IOWA STATEWIDE ASSESSMENT OF STUDENT PROGRESS

Prediction of College Readiness

Iowa Testing Programs
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The Iowa Statewide Assessment of Student Progress (ISASP) measures student achievement and understanding of the Iowa Core Standards in English Language Arts (ELA), Mathematics and Science. Indicators of student proficiency along with progress toward college and career readiness and growth from grade-to-grade are provided.

ISASP assesses students in English Language Arts and Mathematics for students in grades 3–11. The Science assessment is administered to students in grades 5, 8, and 10. The assessments, offered in both paper-and pencil and computer-based formats during the last quarter of the academic year, include multiple-choice and technology-enhanced items, constructed response items, and open-ended essay questions.

Evidence Based on Relations to Other Variables

The *Standards for Educational and Psychological Testing* (2014) highlight that often the interpretation or use of a particular measure can be validated by comparison to other measures of the same or a related construct. Criterion validity relies upon the demonstration of a relationship between the test and an external criterion measure.

This study suggests that there is a strong relationship between performance on a state standards-based assessment (ISASP) and ACT. The ACT assesses content domains students must master to achieve college and career readiness. The main component of the ACT is a standardized battery of four tests of educational achievement—English, reading, mathematics, and science. High schools use ACT data in academic advising and counseling, evaluation studies, and accreditation documentation. Colleges use ACT results for admissions and course placement (ACT, 2022).

Correlations between ISASP and ACT

Validity evidence supports the interpretation and use of test scores for a particular purpose. Assessment information is not considered valid or invalid in any absolute sense. Rather, the information is considered valid for a particular use or interpretation and invalid for another. A comprehensive approach to the collection of validity is an integral part of any assessment. Concurrent validity evidence is one critical piece of validity evidence as it summarizes the degree of similarity between two assessments taken in close proximity to one another. This evidence is presented in the form of correlations between scores on the ISASP and the ACT.

For the mathematics and English Language Arts comparisons, students' scores from the 2019 ISASP (Grade 11) were matched to their scores on the ACT for tests that measured similar content. Given that ISASP Science is not administered in Grade 11, the data were not available for the initial match with ACT results. However, students that completed the ISASP Science in Grade 10 in 2021 were matched to students that completed the ACT Science in Grade 11 in 2022.

A brief description of the content covered in each test is provided in Table 1. A more detailed description of the ISASP content can be found at https://iowa.pearsonaccess.com/research/.

Correlations were generated between the following tests: ISASP English Language Arts (ELA) to ACT English and ACT Reading, Mathematics to Mathematics, Science to Science and all available ISASP scores to the ACT Composite. The correlations presented in Table 2 confirm the expected relationships between similar tests on the ISASP and the ACT. This supports evidence of convergent validity, as the general constructs of English, reading, mathematics and science are defined similarly on both tests.

Table 1. Descriptions of ACT and ISASP Tests

ISASP Scores	ISASP Tests	ACT Tests
English Language Arts	**Language/Writing** -- Measures student understanding of language structure and writing technique in areas such as style, word choice, linguistic conventions, and related aspects of the use of language to express thoughts and ideas. Also measures student ability to produce evidence-based writing that integrate ideas from source materials provided. 29 questions including multiple-choice items and a direct writing sample 60 minutes (recommended)	**English** -- Measures student understanding of English, production of writing and knowledge of language skills. 75 multiple-choice questions 45 minutes
	Reading -- Measures student ability to identify key ideas and details and to interpret, evaluate, and integrate them with ideas expressed in other print material presented in context with the main passage. 28 questions including multiple-choice and open-ended items 60 minutes (recommended)	**Reading** -- Measures reading comprehension commonly encountered in first-year college curricula. 40 multiple-choice questions 35 minutes
Mathematics	Measures the Iowa Core Standards in geometry, statistics and probability, functions, algebra, and numbers and quantity. 35 questions including multiple-choice and open-ended items 60 minutes (recommended)	Measures mathematical skills typically acquired in courses up to the beginning of grade 12. 60 multiple-choice questions 60 minutes
Science	Measures life science (understanding of molecules and organisms, ecosystems, heredity and biological evolution), physical science	Measures biology, chemistry, Earth/space sciences (e.g., geology, astronomy, and meteorology), and physics.

	(understanding of matter and interactions, motion and stability, energy and waves), and Earth/space (understanding of Earth's place in the universe, Earth's systems, and Earth and human activity). 32 questions including multiple-choice and open-ended items 60 minutes (recommended)	Questions assess science content in concert with science skills and practices. 40 multiple-choice questions 35 minutes
Composite	Average of: Mathematics (.5) Reading (.25) Language/Writing (.25)	Average of: Mathematics (.25) Reading (.25) English (.25) Science (.25)

Table 2. Correlations Between Student Standard Scores

ACT Scores	ISASP Scores Mathematics	English/Language Arts	Science	Composite
Mathematics	0.86			
Reading		0.72		
English		0.76		
Science			0.71	
Composite	0.80	0.77	0.77	0.86

Development of the ISASP/ACT Concordance

The term concordance refers to establishing a relationship between scores on assessments that measure similar constructs. The established relationship can be used to compare scores and inform decisions concerning student admissions, placement and achievement levels.

The sample of students used to develop the concordance tables for reading and mathematics took both the ISASP and the ACT. In the spring of 2019, 35,528 grade 11 students took the ISASP; 18,323 of these students also had ACT scores available. To establish the concordance between ISASP and ACT, an equipercentile method identified comparable scores on the two tests through a cumulative distribution function.

To provide a concordance between ACT Composite scores and ISASP, an ISASP Composite score was calculated that included Reading, Language/Writing, and Mathematics.

Table 3 provides the concordances for the composite score as well as for reading and mathematics. The concordances are structured so that a user may quickly identify the range of ISASP scores that is associated with a particular ACT score. The range of ISASP scores for each corresponding ACT score is provided in Table 3 for the three concordances.

Table 3. ACT Scores to ISASP Scores for Composite, Reading, and Mathematics

Composite			Reading			Mathematics	
ACT	ISASP		ACT	ISASP		ACT	ISASP
36	775–800		36	770–800		36	791–800
35	755–774		35	731–769		35	781–790
34	741–754		34	707–730		34	766–780
33	727–740		33	688–706		33	756–765
32	717–726		32	678–687		32	745–755
31	707–716		31	670–677		31	735–744
30	699–706		30	664–669		30	725–734
29	691–698		29	659–663		29	716–724
28	683–690		28	655–658		28	704–715
27	674–682		27	649–654		27	687–703
26	665–673		26	644–648		26	672–686
25	656–664		25	639–643		25	659–671
24	647–655		24	633–638		24	647–658
23	639–646		23	624–632		23	637–646
22	630–638		22	614–623		22	628–636
21	620–629		21	603–613		21	620–627
20	609–619		20	593–602		20	612–619
19	599–608		19	584–592		19	604–611
18	588–598		18	575–583		18	594–603
17	577–587		17	566–574		17	578–593
16	565–576		16	557–565		16	558–577
15	551–564		15	546–556		15	538–557
14	537–550		14	534–545		14	520–537
13	522–536		13	520–533		13	509–519
12	510–521		12	505–519		12	499–508
11	498–509		11	489–504		11	491–498
10	487–497		10	477–488		10	482–490
9	476–486		9	470–476		9	471–481
8	460–475		8	460–469		8	460–470

A sample of students (N=13,562) who took the ISASP in Grade 10 in 2021 and the ACT in Grade 11 in 2022 was used to develop the concordance table for science. Similar to the reading and mathematics methodology, an equipercentile method identified comparable scores on the two tests through a cumulative distribution function. Table 4 provides the concordances for the sciences scores.

Table 4. ACT Science Scores to ISASP Science Scores

Science	
ACT	**ISASP**
36	765-780
35	735-764
34	718-734
33	698-717
32	690-697
31	681-689
30	674-680
29	670-673
28	666-669
27	660-665
26	649-659
25	638-648
24	627-637
23	613-626
22	599-612
21	587-598
20	575-586
19	563-574
18	554-562
17	542-553
16	530-541
15	519-529
14	509-518
13	499-508
12	489-498
11	481-488
10	472-480
9	464-471
8	435-463

Concordances and correlations are not expected to provide perfect predictions between ISASP and ACT scores. To help interpret these relationships, estimates of measurement error can be used to generate confidence intervals. Standard errors for ISASP can be found at: https://iowa.pearsonaccess.com/research/.

Conclusions

A variety of audiences may use the relationship between ISASP and ACT to help inform decisions about student achievement and readiness. Test scores provide information that complements other measures such as high school curriculum, grade point average, and advanced coursework. Multiple types of measures should always be used when evaluating student performance.

ISASP scores can provide information that would otherwise be missing for students who did not take the ACT. This study also suggests that ISASP scores can be helpful to all students in the state of Iowa as they consider postsecondary opportunities.

References

ACT Technical Manual. (2022). Retrieved from The ACT® Technical Manual.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *Standards for educational and psychological testing.* Washington, DC: American Educational Research Association.