

## Cognitive Ability Testing for Student Admissions

### Validity Evidence for Cognitive Ability Testing in Admissions

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#### What Do Cognitive Ability Tests Measure?

Cognitive ability tests measure the ability to learn, reason, and solve problems. Cognitive ability is a complex psychological characteristic that has been scientifically investigated for over 100 years. It has been found to be a profoundly important and stable psychological attribute with wide ranging implications. While it is sometimes thought that cognitive ability tests simply measure educational achievement, in reality they measure very general mental capabilities.

#### Validity Evidence for Cognitive Ability Tests

Today, educational institutions throughout the world commonly utilize skills and abilities tests to inform student admissions decisions. **Among these, professionally developed cognitive assessments have consistently been shown to be the best predictor of student success.**

This support is typified by a piece entitled “Mainstream Science on Intelligence” that appeared in the *Wall Street Journal* (December 13, 1994). Therein over 50 of the world’s leading educational and industrial psychologists stated that “Intelligence, so defined, can be measured and intelligence tests measure it well. They are among the most accurate (in technical terms, reliable and valid) of all psychological tests and assessments.”

An extensive body of peer reviewed research supports the use of cognitive ability tests in predicting student success. The evidence is fully described in professional journal articles, major textbooks, and literature reviews. For example, in 1996, *American Psychologist* published the findings of an American Psychological Association task force commissioned to provide an authoritative review on intelligence.

The task force concluded that for cognitive ability assessments, “the relationship between test scores and school performance seems to be ubiquitous” and “test scores are the best single predictor of an individual’s years of education.” The authors point out that “Those characteristics are never the only influence on outcomes, though in the case of school performance they may well be the strongest.”

In a 2008 *American Psychologist* article, researchers reviewed two large-scale studies involving a total of over 1.3 million students. In both studies, cognitive assessments were found to be strong predictors of student grade point average. In discussing their findings, the researchers pointed out the large body of research that dispels the myth that cognitive ability tests are only useful for predicting initial grades. Specifically, a large-scale study determined that cognitive assessments predict first, second, third and fourth year grades

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equally well.

The researchers also found that the tests were predictive of a wide variety of important outcomes, including faculty ratings of student performance, students' completion of their degree, and the passing of licensing examinations. Based on this information, the article concluded that cognitive ability tests are "predictive of a variety of long-term indicators of academic and career success."

In addition to predicting student success and retention, strong evidence also suggests that cognitive ability is related to students' future job success and likelihood of staying on a job longer. These factors are important to educational institutions, because individuals who are likely to lose their jobs are also more likely to default on their loans.

The relationship between student cognitive ability and loan default rates was demonstrated over two decades ago, in a Wonderlic study involving the well-known and widely-used Wonderlic Scholastic Level Exam. This study showed higher loan default rates among lower ability students. This research suggests that school administrators may significantly reduce default rates by recruiting and selecting students who closely match the ability level associated with students' chosen vocation.

Given the overwhelming evidence that cognitive ability assessments like the Scholastic Level Exam effectively predict student performance, retention, future job success, and loan default rates, such tools can obviously provide a substantial return on investment. These measures also

typically cost significantly less than any other selection method. This is the case despite the fact that such measures have enjoyed the most extensive basis of research support available.

### Fairness Issues

In discussing measures of cognitive ability, it is important to also address topics involving the fairness of these tests. That is, does a specific test score have the same meaning regardless of subgroup membership (e.g., race), or does subgroup membership affect scores in a manner that is unrelated to a student's true ability?

This topic was addressed in the aforementioned 2008 American Psychologist article. In their review, the authors indicated that there is extensive evidence bearing upon this issue, particularly from the educational domain. This evidence indicates that professionally developed cognitive ability tests are not biased, and treat protected groups fairly.

### Conclusions

Cognitive ability tests are used throughout the world for student selection. Their success is attributable to their unmatched effectiveness in predicting student performance and student retention at a relatively low cost. Additionally, these assessments help ensure that prospective students are treated fairly. Finally, utilizing these assessments can also reduce the number of students who default on their loans, which is beneficial to both educational institutions and students.