

Chapter 8

Summary and Conclusion

In this chapter, we provide a recap of the extent of alignment among the math and ELA measures. We then discuss the implications of discrepancies among the exams, focusing on how content is reflective of test use. This is followed by a discussion of the feasibility of using scores from state achievement tests to inform postsecondary admissions or course placement decisions. The chapter concludes with suggestions for future research.

Summary of Results

Below we provide a summary of the general patterns of results across the five case study sites.¹

Math

State achievement tests, on average, are more likely to contain open-ended items than are either college admissions or college placement tests. State achievement exams are also most likely to include items framed within a realistic context. Across all tests, items requiring a memorized formula are relatively uncommon, as are items asking students to interpret graphs or diagrams. Diagrams, however, comprise a large proportion of end-of-course geometry assessments.² This is consistent with the fact that geometry emphasizes figural relations more so than any other content area.

On average, college admissions exams, as well as college placement tests used to place students into a course commensurate with the students' prior math background, assess intermediate algebra and trigonometry to the greatest extent. College admissions exams are also most likely to contain logic items (coded as miscellaneous), which are generally absent from other types of assessments. Remedial college placement tests contain the largest proportion of items assessing prealgebra and elementary algebra.

¹ Individual case study sites may have assessments that do not fit the general trend that is discussed here. For more details of the assessments that deviate from these patterns, readers are referred to the case study chapters.

² End-of-course assessments in geometry are present in California (GSE Geometry) and Maryland (HSA Geometry).

College admissions and state achievement tests generally sample broadly across several areas of math, but end-of-course exams are focused on a single content area, either elementary algebra or geometry.

With respect to cognitive demands, all math measures emphasize procedural knowledge, although there is variation with respect to extent. College placement measures contain, on average, the highest proportion of procedural knowledge items, whereas college admissions exams contain the fewest. Problem-solving items are relatively uncommon, but are most likely to be included on college admissions assessments. Conceptual understanding items are also most likely to be included on college admissions measures, followed by state achievement tests, then college placement tests.³

ELA

Reading

Most reading measures assess reading proficiency solely with multiple-choice items. Regardless of test purpose, reading passages are typically narrative or informative essays. Although topics vary greatly from one test to the next, humanities, fiction, and personal accounts are the more popular topics. With respect to cognitive demands, most exams focus on recall and/or inference items; evaluate style items are rarely assessed on reading measures. College admissions tests are, on average, somewhat more likely than either college placement or state achievement tests to assess inference skills.

Editing

Few discrepancies are observed among editing measures. All editing measures assess students' knowledge of standard written English solely with multiple-choice items. Although some measures use sentences as prompts, the majority contains reading passages. Of the measures that contain reading passages, most are narrative or informative essays about a humanities topic.

³ There are exceptions to this trend. For example, California's state achievement tests contain, on average, a higher proportion of conceptual understanding items than do college admissions exams.

In terms of cognitive processes, most college admissions are almost evenly divided among evaluate style and recall items, and rarely assess inference skills.⁴ State achievement tests are somewhat more likely than are college admissions or college placement measures to include a higher proportion of evaluate style items. On the other hand, college placement tests are, on average, more likely to assess recall skills than are state achievement or college admissions exams.⁵

Writing

Few college admissions exams or commercially-available college placement tests require students to produce a writing sample. In contrast, the majority of state achievement tests require a writing sample. Most of the writing prompts are drawn from humanities or personal accounts, and virtually all writing tests share the same scoring criteria.⁶ Namely, students must demonstrate knowledge of mechanics, word choice, style, organization, and insight within their compositions.

Discussion

In the following sections, we discuss the implications of the discrepancies and explore the possibility that state achievement tests can be used to inform postsecondary admissions and placement decisions.

Few Misalignments Are Found

In math, there are no instances of misalignments, as discrepancies among assessments reflect variations in test use. Because remedial college placement tests are used to identify students who need additional development in basic math skills, test content is focused on lower-level areas such as prealgebra and elementary algebra. Items assessing problem solving, logic, and advanced content are most common on college admissions exams because these types of items help distinguish examinees more qualified for college-level work from those less qualified. College placement exams that

⁴ The SAT I is the exception. It assesses inference skills, but not evaluate style or recall.

⁵ Exceptions to this trend are college placement measures used in California, which are more likely to assess inference or evaluate style than recall.

⁶ Exceptions include the SAT II Writing and GSE Reading/Literature.

are used to determine which course is most appropriate for students given their prior preparation must accommodate students of a wide range of proficiency levels, including those with strong math backgrounds. Therefore, advanced content such as intermediate algebra and/or trigonometry are included so that well-prepared students can be placed into higher-level math courses. Consistent with their purpose as a broad survey of student proficiency, most state achievement tests assess an array of content areas. End-of-course exams, on the other hand, are designed to assess proficiency of a particular course, and therefore narrow their content to primarily a single area.

As in math, the majority of discrepancies among ELA assessments are not misalignments because they reflect differences in test use. However, one notable exception pertains to the scoring criteria of the writing measures. Most writing exams include insight as part of its scoring rubrics, but some measures, such as the SAT II Writing, do not. Because the omission of insight from their scoring rubrics cannot be attributed to differences in test purpose, it is a misalignment that merits further attention. Ideally, if the developers of these exams were to add insight to the scoring criteria, or provided a clear rationale of why insight has been omitted from the scoring rubrics, students would receive a more consistent signal about the importance of insight with respect to writing proficiency.

State Achievement Tests Can Inform Some Postsecondary Decisions

As noted in each of the state chapter reports, it is possible to some extent to use state achievement tests for multiple purposes. In math, state achievement tests are generally more demanding than remedial college placement tests, and can therefore inform remedial placement decisions. State achievement tests contain, on average, a higher proportion of geometry and problem-solving items than do remedial college placement measures (which are more focused on prealgebra and elementary algebra). Logically, a sufficiently high score on state achievement measures can be used to exempt students from taking a remedial course.

However, the majority of state math achievement tests cannot be used for broader placement decisions, such as placing students into appropriate courses given their prior preparation. The majority of state achievement tests restrict their content to topics no

higher than geometry, which means that they cannot provide sufficient information regarding whether students are prepared to take advanced courses such as trigonometry or calculus.

In math, we identified only a few state achievement tests that have potential as alternatives to the SAT I or ACT for informing admissions decisions.⁷ Most math state achievement tests are unlikely to be viable alternatives because they contain fewer problem-solving items than the SAT I and ACT, and therefore may not distinguish among higher-achieving examinees as well as the SAT I or ACT. In a few instances, some state achievement tests contain proportionately as many problem-solving items as the SAT I and ACT, but because these state achievement tests are also end-of-course exams, they lack the content breadth necessary to be feasible for guiding admissions decisions.⁸

With respect to reading skills, it is unlikely that state achievement measures can serve as alternatives to the SAT I or ACT. Some state achievement tests contain fewer inference items than the SAT I or ACT, which may render these state achievement tests less effective than college admissions exams for sorting among prospective college-bound students. In other instances, state achievement measures assess inference to approximately the same degree as college admissions exams, but it is unclear whether the same level of cognitive sophistication is being elicited. Given differences in the intended test uses, it is very likely that inference items on these state achievement measures may not be as complex as that elicited by college admissions tests. More research is needed to determine how well state achievement tests distinguish among higher-achieving examinees.

Writing samples required by state achievement tests hold more promise as alternatives to college admissions measures. Neither the ACT nor the SAT I requires a writing sample, and the SAT II Writing allows 20 minutes for a writing sample. Given the short time limit, the SAT II Writing composition represents a very limited indicator of writing proficiency. State achievement tests, on the other hand, allow more time for

⁷ These exceptions include California's GSE HS Math in California and Texas' TASP. Oregon's CIM is already in use as alternative measures to the SAT I and ACT.

⁸ We are referring to GSE Algebra and GSE Geometry in California, and HSA Algebra and HSA Geometry in Maryland.

students to produce their composition and would arguably allow admissions officers to better judge applicants' writing proficiency.

Conclusion

Although discrepancies among assessments in both math and ELA are numerous, virtually all differences reflect variations in test purpose. Because test purpose dictates the kinds of content that is included, attempting to align tests without regards to test function may seriously undermine the usefulness of those measures.

Future Research Directions

More research is needed to address some of the limitations in this study. Differences in content standards or test specifications are likely to account for some of the discrepancies among assessments, but we did not systematically examine these materials. Furthermore, to determine the cognitive requirements of a given item, we examined its surface characteristics, but previous research suggests that inspection of item features alone may not be a good indicator of the actual cognitive processes elicited (Hamilton, Nussbaum, & Snow, 1997). Instead, a cognitive analysis of test items via think-aloud methods may give a better sense of the reasoning requirements demanded. Additionally, we examined only one form of each assessment; had other forms been studied, results would have varied somewhat. By increasing the number of forms studied, we can increase the generalizability of our results.

We have raised the possibility that some state achievement tests may be feasible alternatives to college admissions and college placement measures. However, before policy changes are enacted allowing scores from state achievement exams to inform postsecondary admissions or course placement decisions, it is crucial that additional information be gathered. Although enumerating the many issues that must be addressed is beyond the scope of this study, the research should include, at a minimum, the relationship between state achievement tests and course grades or first-year college grade point average, and the potential for adverse impact on student groups such as traditionally underrepresented minorities and women.

Most importantly, surveys and interviews with students are important to determining whether discrepancies among assessments are indeed problematic. To date, there has been little empirical evidence to support the position that students actually receive mixed signals from exams that vary with respect to content, format, or scope. Currently, the Bridge Project is conducting interviews, surveys, and focus groups with students from different backgrounds, and the results of their study will help us better understand how students view differences among exams.