

# The Influence of Multiple-Choice Exam Question Order on Student Performance and Perceptions

**TERRY F. PETTJOHN**  
**MERCYHURST COLLEGE**

**MATTHEW SACCO**  
**GANNON UNIVERSITY**

Presented at the 11<sup>th</sup> Annual American Psychological Society Teaching Institute, Chicago, Illinois, May 27, 2004  
E-mail : [TPETTJOHN@MERCYHURST.EDU](mailto:TPETTJOHN@MERCYHURST.EDU)

## Abstract

Students enrolled in Introduction to Psychology courses completed timed sequential, reverse, or random order multiple-choice exams and answered questionnaires about their perceptions of test difficulty, anxiety, and understanding of course material. Students showed no difference in performance on the different exam question orders, but did have varied perceptions concerning the exams. Implications for professors and students are discussed.

## Introduction

- Often, to prevent cheating, professors will mix up the order of multiple choice exam questions from exam to exam without thought of the consequence it may have on student exam performance and perceptions. According to Balch (1989), students score higher on multiple-choice exams when the question presentation order matches the order the material was delivered in lecture and text as opposed to those questions that are presented in a random fashion. However, Neely, Springston, and McCann (1994) conducted a meta-analysis and only found two studies which supported the sequential order advantage. Perlini, Lind, and Zumbo (1998) found that item, chapter, and difficulty order have little effect on test performance.

## Hypotheses

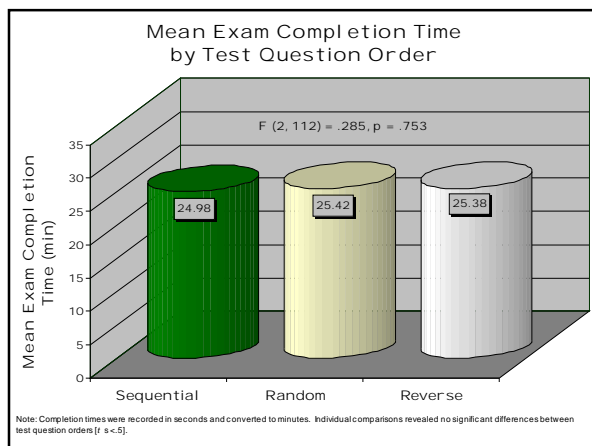
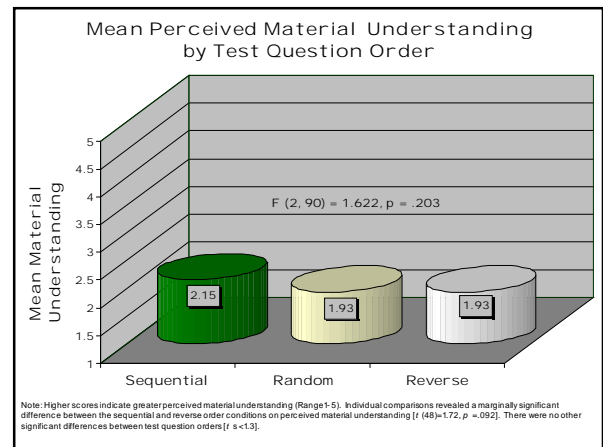
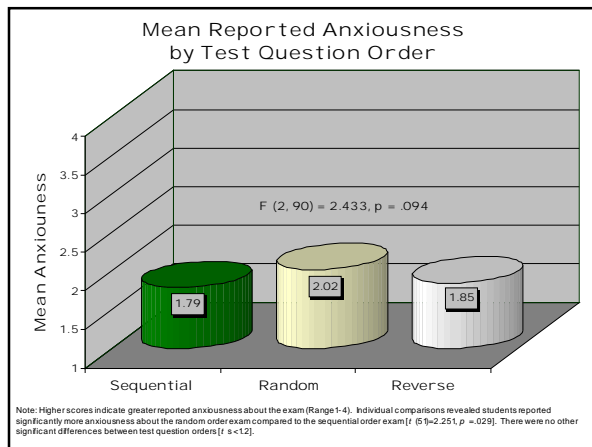
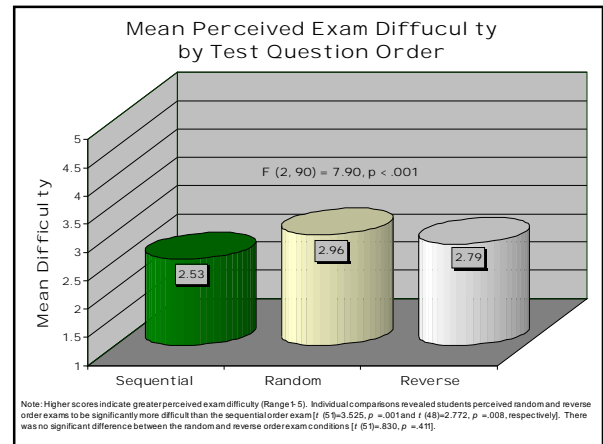
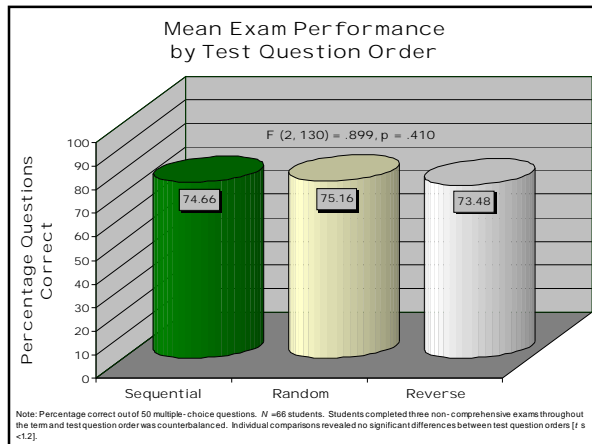
- 1) Students would not perform significantly better on a sequential order exam than on either a random or reverse order exam, but students would take less time to complete sequential order exams
- 2) Students would report higher levels of perceived exam difficulty and anxiety regarding the random order exam
- 3) Students would indicate higher levels of perceived material understanding following completion of a sequential order exam

## Method

- Participants
  - 66 college students, enrolled in two concurrent sections of Introduction to Psychology
    - 17 men, 49 women
    - Ages 18-22
    - Majority Caucasian (97%)

## Method

- Materials & Procedure
  - Each participant completed 3 unit exams consisting of 50 non-comprehensive, multiple-choice questions
  - The assignment of sequential, random, and reverse order exams was counterbalanced
  - Each unit exam was followed by a post-exam questionnaire asking perceived level of anxiety, understanding of material, and material difficulty
  - Completion times were also recorded, unbeknownst to students



## Discussion

- These results suggest that although different variations of exam questions may not lead to differences in performance, variations do lead to differences in perceptions. These perceptions may be an important byproduct of different test versions, and may be used in different situations. For example, students who experience intense test anxiety may be given sequential order exams to help reduce test anxiety.
- If professors want students to feel more confident about the material they are studying or believe a course is more or less difficult, they may choose the appropriate test question order option to achieve their goals. Perceptions may also influence student studying and professor evaluation.
- Future studies may further investigate these potential applications.