ACT Update:
Leveraging the Validity and Efficacy of the Assessment for Enrollment Success

Kenton Pauls, Krista Mattern, and Keith Beindorf, ACT
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During this session, you will learn more about:

1. Findings from ACT’s Higher Education Score Use Survey
2. The validity and fairness of superscoring for predicting college success
3. Impact of superscoring on subgroup differences
4. Updates to the ACT score report
Survey Asked

1. Policy when students provide multiple ACT or SAT test results
   • Superscore, highest composite, most recent, average

2. Policy for when students submit both SAT and ACT scores
   • Use concordance, not use concordance, take the most recent test (either one)

3. Rationale for current policy

4. Technical factors impacting policy

5. Barriers impacting superscoring policy adoption

6. Campus receptivity or barriers
Survey Revealed

- Approaches vary greatly
  - Multiple ACT’s: 50% use highest; 34% superscore the ACT
  - Multiple SAT’s: 34% use highest; 49% superscore the SAT

- Old ACT advice still driving current policy
  - Old ACT advice didn’t support superscoring so “…we never changed.”
  - Receptive to change in policy, but it will take time
  - Superscoring math is a problem for ACT. SAT sum easier than ACT Average
Survey Revealed

- Most (but not all) use the latest concordance
  - 24% look at each test separately – no concordance

- Split/indifferent about ACT calculating superscore for institutions
  - Interest high for single report with full ACT test history
Other Notable Findings

- NAIA & NCAA different superscoring approaches
- Desire for disaggregated data remains…
- Concerns about perception of privilege exist
- Role of faculty in this type of policy-change underscored
- Openness to superscoring policy change
- Net tuition revenue risks (higher scores, more aid, less tuition)
- Superscoring as a settled question for some
TESTING, TESTING: WHAT IS THE FAIREST SCORE WHEN APPLICANTS RETAKE ADMISSIONS TESTS?
Impetus

• Frequency of retesting is increasing
• Not consistent treatment of multiple scores across institutions
• Questions about fairness and equitable practices
• Dated literature; mainly focused on SAT
Previous Research

• Differential Validity
  – Slightly higher correlation coefficients for average score; $rs$ are .01 to .02 higher

• Differential Prediction
  – FYGPA for retesters was underpredicted
  – Underprediction ↑ as testing occasions ↑
  – Average method > underprediction; superscoring < underprediction
Research Questions

1. Which composite scoring method (average, highest, last, and superscoring) is most predictive of first-year grade point average?

2. Which composite scoring methods exhibit the least amount of differential prediction by number of testing occasions?
Current Study

Extends previous findings in four substantive ways:

1. Majority of research on SAT which is comprised of 2 scores; ACT has 4 subject tests
2. Previous research assumed non-repeaters were accurately predicted
3. Admission decisions are rarely based solely on test scores; ran models with HSGPA
4. Examined diversity implications for various scoring methods
Measures

• **ACT tests scores.** English, mathematics, reading, and science – from all testing administrations were obtained from the student’s official ACT record.
  1. *Last ACT Composite score.* This composite score reflects the score that the student earned on the last, or most recent, time they took the ACT.
  2. *Average ACT Composite score.* This composite score is the average of all ACT Composite scores earned across test administrations/attempts, rounded to the nearest whole number.
  3. *Highest ACT Composite score.* This composite score represents the highest ACT Composite score earned during a single administration.
  4. *Superscored ACT Composite score.* This composite score takes the highest ACT subject test score (English, reading, mathematics, and science) across administrations and then computes the ACT Composite score for those highest subject test scores.

• **Number of ACT Administrations.** Count of the number of times a student took the ACT during their sophomore through senior year of high school (M = 2.3): 1 time (29.1%), 2 times (35.3%), 3 times (20.2%), and 4 or more times (15.4%).

• **High School Grade Point Average (HSGPA)** self-reported on ACT registration form; coursework taken and grades earned in English, math, social studies, and science (M = 3.40, SD = 0.50).

• **First-Year Grade Point Average (FYGPA)** provided by participating colleges and universities (M = 2.73, SD = 0.95).
Table 1. Means, standard deviations, and intercorrelations of study variables

<table>
<thead>
<tr>
<th>#</th>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Last</td>
<td>22.6</td>
<td>4.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Average</td>
<td>22.2</td>
<td>4.1</td>
<td>0.97</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Highest</td>
<td>22.9</td>
<td>4.2</td>
<td>0.98</td>
<td>0.98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Superscored</td>
<td>23.3</td>
<td>4.2</td>
<td>0.97</td>
<td>0.97</td>
<td>0.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>HSGPA</td>
<td>3.40</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
<td>0.51</td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>FYGPA</td>
<td>2.73</td>
<td>0.95</td>
<td>0.40</td>
<td>0.39</td>
<td>0.40</td>
<td>0.41</td>
<td>0.49</td>
</tr>
</tbody>
</table>

*Note.* N = 277,551. All correlations are significant at *p* < .0001. FYGPA = first-year grade point average.
Differential Prediction of Composite Scoring Method by Number of Testing Occasions

The graph illustrates the predicted college GPA (Predicted PGPA) based on the average ACT composite score for different numbers of testing occasions. The lines represent various groups: 1 Time, 2 Times, 3 Times, 4 or More Times, and Total group. The x-axis shows the average ACT composite score, and the y-axis represents the predicted PGPA.
Differential Prediction of Composite Scoring Method by Number of Testing Occasions
Reduction of Differential Prediction with the Inclusion of HSGPA

Number of Testing Occasions
- Superscore
- Superscore and HSGPA

Prediction Error

1 Time
-0.15

2 Times
-0.10

3 Times
0.10
0.08

4 or More Times
0.19
0.14
Impact Analyses

- Diversity implications of different scoring methods by three levels of selectivity (top 15%, 50%, and 85%).

- Gender, ethnic, and income makeup is unaffected by the choice of scoring method.
  - For top 15% selectivity scenario, all scoring methods resulted in an admitted class:
    - 45% male
    - 4% minority
    - 9-10% low-income.
Implications

• Results can inform the college admission practice and policies
  – Superscoring minimized prediction error by retesting occasion

• Scoring method was unrelated to the diversity make-up of an admitted class
Impact of Superscoring on Subgroup Differences

Krista Mattern and Justine Radunzel
Research Question

Given that underserved students are less likely to retest as compared to their affluent peers, we wanted to investigate the extent to which superscoring increases, decreases, or has no impact on subgroup differences.
Current Study

Sample
2018 ACT-tested graduating class

Method
Compared subgroup differences in average ACT composite score for two scoring methods (most recent vs. superscoring)
  • Gender, race/ethnicity, household income, parental education

Results
We report subgroup differences using 2 metrics:
  • Mean differences or unstandardized differences (USTD): the difference between the mean value in two groups
  • Standardized differences (STD): the difference between the mean value in two groups, divided by the overall standard deviation.
Subgroup Unstandardized (USTD) and Standardized (STD) Differences in ACT Composite Scores by Scoring Method

<table>
<thead>
<tr>
<th>Group</th>
<th>Most recent score</th>
<th>Superscore</th>
<th>Most recent score - Superscore</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>USTD</td>
<td>STD</td>
</tr>
<tr>
<td><strong>Annual family income group</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $36,000 (Low)</td>
<td>18.2</td>
<td>-5.7</td>
<td>-0.98</td>
</tr>
<tr>
<td>$36,000 to $80,000 (Mid)</td>
<td>20.7</td>
<td>-3.2</td>
<td>-0.55</td>
</tr>
<tr>
<td>Missing</td>
<td>20.0</td>
<td>-3.9</td>
<td>-0.67</td>
</tr>
<tr>
<td><em>More than $80,000 (High)</em></td>
<td>23.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parent's Ed Level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No college</td>
<td>17.9</td>
<td>-7.0</td>
<td>-1.21</td>
</tr>
<tr>
<td>Some college</td>
<td>19.8</td>
<td>-5.1</td>
<td>-0.88</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>22.5</td>
<td>-2.4</td>
<td>-0.41</td>
</tr>
<tr>
<td>Missing</td>
<td>18.9</td>
<td>-6.0</td>
<td>-1.03</td>
</tr>
<tr>
<td><em>Beyond bachelors</em></td>
<td>24.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- On average, USTDs are 0.17 larger (on a 1 to 36 scale) for superscores as compared to the most recent scores.
- In terms of STDs, superscoring increases subgroup differences by 0.02.
• 44% of the sample retested

• Students who tested more often tended to have higher ACT composite scores

• Differences in average ACT composite score (recent vs. superscore) ↑ as the number of testing occasions ↑
Scoring Method Differences in USTD and STD in ACT Composite Score by Number of Times Tested

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of Times Tested</th>
<th>One</th>
<th>Two</th>
<th>Three</th>
<th>Four or more</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>∆USTD</td>
<td>∆STD</td>
<td>∆USTD</td>
<td>∆STD</td>
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<td></td>
</tr>
<tr>
<td>Less than $36,000 (Low)</td>
<td>0.00</td>
<td>0.00</td>
<td>-0.10</td>
<td>0.00</td>
<td>-0.10</td>
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<tr>
<td>$36,000 to $80,000 (Mid)</td>
<td>0.00</td>
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<td>-0.01</td>
<td>-0.10</td>
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<tr>
<td>Missing</td>
<td>0.00</td>
<td>0.00</td>
<td>-0.20</td>
<td>-0.03</td>
<td>0.00</td>
</tr>
<tr>
<td>More than $80,000 (High)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent's Ed Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>No college</td>
<td>0.00</td>
<td>0.00</td>
<td>-0.10</td>
<td>0.00</td>
<td>-0.20</td>
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<tr>
<td>Some college</td>
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<td>-0.10</td>
<td>0.00</td>
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<td>Bachelor's degree</td>
<td>0.00</td>
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<td>Missing</td>
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<tr>
<td>Beyond bachelors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Unstandardized and standardized subgroup differences of most recent score - superscore.

Results by number of testing occasions:

- For students who tested once, most recent = superscore
- For students who tested twice, USTDs are 0.09 smaller and STDs are the same (0.00)
- For students who tested three times, USTDs are 0.06 smaller and STDs are 0.01 higher
- For students who tested 4+ times, USTDs are 0.09 smaller and STDs are 0.01 higher
Implications

• Subgroup differences are largely unaffected by the two scoring policies examined.

• Slight increases in USTDs and STDs can be attributed to differences in retest rates among subgroups.
  • Controlling for the number of retests indicated that subgroup differences were more likely to decrease rather than increase with superscoring.

• Broader awareness of ACT fee waiver policy for low-income students may help promote retesting among underserved students and reduce subgroup differences.

• **Caveat:** Despite these positive findings, the results may change if retesting behavior changes significantly in the future in terms of who retests and how often.
Preview: ACT Score Reporting

Moving to Encoura Data Lab
Enrollment Management Services

ACT Products On the Move!

Educational Opportunity Service (EOS)
Finding the right students for your institution based on interests and abilities

ACT College Score Reporting
Delivering ACT score reports to campus after test administration

Enrollment Information Service (EIS)
Aggregated national and institution Data for market analysis

ACT Information Manager (AIM)
ACT score reporting database for targeted student identification

Class Planner

Data Center

Enrollment Lens

Market Insights

Data Center
Score Reporting

Old vs. New Distribution

Old
- ACT Scoring
  - Paper
  - CD-ROM
  - AIRO

New
- ACT Scoring
  - Encoura Data Lab
### ACT Scores

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<thead>
<tr>
<th>Service Name</th>
<th>Order Submitter</th>
<th>Order Number</th>
<th>Order Date</th>
<th>Created Date</th>
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<td>N/A</td>
<td>N/A</td>
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**Export Options:**

- Export

**Pagination:**

- First
- 1
- Last
### PDF - Suitable for Printing

#### ACT College Report

<table>
<thead>
<tr>
<th>Composite Scores</th>
<th>Math</th>
<th>Science</th>
<th>English</th>
<th>Reading</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>19</td>
<td>18</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

#### Detailed Results

**US Rank:**
-SAT Total: 43%
-Science: 30%
-Math: 44%
-English: 38%

**Institutional Rank:**
-Total: 96%
-Science: 95%
-Math: 95%
-English: 95%

**High School Information:**
-Graduation Year: 2023
-Standardized Test Scores: SAT 1400

#### Information Reported by the Student

- College Code: R219
- College Name: XYZ University

#### ACT National Career Readiness Certificate

The student is eligible for the ACT National Career Readiness Certificate. ACT NCR is a measure of readiness that indicates how well skilled students are in a range of essential career skills.

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### TXT - For Data Integration

#### JSON Format

```json

```
Stay informed on ACT Score Reporting:

encoura.org/get-my-login