Relationship Between Student Writing Ability and Student Characteristics at one Texas 4-Year University

Jeff Roberts
Director of Assessment
Sam Houston State University

Presented at the 2016 American Educational Research Association Annual Meeting
Introduction

- Written communication remains a key learning objective for today’s college students

- Employers report a strong desire for institutions to emphasis written communication

- However, only 27% of employers believe that recent graduates are well-prepared with regard to written communication
Some researchers also hold a negative perception of student writing ability

- The Spellings Commission noted that students were graduating without necessary skills in written communication

- These findings were echoed within the (in)famous book *Academically Adrift*
  - Arnum & Roska, 2011
Review of the Literature

- Historical/meta-analysis of literature regarding writing assessment
  - Anson, 2010, Anson & Lyles, 2011; Behizadeh & Englehard, 2011

- Studies of writing assessment theory and practice
  - Anson, 2006; Gallagher, 2010

- Studies in which student writing ability was examined
  - Alan & Driscoll, 2014; Good et al., 2012
The first step to address critics and improve student writing is to assess student writing accurately.

Written communication is of particular interest to Texas institutions:
- The Texas Higher Education Coordinating Board includes student written communication as a core learning objective
  - THECB, 2015
This study originated out of one university's efforts to assess student writing
- Nardone et al., 2013; Roberts et al., 2014.

The goals of the original writing assessment were two-fold:
- Evaluate the effectiveness of writing-enhanced courses
- Collect base-line data regarding student-writing ability
  - Nardone et al., 2013; Roberts et al., 2014.

This study builds upon that work, utilizing archived data to answer additional questions regarding student writing

Furthermore, it serves as a potential model for other writing assessments
Significance of the Study

- Results from this study will be used to help improve student writing ability within the studied institution.

- The results of this study may be used by other researchers to assess and improve student writing at their institutions.

- The results from this study may be helpful to other Texas institutions looking to assess student writing as part of their State-mandated core curriculum assessment efforts.

- This study addresses the call of Anson and Lyles (2011) for expanded assessment of student writing.
Research Questions

- What is the relationship between student grade point averages and student performance on an end-of-experience writing assessment?

- What is the relationship between student performance in introductory English courses and an end-of-experience writing assessment scores?

- What is the relationship between the location students took their introductory English courses and their performance on an end-of-experience writing assessment?
Sample encompassed only Junior- and Senior-level students enrolled within 4000-level Writing Enhanced courses at one university in south-east Texas.

Data were only gathered from the Spring 2013 academic semester.

Therefore only represent a snap-shot of student writing ability.
Limitations

- The nature of the sample pool means that the results may not be generalizable to different student populations, different institutions, and different locations.

- As these data were only gathered from one academic semester, any relationships or differences identified may represent anomalies, and not be reflective of actual trends over time.
Assumptions

- It is assumed that any errors within the dataset are random and not specific to any one group or variable
  - Data were previously collected and verified by the author of the study; therefore, minimal errors are anticipated
  - Authentic student writing artifacts were used and are assumed to represent the best possible examples of student work
  - The rubric was developed by interdisciplinary group of faculty with expertise in student writing, and is therefore assumed to have content-related validity
    - Banta & Palomba, 2015; Bridges et al., 2013
  - Student scores are assumed to be factual and accurate
Nonexperimental, causal comparative research design

- Design allows for the use of existing data
- Does not allow for the manipulation of the examined variables
Participants

- Junior- and senior-level students enrolled in 4000-level writing enhanced courses during the Spring 2013 semester

- A stratified random sampling process was used to select student artifacts for analysis
  - 395 student artifacts were used for scoring

- Sample was representative of the size and diversity of the university’s student population
**Instrumentation**

- Locally developed writing rubric with four domains:
  - Ideas/Critical Thinking/Synthesis
  - Style
  - Organization
  - Conventions

- Each artifact received a separate score for each of the four domains using a 4-point scale

- Two raters evaluated each artifact independently

- Third rater introduced when scores were out of agreement
Score Reliability

ICC’s were calculated to determine the level of inter-rater agreement.

<table>
<thead>
<tr>
<th>Category Area</th>
<th>Intraclass Correlation for Average Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideas/Critical Thinking/Synthesis</td>
<td>.69 – Good</td>
</tr>
<tr>
<td>Style</td>
<td>.65 – Good</td>
</tr>
<tr>
<td>Organization</td>
<td>.64 – Good</td>
</tr>
<tr>
<td>Conventions</td>
<td>.58 – Fair</td>
</tr>
<tr>
<td>Overall Average Score</td>
<td>.80 – Excellent</td>
</tr>
</tbody>
</table>

According to Cicchetti (1994), ICC agreement:

> .40 = poor agreement

.40 -.59 = fair agreement

.60 -.74 = good agreement

.75 <= excellent agreement
No threats to internal validity

Several threats to external validity were identified:

- **Population validity, ecological validity, temporal validity**
  - Are the findings of their study generalizable to different populations, settings, or times?

- **Specificity of variables**
  - Does the uniqueness of the variables involved with the study limit the ability to generalize the study’s findings?
This study used a large, stratified random sample that was representative of the target population enrolled at one Texas university for 2013.

Findings may be generalized for similar students enrolled at this institution during this period.

- However, no attempt is made to generalize these findings to other populations, settings, or times.
This study used student writing scores that were derived from locally-developed writing rubric unique to that institution.

Therefore, no attempt is made to generalize the findings of this study beyond its circumstances.
Given the ordinal nature of the data used for this study, non-parametric analysis techniques were used:

- **Non-parametric correlations (Spearman’s rho)**
  - Scatterplots were indicative of bivariate linear relationships between variable pairs

- **Non-parametric independent samples t-tests (Mann–Whitney’s U)**
A positive statistically significant relationship was identified between student institutional GPA and all five student writing scores:

- Ideas/Critical Thinking/Synthesis – $r_s(394) = .14$, $p = .007$
- Style – $r_s(394) = .13$, $p = .008$
- Organization – $r_s(394) = .13$, $p = .008$
- Conventions – $r_s(394) = .18$, $p < .001$
- Overall Student Score – $r_s(394) = .18$, $p = .008$
These $r$ values were reflective of small relationships (Cohen’s, 1988).

Squaring these $r$ values indicated that student institutional GPA overlapped with student writing scores anywhere from 1.69% to 3.24% of the time.
A positive statistically significant relationship between student performance in their first introductory English course and three of the five student writing scores:

- **Style** – $r_s(393) = .15, p = .002$
- **Conventions** – $r_s(393) = .16, p = .002$
- **Overall Student Score** – $r_s(393) = .14, p = .006$. 
These $r$ values were reflective of small relationships.

Squaring these $r$ values indicated that student institutional GPA overlapped with student writing scores anywhere from 1.96% to 2.56% of the time.

The relationship between student performance in their first English course and two of the five student writing scores approached statistical significance:
- Ideas/Critical Thinking/Synthesis – $r_s(393) = .14$, $p = .063$
- Organization – $r_s(393) = .13$, $p = .055$
A positive statistically significant relationship was revealed between student performance in their second introductory English course and all five student writing scores:

- Ideas/Critical Thinking/Synthesis – $r_s(388) = .17, p = .001$
- Style – $r_s(388) = .17, p = .001$
- Organization – $r_s(388) = .14, p = .005$
- Conventions – $r_s(388) = .13, p = .011$
- Overall Student Score – $r_s(388) = .18, p < .001$
These $r$ values were reflective of small relationships.

Squaring these $r$ values indicated that student institutional GPA overlapped with student writing scores anywhere from 1.69% to 3.24% of the time.
A Mann–Whitney’s U test did not reveal any statistically significant relationship between the location at which students took their introductory English courses and all five student writing scores.

First Introductory Course:
- Ideas/Critical Thinking/Synthesis – $U = 15693.00$, $p = .966$
- Style – $U = 15341.00$, $p = .691$
- Organization – $U = 15729.50$, $p = .995$
- Conventions – $U = 15269.00$, $p = .639$
- Overall Student Score – $U = 15473.50$, $p = .796$
Second Introductory English Course:

- Ideas/Critical Thinking/Synthesis – $U = 16738.50$, $p = .975$;
- Style – $U = 16309.00$, $p = .651$;
- Organization – $U = 16622.00$, $p = .885$;
- Conventions – $U = 16722.50$, $p = .963$;
- Overall Student Score – $U = 16631.00$, $p = .894$
Discussion

- Generally, the higher the students' GPA the better their performance upon this writing assessment and vice-versa
  - However the overlap between these variables was vary low, suggesting that student GPA would not serve as a good indicator of writing
  - More research is needed to understand better what outside factors are influencing both student writing ability and student GPA
Discussion

- Student writing scores were more strongly correlated with student performance in their second introductory English course
  - This information may help improve writing curriculum, especially with regards to how and where students are introduced to college-level writing
  - More research is needed to fully understand how writing curriculum impacts long-term student writing ability
Discussion

- No relationship existed between student writing scores and the location of their introductory English courses
  - Students who transferred their courses may have been equally well prepared

- The effect of these courses upon student writing, regardless of the location, may be limited
  - Although student writing scores were positively correlated with student performance in their introductory English courses, the relationship and overlap between these variables were small
Discussion

- This institution may be doing an effective job of preparing students to be writers.

- Weaker students, transfer or otherwise, may not be persisting to the junior and senior years, thus limiting the differences between the groups as they approach graduation.

- Again, more research is needed to understand these phenomenon better.
Conclusion

- No magic bullet exists for assessing student learning. No one test, measure, or rubric will ever provide all the answers needed by faculty, staff, and administrators to improve student learning.

- Additionally, improvements do not occur over night, but take time and intentionality.
Conclusion

- To improve student writing, institutions must ultimately have assessments that provide reliable and valid data that are meaningful to them.

- This study represents one such attempt by a Texas 4-year university.

- It is hoped that it will inspire others to assess student writing at their own institutions.
Questions?

Jeff Roberts
Director of Assessment
Office of Academic Planning and Assessment
Sam Houston State University

jeff.roberts@shsu.edu
936–294–1859