Teachers often use alternate exam versions to curb cheating. However, differently colored paper (Sinclair,Soldat, & Mark, 1998; Skinner, 2004; Soldat, Sinclair,& Mark, 1997) and differently ordered questions(Balch, 1989) commonly distinguish alternate versions, but appear to affect performance.

Although Michael and Jones (1955) reported no effect of paper color on exam performance, several more recent studies have contradicted these results.

Soldat et al. (1997) found students scored higher on difficult GRE-type questions printed on blue compared to red paper. Sinclair et al. (1998) reported students scored higher on a midterm exam printed on blue versus red paper. These researchers supposed that the color red induces positive affect, triggering a processing strategy that conserves cognitive resources. On the other hand, the authors suggested that the color blue induces negative affect, triggering detail-oriented processing that might be more effective when solving difficult problems. Thus, they argued that better performance on blue versus red exams may result from different affective states and cognitive processes induced by the different colors (cf. Elliot, Maier, Moller, Friedman, & Meinhardt, 2007). In contrast to these findings, Skinner (2004) reported that students scored higher on exams printed on red than on blue paper, with the highest scores occurring on exams printed on white paper. Skinner (2004) and Sinclair and colleagues (1998) urged teachers to discontinue use of differently colored exam versions or at least to adjust students’ exam scores to account for any disadvantages resulting from using different colors of paper.

Concerning question order, students performed better on exams containing questions paralleling the order of presentation in lectures and the textbook (sequential order) than on exams containing randomly ordered questions (Balch, 1989). To explain this effect, Balch suggested that items are best retrieved from memory in the same context in which they were encoded. Exams with sequentially ordered questions present the items in the same order in which they were presumably encoded, and therefore students would perform better under this condition. Other studies, however, have not replicated Balch’s effect (Goss Lucas & Bernstein, 2005; Neely, Springston, & McCann, 1994; Perlini, Lind, & Zumbo, 1998).

In our classes, we use pastel colors to distinguish different exam versions rather than the vivid primary colors used in previous research (N. F. Skinner, personal communication, November 14, 2005; Sinclair et al., 1998; Soldat et al., 1997), and we present multiple-choice questions and alternative answers in random rather than sequential order. Our concern was whether the effects found with primary colors also occur with pastel colors (i.e., red vs. pink). In this study, we attempted to replicate previously reported effects of primary-colored paper and also tested whether pastel colors of paper affect exam performance. To address whether question order (sequential vs. random order) affects exam performance, we included question order in our study design. In addition, we included gender in our analyses because previous researchers (Elliot et al., 2007; Michael & Jones, 1955; Sinclair et al., 1998) considered student gender as a factor that might interact with paper color to affect exam performance.

Undergraduate introductory psychology students

(364 men, 230 women) took a 40-question multiplechoice exam based on textbook (Davis & Palladino, 2004) and lecture content. Exams were printed in

black ink on either white paper (Xerox Business Multipurpose 4200 Bright 92) or four primary colors of paper: RIV 02054 rojo red, RIV 02055 lemon yellow,

RIV 02057 emerald green, and RIV 02059 marine blue (Riverside Paper Kaleidoscope Multipurpose). Within each color, questions appeared in either sequential or random order, resulting in a total of 10 exam versions.

Students seated adjacently could not have the same color of exam; seating was unassigned.

We performed an ANOVA (SPSS Version 12.0) with number of questions correct as the dependent variable and paper color, question order, and gender as

fixed factors. We used Type II sums of squares to correct for unequal cell sizes and tested a priori contrasts based on previous research .We found only a significant main effect of color, *F* (4, 594) = 5.53, *p <* .001, *η*2#1 = .04,

but this model explained only 3.3% of the variance in exam performance (adjusted *R*2). Contrasts revealed that students performed better on white exams than all other colored exams (*M* difference = 2.15), *t*(183.26) = 2.85, *p <* .01, and worse on blue than all other colored exams (*M* difference = −3.27), *t*(197.6) =− 4.34, *p <* .001. We corrected degrees of freedom for unequal variances. We found no effects for question order or gender.

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<http://en.wikiversity.org/wiki/Eta-squared>