Using the *Iowa Assessments*™ to Predict *ACT* Composite Scores

A current primary focus for educators, parents, and policymakers is on ensuring that students are ready to succeed in college and careers when they leave high school. Scores on the *ACT*, a standardized assessment commonly used by colleges to determine admission, are one frequently used measure of that readiness. Students' performance on the *ACT* often determines if they can continue their educational pursuits and what course of study they will follow. Being able to predict students' performance on the *ACT* provides valuable information that teachers, students, and parents can use to adjust instruction, make decisions about class or course selections, and help ensure that every student is on track to gain college admission and begin college-level course work. By having this predictive information, students can better prepare and avoid the need for remediation once they enter college. To best serve each student's educational needs, educators and parents should have these predicted scores as early in a student's educational path as possible—ideally in middle school—so that appropriate changes and choices can be made to best prepare each student for post-high school success.

The *Iowa Assessments,* which are a widely trusted source of a full range of reliable norm-referenced scores, also report predicted *ACT* scores. Starting with Grade 6 (Level 12 of the tests), these scores are available as part of the scoring and reporting process. The predicted *ACT* scores complement the *Iowa Assessments'* many other benefits, which include providing scores that can be used to compare students' performance to national performance, information about each student's performance at the domain and cognitive levels within each test as well as in terms of the Common Core State Standards (CCSS), and a vertical scale that lets educators and parents easily monitor student growth across years. By selecting the *Iowa Assessments*, there is no need for another separate test whose only function is to predict to the *ACT.* Rather, these important predicted scores are part of the comprehensive package of *Iowa Assessments* score data provided for each student who takes the tests.
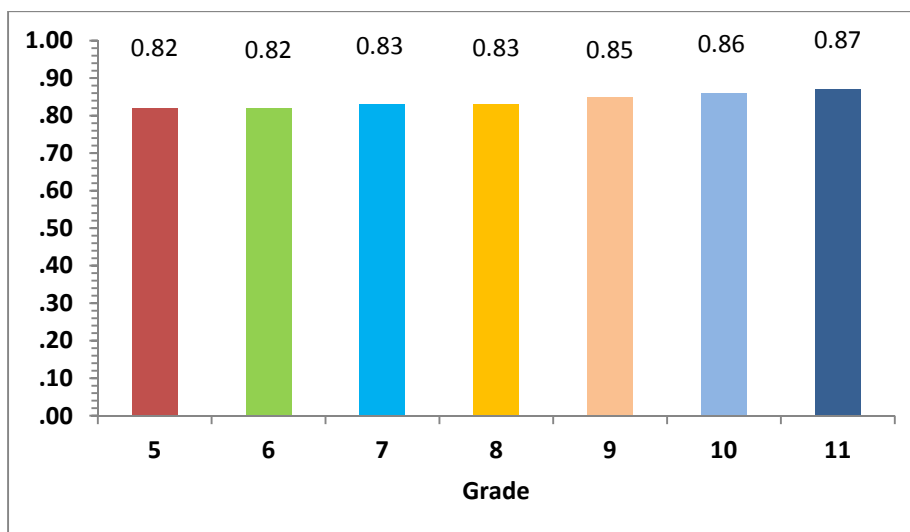
Published in Fall 2011, Form E of the *Iowa Assessments* reports scores in terms of 2011 empirical norms; it is the most current norm-referenced battery available. These tests reflect today's curricula; they measure achievement in core academic areas important for success in

college, including reading, language, mathematics, and science. The tests have been carefully designed using the CCSS, individual state standards, surveys of classroom teachers, reviews of curriculum guides and instructional materials, and responses from students in extensive research studies and field testing. Developed through a unique partnership between The University of Iowa and Riverside, the *Iowa Assessments* provide the most current national comparisons, which teachers can use to drive intervention and better preparation for other assessments.

Strong Correlations Between the *Iowa Assessments* and the *ACT*

Research conducted at The University of Iowa shows there is a strong correlation between students' scores on the *Iowa Assessments* and their subsequent scores on the *ACT* (Welch & Dunbar, 2011). The *Iowa Assessments* and the *ACT* share similar content and cognitive test specifications, item and test formats, and technical characteristics. In fact, the two tests share common roots at the University of Iowa. The evidence of a strong relationship between composite scores from the *Iowa Assessments* and the *ACT* suggests that the *Iowa Assessments* and the *ACT* measure comparable achievement domains. Figure 1 below summarizes the correlations between the *Iowa Assessments* and the *ACT* for a matched group of students from Grades 5 to 11.

Figure 1. Correlations Between the *Iowa Assessments* and the *ACT*

The correlations presented above resulted from The University of Iowa's college readiness study in which the scores of a cohort of 25,000 students, who took the *Iowa Assessments* annually from

2003 to 2009 and who in 2009 completed both the *Iowa Assessments* and the *ACT,* were analyzed. As Figure 1 shows, the relationship between the two assessments is strong, continuing and strengthening from Grade 5 to Grade 11 (Welch & Dunbar, 2011). These correlations are very similar to those between ACT's own predictor tests, *EXPLORE*® at Grade 8 and *PLAN*® at Grade 10, which are .83 and .88, respectively (ACT, 2011, EXPLORE Technical Manual, p. 48 and ACT, 2011, PLAN Technical Manual, p. 42).

The researchers at The University of Iowa also calculated the correlations between the corresponding *Iowa Assessment* test and each *ACT* subtest for students in Grades 8 to 11 in the matched sample; these correlations are presented in Table 1 below. Each of these correlations is based on students who have both an *ACT* score in the appropriate content area and an *Iowa Assessments* score in both the content area and grade of interest (Furgol, Fina, & Welch, 2011). The correlations are very good. The Grade 8 correlations are almost the same or, in some cases, are higher than those between ACT's own predictor test, *EXPLORE*, and the *ACT,* which are .75 for English, .73 for Math, .68 for Reading, and .65 for Science (ACT, 2011, EXPLORE Technical Manual, p. 45). Similarly, the Grade 10 correlations are almost identical to those between ACT's *PLAN* test and the *ACT* of .80 for English, .75 for Math, .70 for Reading, and .68 for Science (ACT, 2011, PLAN Technical Manual, p. 42).

**Table 1. Observed Correlations between *ACT* and *Iowa Assessments*
By Grade and Content Area**

Grade	Reading	English	Math	Science
11	.75	.76	.76	.68
10	.72	.79	.75	.67
9	.75	.76	.74	.65
8	.74	.72	.75	.60

Determining Predicted *ACT* Scores

To predict students' *ACT* scores based on their scores on the *Iowa Assessments*, the authors of the *Iowa Assessments* and researchers at The University of Iowa completed analyses that were based on the link between the *Iowa Assessments* and the *ACT* at Grade 11, which is also the point where the tests are most common in terms of content (Furgol, Fina, & Welch, 2011). First, they

determined cut scores for student performance on the Grade 11 (Level 17/18) *Iowa Assessments* that represent the optimal prediction of the ACT subject-area score. The properties of the *Iowa Assessments'* vertical scale allowed them to use the scale values for the Grade 11 *Iowa Assessments* cut scores to link back to comparable achievement levels in earlier grades. That linking process identified corresponding scale scores for the *Iowa Assessments* at each grade, which are scores on each level of the tests that place students at the same relative standing in the particular grade-level distribution as the Grade 11 cut scores do in the Grade 11 score distribution. Using these data points, a range of predicted *ACT* scores, which is a confidence band around the *ACT* Composite score that corresponds to the student's *Iowa Assessments* Core Composite score, can be calculated. These same data points were used to determine college-readiness benchmarks on the Iowa Standard Score scale, providing a trajectory for making "on track" interpretations for success in college. A student whose Iowa Standard Score exceeds the college readiness benchmark is said to be on track for college readiness in the content domain.

Reporting Predicted *ACT* Scores

Based on a student's *Iowa Assessments* scores, the student's predicted *ACT* Composite score, presented as a score range, is provided on multiple *Iowa Assessments* score reports. The List of Student Scores and the Student Score Label include this information for students in Grades 10 through 12 (Levels 15-17/18); the Individual Performance Profile presents these score ranges for students starting in Grade 6 (Level 12). The Individual Performance Profile also provides the College Readiness Benchmark information in Reading, Language, Math, and Science. Students are identified as "on track" or "not yet on track" in these content areas.

While the research shows a strong correlation between the *Iowa Assessments* and the *ACT* at Grade 5, we provide predictor scores for students starting at Grade 6 to coincide with students' transition to middle school, the point at which students, teachers, and parents become more focused on and interested in college readiness. Because these scores are available starting in Grade 6, teachers, students, and parents can track and monitor the student's readiness to do well on the *ACT* as well as his or her growth across years. They can then make needed adjustments to instruction and course or class placements and selections.

References

ACT. (2011). *EXPLORE: 2011-2012 Technical manual.* Retrieved December 20, 2011 from http://www.act.org/explore/pdf/TechManual.pdf

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Welch, C. and Dunbar, S. (2011, April). *K-12 assessments and college readiness: necessary validity evidence for educators, teachers, and parents.* Paper presented at the annual meeting of the National Council on Measurement in Education, New Orleans, LA