STEM - FIT

TIPS AND TOOLS FOR INCLUSIVE TEACHING

CONCEPT

Debugging/Troubleshooting Following an Exam

In a study of 456 engineering students, only 21% reported looking at their exams beyond checking the score, and most did so only if they were facing a comprehensive final. Considering the time and energy that both dedicated instructors and students apply toward exams, it makes sense to maximize the exams' potential for learning, in addition to using it as an evaluation tool (Nilson, 2013). STEM-FIT Edition 2 introduced Time Management and Goal Setting activities to promote the development of planning skills, which students may employ to more effectively prepare for exams/ assessments. Here, we introduce strategies to help students after an exam/assessment. While "debugging" exams is especially helpful to students who failed to achieve their performance goals, these metacognitive and reflective activities further serve to maximize the learning potential of summative assessments for all students.

TIPS AND TOOLS

- **Exam Corrections:** Exam Corrections, sometimes called Cognitive Wrappers or Exam Wrappers, have been employed across many disciplines to help students evaluate and reflect on their performance and design corrective strategies they can apply when studying for future exams. See the STEM-FIT Canvas Page for an example of an Exam corrections activity that prompts students to reconsider the questions they missed, explaining why their original answer cannot be correct and diagnosing the reason for their error. Additional prompts ask them to identify the study tools they used to prepare for the exam and a variety of open-ended reflective questions further probe their thoughts about their performance and ways they (and their instructor) can improve the learning experience. We recommend assigning points to this activity, and if possible, providing feedback to students.

- **Self-Reflective Debugging Questionnaire.** Following each exam (or other summative assessment), consider distributing a questionnaire with a series of Yes/No inquiries, each listing a different strategy students could have used to prepare for the exam. For example, "I reviewed lecture slides in advance of class. Yes/No." or "I rewrote and reviewed my notes on a weekly basis. Yes/No." Explain that the intention is for them to reflect on ways that they could change or improve their approach to learning and achieving their goals as they work toward the next assessment. In addition to helping students troubleshoot their exam outcome and instilling growth mindset thinking, this activity is also a way to educate students about different learning/studying strategies. This is not something that needs to be turned in, thus it takes minimal time away from class.

RESOURCES

Nilson, L. B. (2013). Creating self-regulated learners: Strategies to strengthen students' self-awareness and learning skills. Sterling, VA: Stylus Publishing, LLC.
See our Canvas site at https://csus.instructure.com/courses/71792 for the activities in the TIPS and TOOLs section.