

Bringing Tests to Teaching: The Impact of Memorable Assessments on Learning

Andrew Dean Ho
Stanford University

PO Box 11066, Stanford, CA, 94309
adho@stanford.edu

Tests are frequently viewed as retrospective measures, as gauges of previous learning. This study, in contrast, views tests as prospective and proactive agents: tests are learning activities in themselves and an opportunity to scaffold future learning. If tests can teach, how can they teach well? The purpose of this study is to understand how certain attributes of test questions affect the "memorability" of the underlying target construct. In other words, what kinds of items are memorable for students, and if test items are memorable, does this lead to lasting understanding of the underlying concept?

The research setting is an Honors Physics summer school course at a private high school. A single class of 14 students participated in the study, ages 15-17. The summer course has a flexible but generally fixed curriculum, and exams are the same from year to year. One-hour examinations are given three times a week.

Two target constructs were selected from each examination, and these were designated as treatment or control with a coin flip. The items relating to the "treatment" construct were altered by adding an interesting or unusual scenario to the item, though the underlying calculations required remained identical. The "memorability" of the treatment was tested in three ways. First, questionnaires were given directly following each examination, and students were prompted to identify test items and constructs they best remember and most enjoyed. Second, spontaneous mentions or discussion of test items or target constructs were tallied. Finally, performance on target constructs in summative examinations at the midpoint and conclusion of the course were compared.

Analysis is still in progress from the summer study. If treatments make items more immediately memorable, it hints at a possible mechanism for future transfer of the treatment construct. The randomization of target constructs to their treatment and control designations ensures that any effect will be attributable to the treatment. Though the effect is likely to be small due to time lag, it would make a striking statement to the potential of test-situated learning. However, as "tests" are situations charged with so much perceived importance, the success of a treatment designed to turn that energy towards learning may not be so surprising.