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Lindsey Prommer
lprommer@purdue.edu

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SAFMEDS as an Instructional Tool and Assessment

Lindsey Prommer & Melissa Swisher
Purdue University

Introduction

Say-all-fast-minute-each-day-shuffled (SAFMEDS) is a precision teaching method utilized in both instruction and assessment. Existing literature illustrates support for the retrieval hypothesis and the testing effect due to repetition and active learning, thus making SAFMEDS an effective studying strategy. Differing from traditional flashcards, SAFMEDS are based on the concept of saying the vocabulary word aloud with an emphasis on speed. This study's purpose is to analyze how the repetitive use of SAFMEDS affect test scores. Examining SAFMEDS as instructional devices and assessment tools will give insight into the effects of fluency-based techniques on retention and accuracy. We predict a positive relationship between SAFMEDS quiz scores and exam scores.

Method – Participants and Materials

There were 173 undergraduates from an Introduction to Cognitive Psychology class at a large midwestern public research university that participated in this study. The participants came from a variety of academic programs. The study procedures were mandatory for all students as part of the course, however there was no reward for students consenting to have their data used and no penalty for withdrawing their data. The class was approximately between the ages of 18-22 and was composed of 121 females (70%) and 52 males (30%).

Participants studied forty SAFMEDS per exam. They were released following the previous exam's conclusion. Participants utilized either online SAFMEDS from websites like Quizlet, their own handwritten SAFMEDS, or printed premade SAFMEDS from the class' website - whichever method they chose was per their discretion.

term	*definition*
cognitive psychology	studying behavior to understand human cognition

Figures
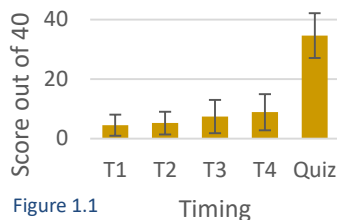
Figure 1.1

Figure 1.2

Figure 2.1
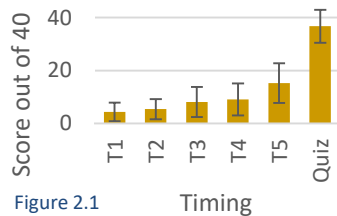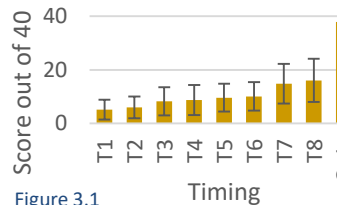

Figure 2.2

Figure 3.1

Figure 3.2

Timings were done in class, following a five minute study period. Each timing was conducted through a see-definition, say-word method or a see-definition, type-word method. Quizzes were conducted outside of class and were capped at five minutes to complete the see-type method for 40 vocabulary terms.
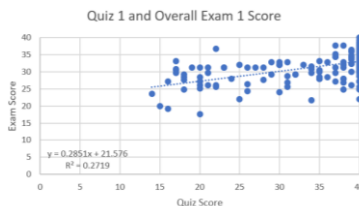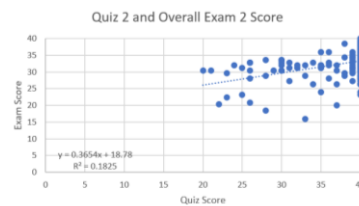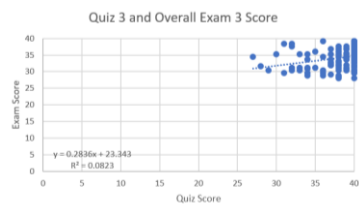
The correlation graphs between the exams and quizzes show the relationship between the 40 point quiz score using a see-type method and the exam score calculated out of 40 total points. Exams were mixed format, including a fill-in-the-blank section, applied questions, and free response questions.

Methods - Procedures

During in-class SAFMEDS timings, students studied for 3-5 minutes and were timed for one minute, attempting to achieve as many correct responses as possible. A partner held up the definition side of the SAFMEDS and the participants said aloud the vocabulary word. Cards were split up between correct, incorrect, and skip. Students took SAFMEDS quizzes on their own time. Participants were given five minutes to type the 40 vocabulary words next to the definition shown. Exams were given four times throughout the course. Exams had a section worth one-fifth of the exam score that was fill-in-the-blank. Students wrote the term corresponding to the given definition. Ten of the 40 SAFMEDS cards were represented.

Results and Discussion

An independent ANOVA statistical analysis showed that quiz scores had a significant positive correlation with overall exam scores, as shown in Figures 1.2, 2.2, and 3.2 [Assessment 1: R=.2851, *p*<.05, Assessment 2: R=.3654, *p*<.05, and Assessment 3: R=.2836, *p*<.05]. Results indicated that a mere 12 relationships between any two quizzes pertaining to the same exam were insignificant [*p*>.05] out of 122 tested relationships. These repeated SAFMEDS quizzes show the testing effect to varying degrees. As a retrieval practice and instructional tool, SAFMEDS are shown to be an effective study method. They lead to improved performance as compared to flashcards due to their emphasis on fluency rather than accuracy. In the future, we'd like to see SAFMEDS implemented in other classes and conduct more research into the impact of SAFMEDS on length of retention.

References

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