The Assessment of Spatial Ability with a Single Computerized Test

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Summary:

Spatial cognitive ability has to do with how individuals deal with spatial information. Spatial ability is routinely assessed to predict performance in a variety of job positions, air traffic control being an example. Spatial tests are good predictors of performance in those occupations. One of the most valuable pieces of knowledge for psychological assessment in personnel selection is that concerning efficient ways to measure a given psychological trait, meaning that the measure shows high validity and low application costs. This article reports two studies showing the high efficiency of a new measure of spatial ability: SODT-R, a computer-administered test of dynamic spatial performance in which the person is required to simultaneously orient two moving points to a given destination that change from trial to trial. In the first study, 602 applicants for an air traffic control training course completed a battery of nine cognitive tests. In the second study, 105 university undergraduates completed a battery of 11 tests. Both batteries comprise tests of reasoning, visualization, spatial relations, and dynamic spatial performance. SODT-R emerges as a good measure of general spatial ability (Gv). This is especially true in the second study, where a broader sample of spatial tests is considered. A theoretical account based on the well-known high correlation between working memory capacity and cognitive abilities is discussed.

Keywords: Spatial ability, visualization, spatial relations, dynamic spatial performance, working memory, general intelligence, personnel selection

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