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

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Introduction

- Written communication remains a key learning objective for today's college students
  - Alan & Driscoll, 2014; Arnum & Roska, 2011; Hart Research Associates, 2013, 2015

- Employers report a strong desire for institutions to emphasis written communication
  - Hart Research Associates, 2013

- However, only 27% of employers believe that recent graduates are well-prepared with regard to written communication
  - Hart Research Associates, 2015

Introduction

- 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
    - Secretary of Education's Commission on the Future of Higher Education, 2006

  - 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
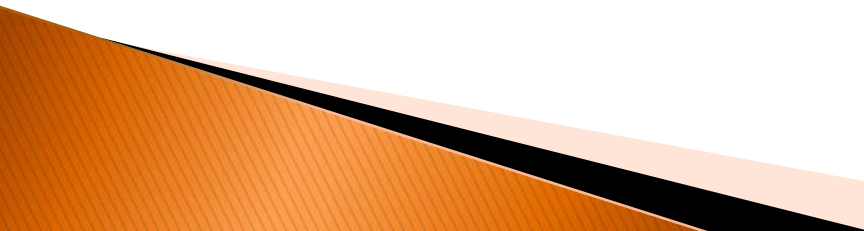 - Alan & Driscoll, 2014; Good et al., 2012

Statement of the Problem

- The first step to address critics and improve student writing is to assesses 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
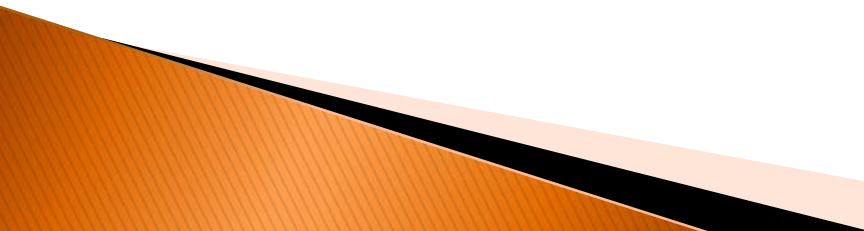   - THECB, 2015

Purpose of the Study

- 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

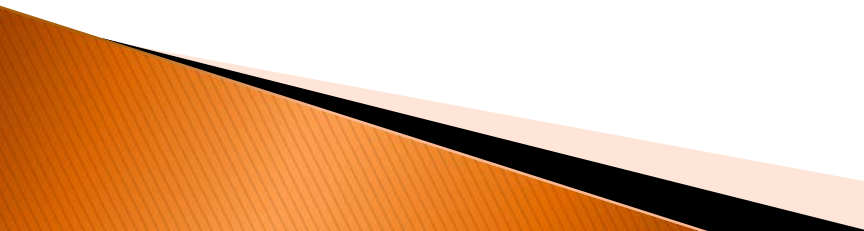- Furthermore, it serves as a potential model for other writing assessments

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

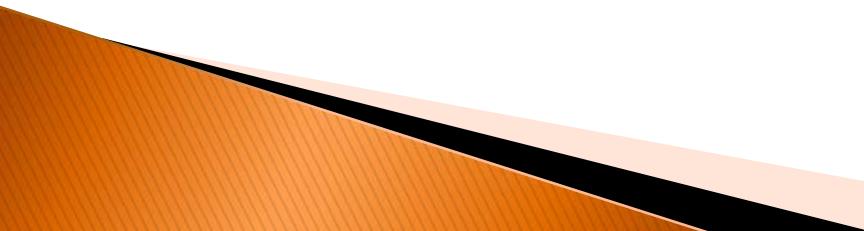- This study addresses the call of Anson and Lyles (2011) for expanded assessment of student writing

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?

Delimitations

- 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.
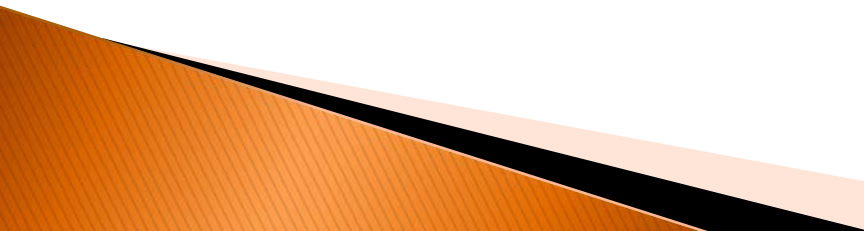
Assumptions

‣ 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

Method

Research Design

- 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

Category Area	Intraclass Correlation for Average Measures
Ideas/Critical Thinking/Synthesis	.69 – Good
Style	.65 – Good
Organization	.64 – Good
Conventions	.58 – Fair
Overall Average Score	.80 – Excellent

According to Cicchetti (1994), ICC agreement:
> .40 = poor agreement
.40-.59 = fair agreement
.60-.74 = good agreement
.75 < = excellent agreement

Threats to Internal and External Validity

- 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?

Population validity, ecological validity, temporal validity

- 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

Specificity of Variables

- 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

Results

- 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)

Relationship Between Student Writing Scores and GPA

- 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 – $r_s(394) = .18$, $p = .008$

Relationship Between Student Writing Scores and GPA

- 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.

Relationship between Student Writing Scores and Performance in First Introductory English Course

▶ 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 – $r_s(393) = .14$, $p = .006$.

Relationship between Student Writing Scores and Performance in First Introductory English Course

- 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 – $r_s(393) = .13$, $p = .055$

Relationship between Student Writing Scores and Performance in Second Introductory English Course

▸ 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** – $r_s(388) = .18$, $p < .001$

Relationship between Student Writing Scores and Performance in Second Introductory English Course

▸ 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.

Relationship Between Student Writing Scores and Location of Introductory English Courses

- 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

Relationship Between Student Writing Scores and Location of Introductory English Courses

- 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
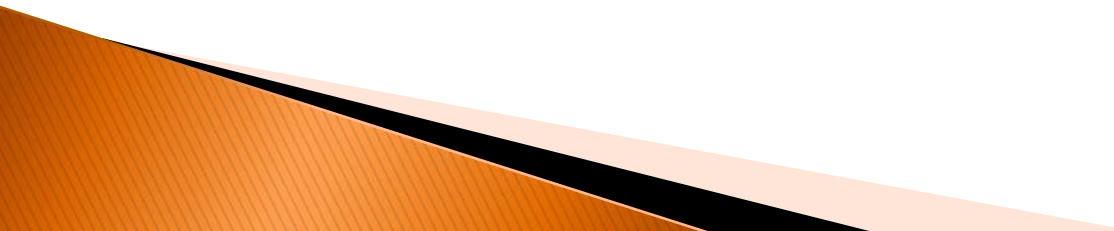
Discussion

- 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
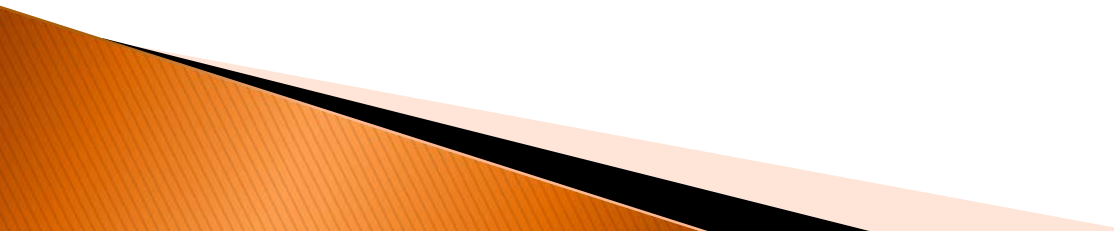
Discussion

- 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
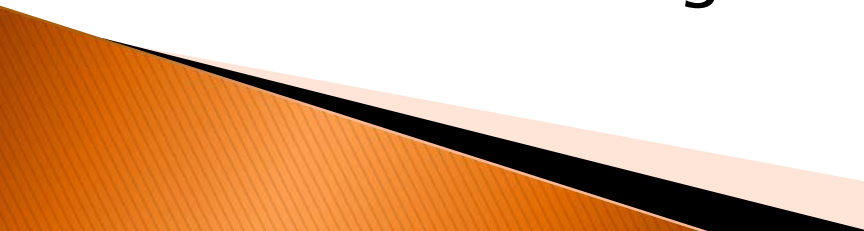
Discussion

- 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?

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