



## The Relative Predictive Validity of ACT Scores and High School Grades in Making College Admission Decisions

Postsecondary institutions often consider students' high school grades and ACT scores when making admission decisions. Historically, these two measures have been used because they are believed to predict students' eventual success in college. An important question for institutions is which indicators of college success they should use to confirm the predictive validity of these two measures.

The answer will vary depending on the institution's educational mission and its admission goals. Despite such differing goals and missions, however, most institutions would view academic performance and college persistence as important indicators of success. This brief summarizes ACT research on the relative weights of ACT scores and high school grades for predicting college persistence as well as selected indicators of academic success in college. The results of these analyses are summarized in the table below.<sup>1</sup>

**Table 1: Predominance of ACT Scores or High School Grades in Predicting College Success, by Indicator**

Predictor	College Success Indicator				
	First-year College GPA	Enrollment/Retention Status	Collegiate Academic Proficiency	Final College GPA	Degree-Attainment Level
ACT Scores	✓	✓	✓		✓
High School Grades	✓	✓		✓	

Studies of first-year college GPA (ACT, 1998; Allen, Robbins, Casillas, & Oh, 2007) suggest that ACT scores and high school grades should carry approximately the same weight if an institution wants its admission criteria to reflect **expected level of first-year academic performance**.<sup>2</sup> The combination of ACT Composite score and high school GPA provides greater accuracy of

<sup>1</sup> For a more detailed summary, please see the Appendix.

<sup>2</sup> Another study of the relative ability of ACT scores and high school grades to predict first-year college academic performance (Noble & Sawyer, 2002) suggests that ACT scores should carry greater weight than high school grades if an institution wants its admission criteria to reflect *high* levels of first-year college GPA (defined as 3.50 or 3.75, as compared with 2.00, 2.50, or 3.00).

admission decisions for most groups of students than using either measure alone.<sup>3</sup>

An analysis of college enrollment status (as of the second fall after high school graduation), as well as a study of college retention, i.e., re-enrollment in a second year at the same institution (Robbins, Allen, Casillas, Peterson, & Le, 2006), suggest that ACT scores and high school grades should carry approximately the same weight if an institution wants its admission criteria to reflect **likelihood of persistence to year two of college**. The results for enrollment were generally similar across racial/ethnic and family income groups, with ACT Composite score as the better predictor of enrollment for African American and low-income students.

Collegiate academic proficiency studies conducted in mathematics and writing suggest that ACT scores should carry greater weight than high school grades if an institution wants its admission criteria to reflect **expected level of academic proficiency in mathematics or writing beyond the first year of college**.

An analysis of final college GPA of college graduates suggests that high school grades should carry greater weight than ACT scores if an institution wants its admission criteria to reflect **expected final GPA by college graduation**.

However, a similar analysis of degree-attainment level, using the same sample of college graduates, suggests that ACT scores should carry greater weight than high school grades if an institution wants its admission criteria to reflect **ultimate level of degree attainment by the end of postsecondary education**.

Taken together, these studies suggest that if an institution wants its admission criteria to reflect collegiate academic proficiency or ultimate level of degree attainment, ACT scores should carry *greater* weight than high school grades. If an institution wants its admission criteria to reflect first-year college GPA or persistence to the second year, ACT scores and high school grades should carry approximately the *same* weight. And if an institution wants its admission criteria to reflect final college GPA, ACT scores should carry *lesser* weight than high school grades.

## Conclusion

A postsecondary institution's admission criteria should ideally be aligned with particular admission goals and with the educational mission of the institution. This brief has presented empirical evidence for how various kinds of alignments can be supported and validated by the relative predictive weights of ACT scores and high school grades for selected indicators of college success.

Unlike some recent studies (e.g., Geiser & Santelices, 2007) that question the use of standardized test scores as part of the postsecondary admission process, this brief shows that both ACT scores and high school grades enhance the prediction of college success.

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<sup>3</sup> Noble (2003) found that the combination of ACT Composite score and high school GPA provided greater accuracy of admission decisions for African American, Hispanic, and White students than using either measure alone. ACT Composite score and high school GPA were slightly more accurate for predicting success of African American students than of Caucasian students, and slightly more accurate for predicting success of Caucasian students than of Hispanic students.

## References

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## APPENDIX

### Relative Weights for Predicting College Success Outcomes\*

Outcome	ACT Score(s)	High School Grades	Sample Size	Notes
First-year GPA I	0.42	0.48	211,624	Weights represent medians (across 291 institutions) of multiple correlation statistics obtained from regressing first-year GPA on the four ACT scores and four subject-area grade averages, respectively (ACT, 1998).
First-year GPA II	0.31	0.31	6,872	Standardized weights from multiple linear regression model with ACT Composite score, high school GPA, psychosocial factors, and demographic factors. See Allen, Robbins, Casillas, & Oh (2007).
Enrollment Status	0.35	0.38	135,971	Standardized weights from multiple logistic regression model with ACT Composite score, high school GPA, race/ethnicity, family income, and gender. Based on a random sample of ACT-tested graduates from the high school graduating class of 2005.
Retention Status	0.25	0.22	7,554	Standardized weights from multiple logistic regression model with ACT Composite score, high school GPA, psychosocial factors, and demographic factors. See Robbins, Allen, Casillas, Peterson, & Le (2006).
Collegiate Mathematics Proficiency	0.57	0.14	8,854	Standardized weights from multiple linear regression models with ACT Composite score, high school GPA, family income, gender, and college class (sophomore, junior, etc.). Based on a sample of CAAP-tested students of 2006–2007.
Collegiate Writing Proficiency	0.74	0.04	8,788	
Final College GPA	0.19	0.35	13,358	Standardized weights from multiple linear regression models with ACT Composite score, high school GPA, and family income. Based on <i>Alumni Outcomes Survey</i> of 304 colleges and universities.
Degree-Attainment Level [levels are Vocational/technical certificate/Associate degree, Bachelor's or other four-year degree, Master's or other five-year degree or Specialist or other six-year degree, and Doctorate (PhD, EdD, etc.) or professional degree]	0.16	0.08	13,358	

\* Most predictive validity studies are affected by *measurement error* (random fluctuations in college outcomes data that distort the relationship of predictor variables and outcomes) and *range restriction* (this occurs when the study sample, for example enrolled college students, has already been selected according to high school grades and/or ACT scores). Thus, the true predictive validity of ACT scores and high school grades is likely greater than most studies show. For example, using the data from the final college GPA study, we can apply a correction for measurement error and obtain an operational validity estimate for ACT Composite score of 0.43 (as compared to an original correlation of 0.39). Then, applying an adjustment for range restriction in ACT Composite score, the operational validity estimate would be adjusted to 0.50. Further, if we were able to correct for the extent to which final college GPA is itself restricted, it is safe to say that the validity estimate would in fact be greater than 0.50.