Relationship Between Multiple Quiz Attempts and Course Grades

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What to do - Quiz Attempts

How many quiz attempts should I allow for? Will students use them? Should I require a minimum number of attempts?

Have multiple options/settings (e.g., provide more than 1 attempt, take the highest score, take the average score, etc.) when creating quizzes – what works best for learning?

Previous Research

Retrieval practice promotes long-term retention (Agarwal & Bain, 2019)

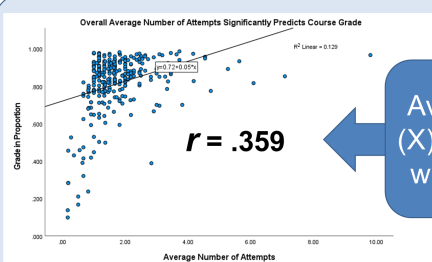Providing multiple quiz attempts supports retrieval practice
BUT…
Multiple attempts may be used in place of reading or other study methods – students won't learn just memorize (Rhodes & Sarbaum, 2015)

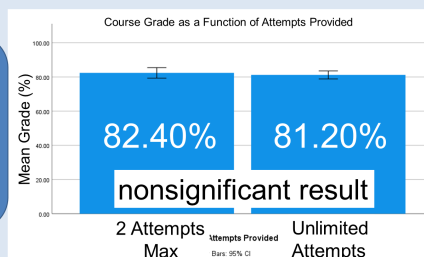More than two quiz attempts might hurt learning (Yourstone et al., 2010)

Purpose

Compare quiz attempts provided (2 vs. unlimited) with course grade (%) and minimum attempts required (none vs. 2) with course grade (%)
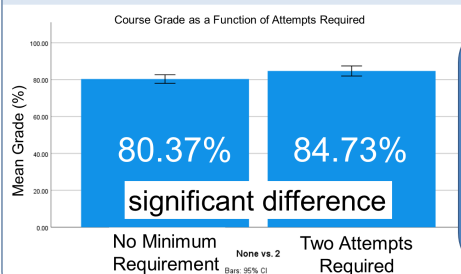

Overall Average Number of Attempts Significantly Predicts Course Grade

R^2 Linear = 0.129

$r = .359$

Average # of attempts (X) positively correlated with course grade (Y)

BUT …

Sections with unlimited attempts did not outperform sections with only 2 attempts.

Course Grade as a Function of Attempts Provided

82.40% 81.20%
nonsignificant result

2 Attempts Max — Unlimited Attempts
Attempts Provided
Bars: 95% CI

HOWEVER …

Course Grade as a Function of Attempts Required

80.37% 84.73%
significant difference

No Minimum Requirement — Two Attempts Required
None vs. 2
Bars: 95% CI

Requiring two attempts outperformed sections with no minimum by nearly half a letter grade.

Who

Students (N = 250) enrolled in upper division psychology course (Cognition) sections over 10 semesters

How

Each semester represented a specific section.

Sections varied on # of attempts provided and # of attempts required

Correlated avg. # of attempts and grades; compared groups' grades based on attempts provided and required.

Discussion

Attempts positively correlated with higher grade (see scatter plot)

Sections with unlimited attempts did not outperform sections with two attempts – perhaps not all students took advantage. (see middle bar graph)

Requiring minimum attempts is better than providing an unlimited number of attempts – ensures more students take quiz more than one time (see lower bar graph)

References available upon request