

Comparison of Computerized and Traditional Testing on Business Students

LESTER W. PLUMLY
HOWARD N. RAY
Valdosta State College
Valdosta, Georgia

The widespread use of microcomputers in education necessitates an assessment of the effects of this technology on learning and testing outcomes. Microcomputers provide an alternative to traditional pencil-and-paper test administration. However, one fundamental issue remains unresolved. Do computer-administered tests and traditional pencil-and-paper tests provide equivalent measurements of performance? Studies comparing performance on different types of test administration are few and have obtained mixed results.

Differences in performance between traditional paper-and-pencil test administration and computer-administered tests might depend upon the type of test taken and the population tested. Table 1 presents several studies that have compared the two types of test administration. It is evident from the table that the effects of computer-administered testing on performance are unclear. Levy and Bar-

owsky (1986) found no significant differences between the scores obtained on the two types of test administration. Lukin, Dowd, Plake, and Kraft (1985) came up with similar results, though they found that the computerized administration was preferred over the paper-and-pencil administration by 84% of the population tested.

Sorenson (1985) reported that performance was significantly higher on the computerized version of four cognitive tests. This study also indicated that for some individuals or populations a particular test version may yield better scores. In contrast, a study by Lee, Moreno, and Sympson (1984) found the computerized version significantly more difficult. They indicated that the anxiety level may have been higher in the computer-administered version, which might have adversely affected performance.

Previous investigations have provided evidence that test content as well as the population tested may affect performance on computer-administered tests. Hoffman and Lundberg (1976) obtained equivalent scores on both modes for multiple choice and true-false formats but significantly lower scores on the computer-

ized matching item format. They suggested that the reduction in mean score of the matching items may reflect the manner of presentation of the matching items. Johnson and Michal (1973) found that there was no difference in performance between types of test administration for white elementary school students; however, Blacks improved their performance on the computerized test. They hypothesized that the improvement in the scores of Black students may be the result of a reduction in anxiety that may be induced when tests are given by individuals representing more advantaged backgrounds.

Given the inconsistencies noted above, more research is needed to test the equivalence of the two types of test administration. It is also necessary that these comparisons be conducted in multiple subject areas to test for the general applicability of previous research. The purposes of this study were (a) to assess the equivalence of computer-administered tests and traditional paper-and-pencil tests in a classroom setting, and (b) to test for possible relationships between individual characteristics and performance relative to test type.