

19 - Effects of test medium on performance measurement of perceptual speed

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Abstract

When large populations have to be tested, the reliance on computerized tests is sensible in terms of efficiency and quality. The DLR selection procedures for pilots or air traffic controllers are such examples with up to 2400 applicants tested each year. Advantages associated with computerized testing in comparison to paper-pencil testing are for example standardization of test procedure, standardization of item distribution and measurement preciseness. These benefits have led to an increasing use of computer administered tests during the last 15 years. However, the effects of test medium change on the performance measurement remain under discussion.

Following results of a large scale validation the effects of test medium change were under scrutiny for a classical test of the DLR pre-selection test battery. Based on a sample of 262 applicants for the German Air Navigation service provider DFS GmbH, the perceptual speed test was administered in paper-pencil format as well as in computerized test format to all applicants. Effects of sequence were controlled for.

Results show differences in performance descriptives in relation to test medium. Associations with test performance and other tests were also not independent of test medium. This underlines the importance of controlling for effects on performance measurement. In consequence, it also implies the importance of considering reliability and validity when adapting the test medium especially in high stakes testing and selection contexts.

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