by Ambrose, et al.