Student-Directed Exam Reviews, Real-Time Collaborative Composition, and Assessment of Student Preparation

Ryan Long
Thomas Jefferson University
longr@philau.edu

Abstract: This paper outlines a method for student-directed creation of exam review guides. No answers or lists of required information are provided to students. Students must reflect on the purpose of the course and the relationships between the different content units in order to collaboratively compose a study guide. The professor then critiques the guide, providing the students with an assessment of their collective level of preparation for the exam.

Keywords: exam reviews; collaboration; peer critique; study guides; active learning; retrieval

Many students want to know what will be asked on an exam and the correct answers. Acquiescing in this forgoes the opportunity for more meaningful exam review. In disciplines such as philosophy, it is antithetical to the point. One does not improve at textual analysis or criticism of arguments by memorizing a provided list of answers. Review as a group discussion is better, but those most in need of review are least likely to engage, ask questions, or answer questions. Other review methods include working through sample problems together in class, Jeopardy games, and practice exams (Hackathorn et al., 2012; Keck, 2000).

Recognizing that "students at all levels of academic ability benefit from an objective assessment of their preparation for a final exam" (Balch, 1998), I outline a method for providing group assessment rather than individual assessment. Students collaboratively compose a study guide. The instructor assesses the guide. The students then continue their review in light of that assessment.

Composition Method, Feedback, and Effectiveness

Explain the scope of the exam. Provide a list of readings and units that will be covered. One could also provide sample questions without any answers, with the caveat that the collection of questions is incomplete. Before the in-class review period, have students think about what an exam on these topics *should* include. For example, if an ethics exam will cover John Stuart Mill's utilitarianism, have the students think about what arguments and positions from the reading one should master in order to demonstrate competency on an exam. Their question switches from the passive and uncritical "will this be on the exam?" to the active and critical "should this be on the exam?" Students must put themselves in a position to determine what should be on the exam, which requires careful rereading of key texts, broad reflection on the purpose of the course, and analysis of how the topics relate to each other. This is better preparation for the exam, and a more intrinsically worthwhile intellectual activity, than attempting to memorize answers.

We find evidence in the literature that active learning exercises increase reported memory retention and engagement more than passive content review activities (Smith & Cardaciotto, 2012). Reflective and creative activities lead to memory benefits due to the generation effect. Memory retention is greater for content that is generated rather than merely read (Slamecka & Graf, 1978). Active learning techniques that provide students control also enhance memory retention (Markant, Ruggeri, Gureckis, & Xu, 2016). Requiring active memory retrieval instead of providing a list of

content to memorize reaps the benefits of *retrieval-based learning* (Karpicke, 2012; Karpicke & Grimaldi, 2012). "[E]xpressions of knowledge involve retrieval and depend on the retrieval cues available in a given context. Further, every time a person retrieves knowledge, that knowledge is changed, because retrieving knowledge improves one's ability to retrieve it again in the future. Practicing retrieval does not merely produce rote, transient learning; it produces meaningful, long-term learning." (Karpicke, 2012) In the novel form of exam review presented here, students exert creative control over their learning activities. They must determine what *ought* to be on the exam, decide how to structure the content, retrieve the most important content from memory or the texts, and compose their own study guide.

Students bring laptops to class and write with an online, multi-user, synchronous word processor. (If all students do not have laptops or tablets, hold the session in a computer lab, have people share computers, or have some students write in longhand and then paste a picture of their contributions in the shared document.) I use Google Documents and provide the class with a template containing a table of contents that matches the list of texts and units distributed earlier. Send students the link to the shared document. The entire class will compose a single document together in real time. Assign students to small groups. Give each group a specific content section to compose. They must write that section, after which they can move throughout the guide and write on topics of their choosing. They are also instructed to write marginal comments, questions, and proposed corrections to what other students have written. Students are not to delete anyone else's contributions, only to comment on them. Writing and reviewing becomes social, both face-to-face within their subgroups and online throughout the class. They read, evaluate, and respond to what their peers write.

Allow students to ask you questions during this activity, but require that they also provide their own best answer to their own question. If the answer is correct, confirm, if not, let it serve as the starting point of a discussion. Never dispense answers upon request during the review session. For incorrect or incomplete answers, guide a discussion towards what they need to know. Make them achieve the goal together by working to retrieve the relevant content from memory or the texts.

After class, lock the document to prevent further student edits. Then comment directly on the shared document. Using marginal comments, identify errors and gaps that the students must correct. This reorients students from content memorization to an active, reflective, multistage review. I will provide examples of feedback in my field that can be adapted for other disciplines. Students often fail to define important philosophical terms, give promising but incomplete definitions, or give incorrect definitions. I flag these as: missing, incomplete, incorrect. If the guide has gaps in its coverage, I write a question that, upon reflection, provides guidance for finding the relevant content in the readings. If the guide addresses a topic but does not provide a full explanation, I flag this as well. For example, while writing a guide for Plato's *Apology* the students might write that Socrates claims death is not to be feared. If they do not provide his argument for that conclusion, I write "missing argument" in the margins. Where the students make interpretive claims about a text I provide a counter-argument or question to encourage them to strengthen their analysis. All these methods make the review engaging and critical, and they require students to continuously go back and work with the original texts. These particular problems with student review and exam performance will be familiar to philosophers and are given as a template that can be modified for professors in other disciplines, who will already be familiar with variations on these problems as well as other common exam mistakes.

This approach is superior to providing students a list of required content. As discussed above, we have evidence that acquisition of knowledge, memory retention, and engagement increase when active learning methods are employed, when students have control over their activities, when

students must retrieve content from memory or texts (instead of finding it on a provided guide), and when students must generate something original. I have observed the following changes since implementing this process: there are more scores clumped near the top performer in the class, there are fewer extremely low scores, there are fewer students whose exams indicate that no studying was done. This method forces everyone to study. It also creates a peer pressure dynamic when the process is iterated. Since students are put in small groups, those completely unprepared to contribute may feel awkward. Most students are motivated to avoid awkwardness in class. Those who are unprepared for the midterm exam review have a motive to be ready for the final review session.

Aside from exam outcomes, this activity is more of an intellectual challenge than studying a ready-made guide and therefore has its own intrinsic value. This form of review requires active, creative thought that is discipline-specific. The activities of retrieving the right content and structuring the guide must be sensitive to the specific discipline and course, as opposed to the more generic activity of attempting to memorize a ready-made study guide. The students also learn from each other. Most classroom discussion heavily involves the instructor, but given the restrictions of this activity, the instructor plays a minor role. Students within the same group share their perspectives on the topic and work together to correct misunderstandings and gaps in their comprehension. The entire class evaluates and comments on each other's contributions to the guide. By taking charge of their own review session, thinking critically about what one *ought* to know about the course content, and sharing and critiquing ideas, the students better prepare themselves to do well on the exam and to derive more benefit from the entire course.

References

Balch, W. R. (1998). Practice versus Review Exams and Final Exam Performance. *Teaching of Psychology* , *25*(3), 181–185.

Hackathorn, J., Cornell, K., Garczynski, A., Solomon, E., Blankmeyer, K., & Tennial, R. (2012). Examining exam reviews: A comparison of exam scores and attitudes. *Journal of the Scholarship of Teaching and Learning, 12*(3), 78–87.

Karpicke, J. D. (2012). Retrieval-Based Learning: Active Retrieval Promotes Meaningful Learning. *Current Directions in Psychological Science*, *21*(3), 157–163.

Karpicke, J. D., & Grimaldi, P. J. (2012). Retrieval-Based Learning: A Perspective for Enhancing Meaningful Learning. *Educational Psychology Review*, *24*(3), 401–418.

Keck, M. V. (2000). A Final Exam Review Activity Based on the Jeopardy Format. *Journal of Chemical Education*, *77*(4), 483.

Markant, D. B., Ruggeri, A., Gureckis, T. M., & Xu, F. (2016). Enhanced memory as a common effect of active learning. *Mind, Brain and Education: The Official Journal of the International Mind, Brain, and Education Society*, *10*(3), 142–152.

Slamecka, N. J., & Graf, P. (1978). The generation effect: Delineation of a phenomenon. *Journal of Experimental Psychology. Human Learning and Memory*, *4*(6), 592.

Smith, C. V., & Cardaciotto, L. (2012). Is active learning like broccoli? Student perceptions of active learning in large lecture classes. *Journal of the Scholarship of Teaching and Learning, 11*(1), 53–61.

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