Do Admissions English Assessments Predict Success in Higher Education? A Meta-Analysis

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Quantitative Methods in Education

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College of Education and Human Development
Background

• Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS), among others, exist to assess academic English

• 35 million TOEFL takers since 1965 (ETS, 2020)

• 3 million IELTS takers per year (IELTS, 2017)
Study Purpose

• MANY predictive validity studies, but no consensus on whether there is a relationship

• Three prior meta-analyses:
  • TOEFL (Wongtrirat, 2010; Abunawas, 2014)
  • IELTS (Gagen, 2019)
  • Positive but weak predictive validity
  • Didn't account for correlated effect sizes

• No meta-analyses comparing predictive validities!
Research Questions

I conducted a meta-analysis on the predictive validity of academic English entrance exams for predicting success in higher education (as measured by GPA)

• To what degree does performance on entrance exams such as the TOEFL or IELTS predict success in higher education?

• Is there differential predictive validity between the TOEFL and IELTS?

• To what degree are these predictions moderated by factors such as school level or school type?
Methods
Data Collection

Data Collection:
- Academic databases
- Gray literature repositories
- Internet browsing
- Citation searches

Study Eligibility:
- Language entrance exam
- GPA
- English speaking university

Coding Process:
- Correlation
- Moderators
- Publication type
Data Analysis

- Diagnostic analysis
  - Missing data
  - Publication bias
  - Outlier analysis

- Meta-regression
  - Robust variance estimation
  - Analysis of heterogeneity
  - Moderator analysis

Test Type
- IELTS
- TOEFL
- MELAB, CAE, etc.

School Type
- Public
- Private

School Level
- Undergraduate
- Graduate
Results
Diagnostic Results

- Missing data
- Outlier analysis
  - Down-weighted
- Publication bias
  - Egger's Test
  - $p = .899$
Sample Characteristics

- **Test**
  - TOEFL: 59
  - IELTS: 21
  - MELAB: 1

- **School Type**
  - Public: 59
  - Private: 14

- **School Level**
  - Undergraduate: 47
  - Graduate: 34

- **Published**
  - Published: 64
  - Not Published: 17

39 Studies
81 Effect Sizes
To what degree does performance on entrance exams such as the TOEFL or IELTS predict success in higher education?
Do different entrance exams differentially predict success in higher education?

<table>
<thead>
<tr>
<th>Test</th>
<th>Mean Correlation</th>
<th>Standard Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>IELTS</td>
<td>0.252</td>
<td>0.032</td>
<td>0.189 - 0.315</td>
</tr>
<tr>
<td>TOEFL</td>
<td>0.159</td>
<td>0.037</td>
<td>0.086 - 0.232</td>
</tr>
</tbody>
</table>

\[ t(6.68) = -2.47, \ p = .04 \]
To what degree are these predictions moderated by factors such as school level or school type?

<table>
<thead>
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<th>Mean Correlation</th>
<th>Standard Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>0.166</td>
<td>0.023</td>
<td>0.116 - 0.214</td>
</tr>
<tr>
<td>Private</td>
<td>0.180</td>
<td>0.052</td>
<td>0.078 - 0.282</td>
</tr>
</tbody>
</table>

\[ t(10.9) = 0.273, p = .79 \]

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<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergrad</td>
<td>0.184</td>
<td>0.027</td>
<td>0.127 - 0.234</td>
</tr>
<tr>
<td>Graduate</td>
<td>0.176</td>
<td>0.038</td>
<td>0.101 - 0.251</td>
</tr>
</tbody>
</table>

\[ t(29.6) = -0.221, p = .83 \]
Discussion
Implications

• There is evidence that these exams can be used in admissions decisions.

• Schools ought to reconsider treating these tests as equal when making admissions decisions
  • Maybe they differ in their ability to test English proficiency as well

• Same predictive power in public and private institutions, as well as for graduate and undergraduate students
Future Directions

- Mixed methods research is needed
- Control for range restriction
- Evaluate additional criteria of “student success”
- Include more moderators
  - GPA type
  - TOEFL type
  - Student language background
  - University location
- Include more tests (not for lack of trying)
Thank you! Questions?

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