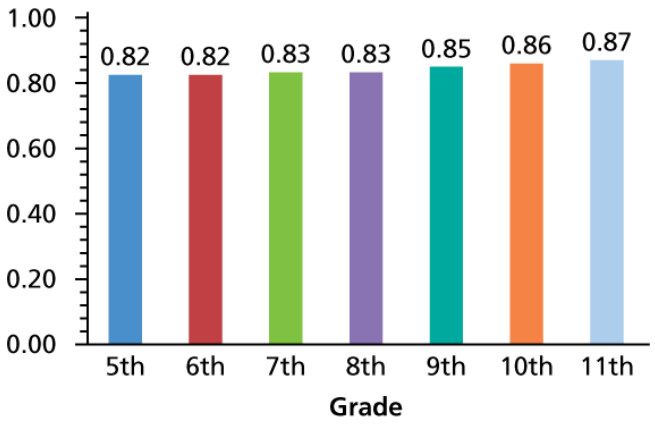
Predictive Validity and College Readiness

Tests such as the *Iowa Assessments* have been used in many ways to support judgments about how well students are prepared for future instruction—that is, as general measures of readiness. Over the years, ITP has conducted numerous studies to establish the predictive "power" of the *Iowa Assessments* with respect to a variety of criterion measures, including high school GPA, college GPA, and scores on college entrance exams, such as the ACT® and SAT® (for example, Ansley and Forsyth, 1983; Iowa Testing Programs, 1999; Loyd, Forsyth, and Hoover, 1980; Qualls and Ansley, 1995; Rosemeier, 1962; Scannell, 1958; Wood and Ansley, 2008). The *Guide for Research and Development, Forms A and B* includes the details of these studies.

More recently, Furgol, Fina, and Welch (2011) investigated the relationship between performance on the *Iowa Assessments* and college admissions test scores in a matched longitudinal cohort of more than 25,000 students in grades 5 through 11 who tested annually over a five-year period. Evidence of a strong relationship between *Iowa Assessments* scores and the ACT composite score suggests that the *Iowa Assessments* and college readiness measures assess the same achievement domains. As shown in Figure 2, this relationship sustains itself and strengthens from grades 5 to 11.

Figure 2: Correlations Between *Iowa Assessments* and ACT Composite Scores



Furgol et al. (2011) also reported correlations between ACT and *Iowa Assessments* subject-area test scores for approximately 18,000 students in grades 8–11. The correlations are reported in Table 10.

Table 10: Correlations Between ACT and *Iowa Assessments* Subject-Area Test Scores

Grade	Reading	English	Math	Science
8	0.74	0.72	0.75	0.60
9	0.75	0.76	0.74	0.65
10	0.72	0.79	0.75	0.67
11	0.75	0.76	0.76	0.68

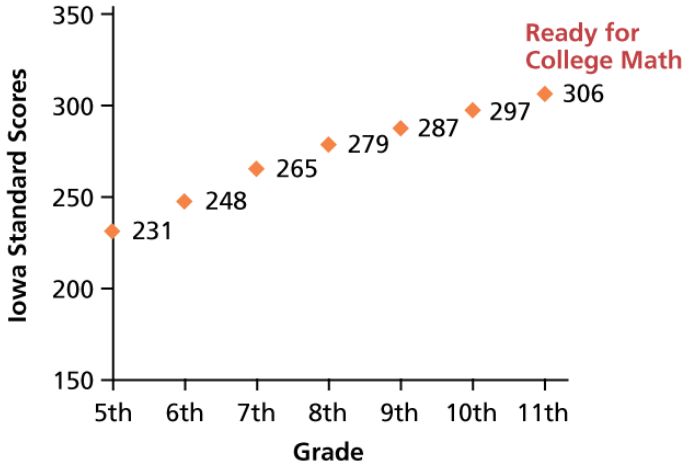
Each correlation in the table is based on the students who have both an ACT score in the subject area of interest and an *Iowa Assessments* score in both the subject area and grade of interest. These correlations are generally highest in grade 11, ranging from 0.68 (Science) to

0.76 (English and Math), providing supporting evidence for the use of the grade 11 *Iowa* scores to predict whether students are likely to meet or exceed the ACT College-Readiness Benchmarks described by Allen and Sconing (2005). Note that the unadjusted correlations between the grade 11 *Iowa Assessments* subject-area tests and the corresponding ACT tests are as high as or higher than those between corresponding subject-area tests on EXPLORE® and ACT, which are 0.68 for Reading, 0.75 for English, 0.73 for Math, and 0.65 for Science (Allen and Sconing, 2005).

Tracking Readiness for Postsecondary Education

In addition to the results described previously, Furgol et al. (2011) linked the scores of grade 11 examinees on four *Iowa Assessments* subject-area tests to defined targets of readiness based on ACT scores. The linking method was based on the principle of balancing false positive and false negative probabilities in determining whether a student was likely to exceed or fall short of the ACT readiness benchmark. Once this link was established, the study then used the national standard score (NSS) scale of the *Iowa Assessments* to establish an on-track projection of college readiness for middle and high school grades, as illustrated by the example in Figure 3 for Mathematics.

Figure 3: On Track to College Readiness in Mathematics

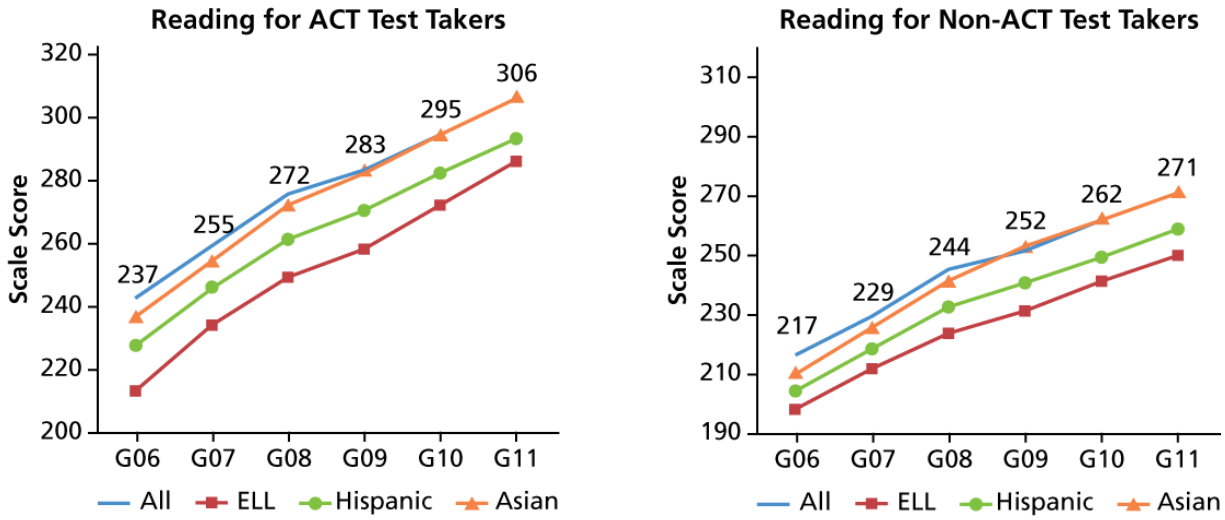


The results of ITP's research into the link between the *Iowa Assessments* and established college readiness benchmarks permit examinees to receive information on score reports that designate whether they are "On Track" or "Not Yet on Track" to be prepared for the first year of college in Reading, Language, Mathematics, and Science. In Figure 3, the "On Track" benchmark scores on the NSS scale are marked. Examples of college readiness reports are included in the *Iowa Assessments Score Interpretation Guide, Levels 9–14* and in the *Iowa Assessments Score Interpretation Guide, Levels 15–17/18*.

A subsequent study by Wang, Chen, and Welch (2012) examined group differences in the empirical trajectories of performance and established that growth trends for culturally (for example, Asian and Hispanic) and linguistically diverse (that is, English language learners) test takers run parallel to the college readiness trajectories identified by Fina, et al. (Furgol, Fina, and Welch, 2011). All effect sizes for departure from parallel trajectories were extremely small, as suggested by the results shown in Figure 4. Such results provide evidence of the

appropriateness of using the NSS scale to track the college readiness of all students, in view of the subgroups included in this study.

Figure 4: On Track to College Readiness in Reading



More recently, Fina (2014) and Fina, Welch, Dunbar, and Ansley (2015) conducted validation research with several longitudinal cohorts of students in grades 6 through 11 to assess the stability of college readiness indicators from the *Iowa Assessments* and to determine how the growth trajectories based on the "On Track" indicators were associated with success in college. They found the readiness benchmarks in grade 11 to be remarkably stable in independent cohorts of examinees. They also found the "On Track" trajectories to perform well without regard to potential covariates, such as school attended, and that the Iowa Growth Model supported the identification of three groups with respect to college readiness:

- Students clearly prepared for credit-bearing courses in a given subject area
- Students somewhat prepared, although perhaps marginally, in some subject areas
- Students not prepared in multiple subject areas

Students identified in these categories can be advised to appropriate programs of study based on goals they determine for postsecondary education and training.

Interpretation and Utility of Readiness Information

College readiness information gives educators and families information they need to determine whether students are on track to successfully complete first-year college coursework upon graduation from high school or whether additional coursework and preparation are necessary. It allows families and educators to monitor student progress from middle school through high school and allows flexibility to determine the appropriate improvement and support strategies for students as they plan for postsecondary education opportunities. Monitoring the use of readiness information of the type described here is an important responsibility at the local level. This information should be used in ways that inform instruction and enhance learning for students as they prepare for postsecondary education opportunities (Welch and Dunbar, 2014b).