Examining Exams, Evaluating Evaluations: An Alternate Approach Assessed

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In an attempt to bring a more realistic environment into the classroom during assessments, an alternative form of assessment was piloted during a mathematical modeling course at the United States Military Academy at West Point in the fall of 2017. The "alternate" assessments are primarily conceptual in nature and consist of three parts: a night before read-ahead introducing a new application, an in class individual portion, and an in-class group portion. Through the evaluation of this assessment technique, we hope to determine if it should be expanded to a larger audience in the future. Preliminary finding of this evaluation are presented.

Poster Proposal

Our course has higher-order learning goals for students to learn to think critically, work collaboratively, use technology appropriately and effectively, and to work towards solving real-world problems creatively. While traditional exams are effective at assessing computational lesson objectives, they are limited in their ability to assess a student's growth with regards to these higher-order learning objectives. A desire to more meaningfully challenge students to grow in these ways by requiring them to engage these skills in an assessment setting led us to design and implement this alternate form of assessment.

A sub-movement of the flipped classroom movement that has been growing is team-based learning. The Team-Based Learning Collaborative maintains a list of related publications. These papers (i.e. Rezaee, Moadeb, & Shokrpour, 2016; Huggins & Stamatel, 2015; Stein, Colyer, & Manning, 2016) focus on team-based learning techniques applied to classroom instruction and how effective it is in comparison with more traditional lecture techniques. While these studies are interesting, the assessment techniques used in these classrooms remain traditional exams. Eric Mazur, the Balkanski Professor of Physics and Applied Physics and Dean of Applied Physics at Harvard University provides a video of a talk on his website entitled *Assessment: The Silent Killer of Learning* in which he claims that the traditional method of assessment is outdated. He claims that we can create assessments in such a way as to encourage the higher-order thinking skills (creating, evaluating, and analyzing) of Anderson & Krathwohl's (2001) revision of Bloom's Taxonomy rather than the traditional assessment which required far more remembering, understanding, and applying.

While Mazur clearly has strong opinions and an abundance of ideas about this topic, we are unaware of any research studies that have addressed the feasibility and effectiveness of such assessments. Consequently, it is the goal of our pilot study to begin to address such questions of feasibility and effectiveness.

Our poster will provide sample assessments and some preliminary findings from our fall pilot. We look forward to discussing the project and potential ways to improve our assessments with conference attendees.

References

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