Efforts to Produce Relevant Score Reports to School, District, and State Officials on National Tests

Thanos Patelis & Haifa Matos-Elefonte
The College Board

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As assessment developers, it is our responsibility to ensure that the information displayed on score reports are understood, meaningful, and useful to their intended audiences.

- Standards for Educational and Psychological Testing
- Code of Fair Testing Practices in Education
- Code of Professional Responsibilities in Educational Measurement

We contend that the efficacy and utility of reports by consumers is an important facet of validity.

We also contend that the delivery of good score reports is an issue of fairness.
Our Approach

More recently, the College Board introduced more rigorous methods in the development of score reports in the last ten years.

Overview of the Approach:
1. Considering the purpose of the test, clearly articulate the audience and goals of the score report.
2. Survey consumers using rigorous designs to capture needs and preferences
3. Select and utilize appropriate psychometric methods
4. Develop a mock-up of the score report
   - Keep true to the purpose
   - Provide context
   - Give guidance
   - Keep it simple
5. Capture feedback of mock-ups
   - Strive to use representative samples
   - Ask preferences and comprehension-type questions
6. Revise & pilot
Several sets of activities/efforts changed the College Board’s approach

Many good and bad things were learned when we actually asked educators what they thought and how they used score reports.

AP Teacher Reports
SAT Skills Insight
PSAT/NMSQT Score Report Plus
State, District, & School Integrated Reports

Each effort reinforced one or more of the components of the approach indicated.
The College Board engaged many external educators, curriculum experts and users to develop and validate the content in SAT Skills Insight...

Step I: Agree on the purpose of the score report
• Provide enhanced feedback to students and educators
• Give them insight into what the score represents

Step II: Conduct Scale Anchoring Research
• Ronald Hambleton, Stephen Sireci (University of Massachusetts-Amherst), and Mary Lyn Borque (formally with the National Assessment Governing Board) implemented the scale anchoring approach to the SAT.
• Using secondary and post-secondary educators and content experts, they developed scale anchors at 200-290; 300-390; 400-490; 500-590; 600-690; 700-800 for critical reading, mathematics, and writing.
• Test Development staff with R&D convened several panels for each section of the SAT to develop performance category descriptions that were accurate and understandable by consumers.
SAT Skills Insight Development

Step III: Test Concept at Focus Groups
- 2007 National Forum focus group with students
- Round I of focus groups with students and counselors
- Round II of focus groups with students

Step IV: Validate and Iterate on the Content
- Secondary and post-secondary educators
- State and district curriculum and assessment experts

Step V: Conduct Usability Testing
- Usability studies with students and teachers

Step VI: Test Concept at More Focus Groups
- Focus groups with state educators to develop aggregate reports
Round I of Focus Groups with Students and Counselors

Focused on the following:

- Feedback and initial reactions to skill descriptors, suggestions for improvement, and sample questions
- Gauge intended use
- Feedback on reactions to report format, language and overall layout
Round I of Focus Groups: Key Findings

- Initial reactions to report are mixed among students and counselors
  - At first glance, the information seems overwhelming and challenging to interpret. However, both audiences see that it is a tool for improving skills

- The availability of information on all score bands was of great interest

- Skill descriptors contain too much educational jargon. Needs to be more “student friendly”

- Skill Improvement section could be improved by identifying current weaknesses in skill areas.

- Examples of SAT® Questions should be provided for ALL skill descriptors

- Needs an eye-catching format (adding colors could enhance appeal of report)

- This tool would be beneficial if provided after the PSAT/NMSQT® and prior to the first SAT
Round II of Focus Groups: Key Findings

➢ After making revisions from the first round of focus groups, the students indicated the following:
  ▪ They could easily navigate through the website.
  ▪ The layout of the webpage was appealing.
  ▪ The most important feature of the report was the inclusion of the sample items.
Students receiving their score reports on the web (via My Online Score Report) are provided with a link to SAT Skills Insight. For those receiving their score reports on paper (in the mail) the url to skills insight is printed on their score report.

www.collegeboard.com/satskillsinsight
SAT scores are grouped into six “score bands” between 200 and 800.

“Academic Skills” are skills typical of students who score within the selected score band.

For each score band, academic skills are categorized by skill group.

“Suggestions for Improvement” help students advance to a higher score band.

“Skill Examples” are SAT questions that illustrate the meaning of each skill.
Step VI: Refine report for state officials

- Using the feedback that we received from students, teachers, counselors, and other educators, developed an aggregate report for use by state officials.

- In addition to providing the performance category descriptions, sample items, and suggestions for activities to enhance performance, provided a summary of student performance across the state:
  - Showed overall performance over time
  - Offer comparisons
  - Show patterns of performance
Skills Insight Paper Report for State Officials: Original Designs

Boxplots showing mean and range of scores of middle 50th percentile

Percent of students (State & Nation) falling within each score band on each section of the SAT. General Descriptions of the skills students have mastered at each score band were going to be provided in the space-holders next to each display.
# Skills Insight Paper Report for State Officials: Original Designs

## Critical Reading: Academic Skills at Each Score

| --- |

**700-800**

**Academic Skills**

<table>
<thead>
<tr>
<th>Determining the Meaning of Words</th>
<th>Understanding Literary Elements</th>
<th>Organization and Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand familiar words in unfamiliar contexts and differentiate among multiple possible meanings for words in unfamiliar contexts. Understand sophisticated and specialized vocabulary. Determine the meaning of a word when there is little or no supporting context. Negotiate complex syntax (the arrangement of words and phrases in a sentence), and integrate ideas within and across sentences.</td>
<td>Analyze characters’ function in a narrative. Interpret dialogue from a character’s or from the narrator’s perspective.</td>
<td>Analyze context, sentence structure, and sentence variation to construct meaning within and across sentences and texts. Interpret multiple layers of a text.</td>
</tr>
</tbody>
</table>

**Displays the typical skills of students who score within each score band.**

**600-690**

**Academic Skills**

<table>
<thead>
<tr>
<th>Determining the Meaning of Words</th>
<th>Understanding Literary Elements</th>
<th>Organization and Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

**Displays what students should do to advance to a higher score band.**

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For more information, please visit [CollegeBoard](https://www.collegeboard.org).
Skills Insight Paper Report for State Officials: Revised Designs

Step 1: Examine the charts below to gauge the performance of your students on each section of the SAT over the last five years.

Keep in mind that participation rates for your state may vary from year to year.

<table>
<thead>
<tr>
<th>Sample State - Public Schools Participation Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Number of Test Takers</td>
</tr>
</tbody>
</table>

The charts below display scores for your higher performing students (75th percentile) and lower performing students (25th percentile), as well as, mean scores for all of your students, over the last five years.

Critical Reading Trends

- Students scoring at the 75th percentile
- Mean
- Students scoring at the 25th percentile

Scores:
- 75th Percentile:
  - 2004: 600
  - 2005: 520
  - 2006: 520
  - 2007: 521
  - 2008: 590

- 25th Percentile:
  - 2004: 450
  - 2005: 450
  - 2006: 450
  - 2007: 450
  - 2008: 450
Step 3: Examine the charts below to develop an understanding of how your 2008 College-Bound Seniors performed on the SAT by score band.

The charts below display the percentage of students within your state, and the Total Group, whose scores fell within each of the six score bands for Critical Reading, Mathematics, and Writing.

Step 4: Review the academic skills tested within each score band of the SAT and the suggestions for improving to the next higher scoreband to understand the types of skills your students should master to be successful in college.
## Skills Insight Paper Report for State Officials: Revised Designs

### SAT Skills Insight

**Mathematics**

*Academic Skills at Each Score Band and Suggestions for Improvement*

<table>
<thead>
<tr>
<th>200–290</th>
<th>300–390</th>
<th>400–490</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number and Operations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Academic Skills</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify factors of whole numbers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solve word problems using addition, subtraction, multiplication, and division of whole numbers</td>
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<td></td>
</tr>
<tr>
<td><strong>Suggestions for Improvement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recall basic mathematical facts/definitions about exponential notation, including scientific notation</td>
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<td></td>
</tr>
<tr>
<td>Identify a rule that describes a numerical pattern in a sequence</td>
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<td></td>
</tr>
<tr>
<td>Identify, use, and represent fractions and percents in arithmetic and algebraic settings</td>
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<td></td>
</tr>
<tr>
<td>Use properties of even and odd numbers, multiples, and factors</td>
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<td></td>
</tr>
<tr>
<td>Identify and use the names for place values in solving problems involving decimal representations (e.g., tenths and hundredths)</td>
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<td></td>
</tr>
<tr>
<td>Use properties of inequalities to compare and order numbers</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Score Bands</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>500–590</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solve problems using ideas from basic set theory and basic number theory</td>
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<td></td>
</tr>
<tr>
<td>Recognize and apply ratio, proportion, or percent in solving problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use properties of real number operations, order, and the zero-product property</td>
<td></td>
<td></td>
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<tr>
<td>Solve problems involving counting techniques</td>
<td></td>
<td></td>
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<tr>
<td><strong>600–690</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Determine values or properties of numbers in a sequence when given a description of the sequence</td>
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<td></td>
</tr>
<tr>
<td>Create and use ratios, fractions, or percents in solving problems</td>
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<td></td>
</tr>
<tr>
<td>Solve more-complex counting problems (e.g., permutations, combinations, and inclusion/exclusion)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>700–800</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use in algebraic and geometric contexts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create and use ratios, fractions, or percents, including algebraic expressions, in solving problems</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*This is the top score band and students who score at this level will have likely mastered the skills listed at all other levels. However, students can always benefit from more practice. We encourage students to review the skills and examples listed in the 500-590 and 600-690 score bands.*
Score Band 200–290

Number and Operations

Skill 1: Identify factors of whole numbers

Each of the following is a factor of 80 EXCEPT

(A) 5  
(B) 8  
(C) 12  
(D) 16  
(E) 40

Answer: C
Lessons Learned

- Throughout the development process, we needed to have razor sharp focus on the purpose
  - It sometimes became easy to drift from the original purpose (and we did) or add more than what was originally planned.

- Must use empirical (scientific) methods to capture feedback
  - Don't assume…
  - Be careful of sampling issues
    - Don't just ask your friends!

- The manner in which questions are asked will influence the responses you get.
  - As Ron Hambleton and others have recommended, ask comprehension-type questions in addition to preference.

- Once delivered, need to assess how score reports are used.

- Need ongoing feedback loop to inform score report enhancements and improvements.
Immediate Next Steps

- Examine the validity of the information provided from multiple perspectives:
  - Examine the use of the SAT Skills Insight score reports by state officials.
  - Examine trends over time of student performance at each score anchor taking into account their curricular experience.
  - Examine whether interpretation is similar across different types of consumers.
The College Board is focused on the integrated use of tests in helping educators make decisions about students.
The College Board is transforming its score reports building on current efforts to provide more comprehensive feedback to students and educators about examinees’ readiness for college.

Goals of Report:
1. Provide the scores
2. Compare to others
3. Indicate stability of scores
4. Show growth
5. Offer meaning of the scores
Questions, Comments, Suggestions

• Researchers are encouraged to freely express their professional judgment. Therefore, points of view or opinions stated in College Board presentations do not necessarily represent official College Board position or policy.

• Please forward any questions, comments, and suggestions to: Thanos Patelis tpatelis@collegeboard.org or 212-649-8435.

Thank you!!