**GIVE IT ANOTHER GO: MASTERY TEACHING AND SECOND-CHANCE GRADING**

Most students focus only on achieving grades, not on durable learning. Traditional assessment methods resulting in a summative grade that affects their course grade can thus create testing anxiety, dampened motivation following a poor score, and lack of attention to post-assessment feedback. In contrast, mastery teaching and a simplified application known as second-chance grading emphasize formative feedback followed by additional opportunities to demonstrate topic mastery. This assessment approach produces significantly enhanced learning, motivation, and retention. In this roundtable session, we aim to bring attention to this effective teaching and assessment approach and generate ideas for its practical application.

Keywords: Mastery teaching; second-chance grading; formative feedback

Mastery teaching, also referred to as mastery testing, mastery grading, and test-enhanced learning, is a non-traditional process for designing and delivering assessments to enhance learning as well as to assess performance for grading (Bangert-Drowns, Kulik, & Kulik, 1991). In mastery grading systems, students not demonstrating mastery on an assessment receive guidance and feedback and then do the assessment one or more times until they are able to demonstrate sufficient mastery to move on to other topics. Second-chance grading is a simplified approach limiting re-takes to account for the time constraints inherent in education (Fernandez, 2021). Compared to traditional methods, mastery teaching approaches have a strong record of effectively raising student learning achievement (Fernandez, 2021; Kulik & Kulik, 1987; Roediger, Agarwal, McDaniel, & McDermott, 2011).

In the traditional approach to student assessments, tasks are one-shot events designed and delivered for the purpose of measuring knowledge and performance at a point in time (Bangert-Drowns, Kulik, & Kulik, 1991; Herman, Vargese, & Zilles, 2019). That is, students get one opportunity to demonstrate their knowledge and competency of certain course material. Because students generally focus on earning grades rather than on their learning, the way they are assessed and graded can have a significant impact on what they learn and retain (Herman et al, 2019). That is, they decide what to attempt learn based on how they are, or expect to be, assessed. Single-shot, high-stakes exams, a common form of assessment, often produce more stress and anxiety in students which can cause negative implications on assessment accuracy and post-assessment student motivation (Amrein & Berliner, 2003; Fernandez, 2021 The system of assessment therefore can affect student learning motivation in unintended ways (Gibbs & Simpson, 2005).

 Fostering learning and assessing learning are two distinct objectives in teaching practice. Teachers, however, often give inadequate attention to their assessment paradigms and how the design and delivery of assessments can be an effective mechanism for fostering learning (Herman, Cai, Bretl, Zilles, & West, 2020). Two other problems with the traditional approach are described by Armacost and Pet-Armacost (2003). Typically, students perform an assessment and receive only a grade. Some teachers will provide feedback to the class or individually. The grade on that assessment is typically factored into a final course grade. This score, however, may be inaccurate as it only represents what the student knew at that time. Through feedback, review, and more practice, their true level of knowledge and competence could be increased by the end of the term. Furthermore, in giving post-assessment feedback on a one-shot assessment, the teacher assumes students will pay attention and absorb the feedback to reflect and adjust their knowledge (i.e., that they will learn from the feedback). However, such future learning gains are often not captured in grading and thus students can lack motivation to pursue them.

 The aim of this roundtable session is to delve into paradigms and perspectives on the design and delivery of assessments and how choices made about them affects student experiences and learning outcomes. Early career educators may have never thought about assessments as teaching tools. Teachers with more experience may have adopted and become stuck in traditional test-and-grade paradigms. Both groups may benefit from learning about this alternative approach. During the session, we will discuss mastery teaching and second-chance grading as means of enhancing student learning and retention or course material as well as for developing competencies for life-long learning. Participants will share their current approaches and perspectives and then learn about important research findings about the benefits of mastery teaching and second-chance grading approaches. Reflection on the new insights will conclude with collaboration and discussion on practical ways to integrate mastery grading principles and techniques into our courses to improve student learning outcomes and experiences.

**THEORETICAL UNDERPINNINGS AND IMPLICATIONS OF MASTERY TEACHING**

 In mastery teaching, when students perform poorly on an assessment they cannot merely move on and be ‘off-the-hook’ for that failed assessment. The nature of mastery teaching keeps them attached to the material in ways that stimulate learning. There are three primary theoretical underpinnings explaining mastery teaching: its creation of a motivational context, its emphasis on retrieval practice, and its emphasis on formative feedback (Winget & Persky, 2022).

 Motivation for learning is a type of energy and effort experienced by learners that drives their capacity to learn and adapt to feedback (Harlen et al., 2002). By allowing students additional opportunities to demonstrate improvements in their mastery of material and thus their grades, mastery teaching is designed to motivate students’ response to prior performance, feedback, and corrective guidance (Herman et al., 2019). With traditional post-assessment feedback, students often lack motivation to attend to feedback other than the grade. Learning may stop at that point as students are not motivated to work further to master the material already assessed. In this manner, mastery teaching and second-chance grading techniques are most beneficial to those who need to improve their learning the most. That is, lower performing students are motivated to engage in additional efforts so that they can demonstrate higher levels of mastery and achieve higher scores (Herman et al, 2019).

 Through multiple attempts at an assessment come multiple episodes of information retrieval and application. It is often considered that learning takes place during students’ efforts of studying and practice, whereas retrieval of information for testing only serves to assess their knowledge (Roediger & Butler, 2011). Yet retrieval practice, the act of retrieving cognitive information and applying it during testing, improves long-term learning (Agarwal, Bain, & Chamberlain, 2012). The act of retrieving information and applying it to testing works as a powerful mnemonic device with benefits to durable learning (Roediger & Butler, 2011). By allowing multiple episodes of retrieval on the same base of knowledge, mastery teaching therefore increases retrieval practice and learning.

 An emphasis on formative feedback is a cornerstone of mastery grading systems (Bangert-Drowns et al., 1991; Fernandez, 2021). Summative feedback such as a grade provides only information about the state of learning. Formative feedback, on the other hand, not only clarifies learning deficiencies, but it also leverages the two levers of motivation and retrieval. That is, by offering diagnostic feedback and guidance for improvement, formative feedback stimulates reflection (Moon, 2013) and additional retrieval motivated by the opportunity to tray again for a higher grade. By signaling a specific gap in knowledge or skill, formative feedback can motivate goal setting and more study or practice, reduce a student’s uncertainty about the state of their performance or achievement toward a goal, and reduce their cognitive load related to studying which can then enhance focus (Paas, Renkl, & Sweller, 2003).These factors and behaviors result in enhanced and more durable learning (Armacost & Pet-Armacost, 2003; Schute, 2008).

 Across many studies, mastery teaching approaches have significantly improved learning achievement and retention (Armacost & Pet-Armacost, 2003; Fernandez, 2021; Kulik & Kulik, 1987; Roediger et al., 2011). As a form of adaptive learning (O’Donnell, Lawless, Sharp, & Wade, 2015) that personalizes feedback and learning experiences based on individual students’ performance issues, mastery teaching can not only enhance motivation and learning, but student engagement and satisfaction as well. Indeed, students have reported preferences for more frequent testing (Bangert-Drowns et al., 1991), that second chance assessment systems are fair and helped them learn (Armacost & Pet-Armacost, 2003), and that by reducing the stakes of a one-shot system, second chance systems reduced their anxiety and stress (Fernandez, 2021).

**SESSION OVERVIEW**

Following is a summary of the intended agenda and format for the 60-minute session.

1. INTRODUCTION: 5 minutes

 Introduction of session leaders, topic, and agenda

1. PARTICIPANT ENGAGEMENT: 20 minutes

 A questionnaire will be used to draw out participant’s practices, paradigms, and assumptions about assessments and grading methods. Perspectives on and experiences with second-chance grading, both good and bad, will be shared. Participants will have an opportunity to raise questions, challenges, or concerns about designing and delivering mastery teaching methods.

1. A LITTLE THEORY: 15 minutes

An overview of theory and implications of master teaching and second-chance grading will be presented. Time will allow of questions to clarify and absorb the information.

1. REFLECTIONS, OBSERVATIONS, and TAKE-AWAYS: 20 minutes

 Participants will engage in a guided reflection exercise to be followed with open debrief and discussion to share things learned, ideas developed, and further questions to research and consider.

Participants will leave the session with an information sheet summarizing the key pieces of research and theory presented as well as a starter reading list for further investigation. A ‘tip sheet’ will also be provided offering simple ideas that can be used toward the design and delivery of mastery grading methods.

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