ABSTRACT

Randal J. Rair, June 2019

EVALUATION AND MEASUREMENT

TEST ENVIRONMENT FOR OPTIMAL PERFORMANCE IN HIGH SCHOOL STUDENTS: MEASURE DEVELOPMENT AND THE RELATIONSHIP WITH STANDARDIZED TEST SCORES (293 pp.)

Director of Dissertation: Aryn C. Karpinski, Ph.D.

The rise of mobile technology and increased school accountability has enmeshed the last two generations of students in unprecedented educational experiences. This has fostered learners who are varied in their communication and academic capabilities. Simultaneously, the number of standardized tests, both mandated and voluntary, has been steadily increasing. Few studies are available that examine the preferred environmental conditions for students during these tests. The current study consists of two parts: (1) the Pilot Study and (2) the Main Study. The Pilot Study examined the psychometric properties of a measure called the Test Environment for Optimal Performance (TEOP), which was created to explore the testing preferences of the current generation of college students (i.e., Millennials). Following this quantitative section of the Pilot Study, selections of Millennials were qualitatively interviewed on topics related to test environment preferences to explore the underlying factor structure meaning. Findings from both the quantitative and qualitative portions suggest that students have a partiality for physical (i.e., “Action”) and auditory (i.e., “Sound”) activities when testing.
The Main Study extended the Pilot Study by investigating current high school students’ (i.e., Generation Z) preferred standardized testing conditions and if these preferred conditions have a predictive relationship with high-stakes standardized test scores (i.e., the ACT). The Main Study analyzed data using a Confirmatory Factor Analysis (CFA) to examine the psychometric properties of the TEOP in the new population, and to provide further evidence to support the “Action” and “Sound” test environment factor structure. Following the CFA, Hierarchical Multiple Linear Regressions were conducted to examine the hypothesized relationships between the TEOP factors “Action” and “Sound” and high-stakes aptitude outcomes (i.e., ACT scores). The results warranted an additional post hoc Hierarchical Multiple Linear Regression using Grade Point Average (GPA) as the outcome.

The results from the Main Study advanced the outcomes from the Pilot Study by providing additional validation support for the TEOP scores in a population of high school students. The study, therefore, provided validity and reliability evidence of the TEOP for two subpopulations (i.e., Millennial college students and Generation Z high school students). The results also showed that while the TEOP scores did not have a significant predictive relationship with ACT scores, there was a significant relationship between the TEOP scores and GPA. These findings may be useful to various stakeholders looking to address students’ test preparation and academic performance. The TEOP scores can be used to inform students, parents, and school administrators of the potential congruence or incongruence between students’ practices and preferences while studying
and the actual test environments in order to maximize their performance. Results from this correlational study should be interpreted with caution; however, future research may consider how to use the TEOP as a tool for in-class assessment preparation.