Office of Assessment

SAM HOUSTON STATE UNIVERSITY

A Report of the Assessment of Written Communication (AWC)

College of Science and Engineering Technology

Fall 2023-Spring 2024

Description of Assessment of Written Communication (AWC)

Each academic year, approximately 500 student writing artifacts are collected and assessed using a locally-developed writing rubric. This rubric was developed by faculty with expertise in teaching and assessing student writing and is assumed to have content related validity (Banta & Palomba, 2015). Over a three-year period, each academic college at SHSU will participate in the Assessment of Written Communication (AWC) and submit artifacts for scoring. These student artifacts either come directly from courses within those colleges or from required capstone projects; therefore, the artifacts represent authentic student work (Banta & Palomba, 2015; Kuh et al., 2015).

The student data presented within this report reflect student performance regarding the Texas Higher Education Coordinating Board's Core Learning Objective of Communication Skills (THECB, 2024). The THECB (2024) defines Communication Skills as "effective development, interpretation, and expression of ideas through written, oral and visual communication." Data from this assessment may therefore be used to address the written communication element of the broader concept of Communication Skills. These data should be used in conjunction with other data to fully understand student knowledge and ability regarding this Core Learning Objective.

Methodology

A total of 262 artifacts from upper division courses in the College of Science and Engineering Technology were scored as part of this writing assessment by faculty and staff volunteers during a two-day in-person scoring session in June 2024 using a locally-developed writing rubric. This rubric was divided into four separate domains: (1) Ideas/Critical Thinking/Synthesis; (2) Style; (3) Organization; and (4) Conventions. A copy of this rubric is provided in the Appendix. Each domain was scored individually from 1 to 4, with 1 being the lowest and 4 being the highest. Each artifact was reviewed by two raters, with a third rater introduced when the scores were too far out of agreement (i.e., a score of 1 and 3, 2 and 4, and/or 1 and 4 for the same domain). The third rater would only score those domains that were not in agreement, and the two closest scores would be kept. The individual domain scores for each student writing artifact were then averaged together to provide a total average score for the artifact.

Score Reliability

Intraclass correlational coefficients (ICCs) were calculated to determine the level of inter-rater agreement for each domain of student writing, as well as the overall average scores (Fleiss, 2003; Shrout & Fleiss, 1979). According to Cicchetti (1994), ICC agreement values below .40 are to be interpreted as demonstrating poor agreement, from .40 to .59 as demonstrating fair agreement, .60 to .74 as demonstrating good agreement, and .75 and above as demonstrating excellent agreement. All five agreement values were in the excellent range. A complete breakdown of the ICC agreement values can be found in Table 1.

Table 1

Breakdown of ICC Agreement by Domain Area for the College of Science and Engineering Technology

Domain Area	Intraclass Correlation for Average Measures
Ideas/Critical Thinking/Synthesis	.78
Style	.75
Organization	.77
Conventions	.75
Overall Average	.85

Results

Descriptive statistics are provided of the average student score for each domain, as well as the overall average, for the College of Science and Engineering Technology and its departments. Comparisons to previous data are also provided for the College and departments. The College of Science and Engineering Technology was previously evaluated in 2020-2021. A full breakdown of college-level data can be found in Table 2. A breakdown of Department-level data for the College of Science and Engineering Technology can be found in Table 3.

Table 2

Descriptive Statistics for Student Writing Performance for the College of Science and Engineering Technology

	2020-2021 AWC Scores			2023-2024 AWC Scores		
College	n	*M*	*SD*	n	*M*	*SD*
Science and Engineering Technology						
Ideas/Critical Thinking/Synthesis	105	2.88	0.84	262	2.97	0.76
Style	105	2.73	0.76	262	2.95	0.70
Organization	105	2.86	0.80	262	3.01	0.73
Conventions	105	2.75	0.76	262	2.81	0.69
Overall Average	105	2.80	0.72	262	2.93	0.62

Table 3

Descriptive Statistics for Student Writing Performance by Department for Science and Engineering Technology

	2020-2021 AWC Scores			2023-2024 AWC Scores		
Department	n	*M*	*SD*	n	*M*	*SD*
School of Agricultural Sciences						
Ideas/Critical Thinking/Synthesis	4	2.50	1.00	66	2.71	0.78
Style	4	2.75	0.29	66	2.78	0.71
Organization	4	2.38	0.48	66	2.83	0.77
Conventions	4	2.88	0.48	66	2.61	0.71
Overall Average	4	2.63	0.48	66	2.73	0.64
Biological Sciences						
Ideas/Critical Thinking/Synthesis	14	2.64	0.93	48	2.99	0.69
Style	14	2.61	0.76	48	2.79	0.64
Organization	14	2.68	0.82	48	3.10	0.64
Conventions	14	2.64	0.63	48	2.74	0.56
Overall Average	14	2.64	0.73	48	2.91	0.52
Chemistry						
Ideas/Critical Thinking/Synthesis	9	2.72	0.87	48	3.21	0.68
Style	9	2.28	0.83	48	3.28	0.65
Organization	9	2.67	0.90	48	3.13	0.75
Conventions	9	2.67	1.03	48	3.06	0.64
Overall Average	9	2.58	0.88	48	3.17	0.57
Computer Science						
Ideas/Critical Thinking/Synthesis	14	2.36	1.10	41	2.92	0.77
Style	14	2.46	0.75	41	2.84	0.70
Organization	14	2.36	0.99	41	3.01	0.71
Conventions	14	2.25	0.89	41	2.76	0.75
Overall Average	14	2.36	0.89	41	2.88	0.66
Engineering Technology						
Ideas/Critical Thinking/Synthesis	14	2.64	0.66	16	2.94	0.96
Style	14	2.25	0.61	16	2.91	0.74
Organization	14	2.43	0.62	16	3.00	0.68
Conventions	14	2.32	0.70	16	2.81	0.79
Overall Average	14	2.41	0.54	16	2.91	0.73
Environmental and Geosciences						
Ideas/Critical Thinking/Synthesis	9	3.67	0.35	21	3.31	0.64
Style	9	3.39	0.55	21	3.41	0.52
Organization	9	3.33	0.56	21	3.26	0.68
Conventions	9	3.11	0.55	21	2.91	0.66
Overall Average	9	3.38	0.47	21	3.22	0.49

Mathematics and Statistics						
Ideas/Critical Thinking/Synthesis	37	3.23	0.53	14	2.71	0.73
Style	37	3.10	0.62	14	2.75	0.75
Organization	37	3.32	0.53	14	2.57	0.78
Conventions	37	3.08	0.60	14	2.79	0.83
Overall Average	37	3.18	0.50	14	2.71	0.70
Physics and Astronomy						
Ideas/Critical Thinking/Synthesis	4	1.88	0.48	8	3.50	0.46
Style	4	1.88	0.25	8	2.94	0.50
Organization	4	2.25	0.29	8	3.44	0.42
Conventions	4	2.63	0.85	8	3.31	0.53
Overall Average	4	2.16	0.21	8	3.30	0.39

References

Banta, T. W., & Palomba, C. A. (2015). *Assessment essentials: Planning, implementing, and improving assessment in higher education* (2nd ed.). Jossey-Bass.

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment*, *6*, 284-290. https://doi.org/10.1037/1040-3590.6.4.284

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Appendix

Writing Assessment Rubric

Writing Assessment Rubric

This rubric asks you to identify features of the writing present in the sample. You should *apply the numerical score based on degree of presence* of the characteristic features. The writing features selected for the rubric are those most likely present in any disciplinary writing sample and represent a writing level expected of a senior-level college student.

Legend: N/A = Not Applicable
1 = few features are present
2 = features are not often present
3 = features are often present
4 = features are most always present

CATEGORY	CHARACTERISTIC FEATURES
Ideas/Critical Thinking/Synthesis *The depth of sophistication of thoughts and ideas.* Features may include research, reasoning, evidence, detail, and development (appropriate to the field and genre)	• Central subject or argument of the assignment is easily identified, clearly emphasized, consistent with the evidence, and intriguing • Reasoning is fully developed throughout the assignment with logical examples, details, and evidence where and as appropriate • Assignment contains information that addresses counterarguments, biases, or reader's expectations as appropriate
Style *The choices the writer makes for specific audiences.* Features may include word choice, tone, and sentence length and structure	• Sustained awareness of audience throughout the assignment • Writing tone suits the audience and enhances the assignment's purpose • Sentence structure varies according to the content, purpose, and audience • Sentences are consistently clear and logical • Word choice is appropriate to the writing task
Organization *The coherence of the writing.* Features may include balance and ordering of ideas, flow, transition, and appropriate format (as defined in assignment)	• Text is purposefully organized and substantially developed in a way that clarifies the argument and enhances style • Arrangement of ideas (overall structure) is clear, logical, and compelling as appropriate to the assignment; the reader moves through the text easily • Internal structure is cohesive and coherent; text flows and ideas are clearly and logically connected • Transitions used appropriately • Format is appropriate as defined by the assignment
Conventions *Adherence to standard American edited English.* Features include grammar, punctuation, capitalization, spelling, and documentation.	• Grammar and mechanics support the reader's understanding of the writer's purpose without distracting errors • Documentation style is consistent, if appropriate to assignment • Sources, when appropriate, are effectively integrated into the body of the assignment • Minor errors do not interfere with readability or damage the writer's credibility (as appropriate to the assignment parameters)