Salisbury University HEIghten Written Communication & Effective Reading Assessment Report, Fall 2016

This report, authored by SU office of University Analysis, Reporting & Assessment (UARA) staff and reviewed by the University Academic Assessment Committee (UAAC), discusses Written Communication and Effective Reading assessment data collected during fall 2016 GULL Week sessions.

To request more information about the assessment, results, or additional analyses, please contact the Assessment Coordinator, Dr. Sarah Winger.

Executive Summary

Background and Findings

1. Faculty and UARA agreed that the ETS HEIghten Written Communication (H-WC) assessment is aligned with the General Education student learning outcomes, Effective Reading and Written Communication.
2. The H-WC instrument comprises 25 items with a Direct writing measure score as well as an overall scaled score, which has 3 scaled subscores (Knowledge of Social and Rhetorical Situations; Knowledge of Conceptual Strategies; Knowledge of Language Use and Conventions) related to skills in written communication knowledge areas. The item types include 1 essay and 24 passage-based, selected-response items.
3. The results of our administration of the H-WC instrument supported its validity and reliability.
    a. H-WC scores demonstrated validity:
        i. Content Validity: instrument was designed based upon literature review, review of existing measures, as well as expert review of items
        ii. Scale Analysis: supported using confirmatory factor analyses
        iii. Criterion and Construct Validity: supported by published positive correlation with SAT/ACT Verbal/English score(s)– also, the overall score and subscores on this instrument had small to large positive correlations with the SU students' related measures of SAT Verbal score range categories
    b. H-WC scores in published studies satisfactorily supported reliability regarding: both individual-level reliability and institutional-level total score reliability of the overall score; rater reliability (e.g., human vs. e-rater); as well as item analysis processes and subsequent item removal
4. Generally, the students that completed the H-WC instrument were somewhat representative of the overall and non-test-taker populations at SU.
5. The average SU H-WC overall scaled score (165.4) was above the average of the ETS comparison group (164.8) as well as above the proficiency benchmark (161), although 26.2% of SU students (those with Direct writing measure scores less than 6 or overall scaled scores less than 161) need improvement. Similarly, the average SU H-WC Direct writing measure score (6.8) was greater than the average of the ETS comparison group (6.2). See full report for scaled subscore results.

6. There was a significant difference between the H-WC overall scaled score, its three scaled subscores, as well as the Direct writing measure score averages of transfer students and SU native, first-time students; where the latter had higher averages.
7. Generally, as SU students' class level (i.e., freshmen, sophomores, juniors, seniors) increased, so too did the average H-WC overall scaled score (Table 12). SU students' average H-WC overall scaled score increased significantly by class level; freshmen's average score was significantly less than juniors' and seniors' average score. Although the average SU H-WC Direct writing measure score generally increased with increasing class level, there was no significant relationship. See full report for scaled subscore results.
8. There were significant differences between H-WC overall scaled score and Direct writing measure score averages by SU School (i.e., Fulton, Henson, Perdue, and Seidel; based on students' primary major); for both scores, Henson majors' averages were significantly greater than average scores of students majoring in Perdue or Seidel; no other School comparisons were significantly different. See full report for scaled subscore results.

Suggested Action Items

1. The benchmarks with which SU students' Effective Reading and Written Communication are compared should be evaluated by objective faculty and/or staff with expertise in the discipline or assessment of those skills.
2. Perform an area/course mapping of the current SU courses that align with the revised Effective Reading and Written Communication student learning outcomes.
3. Teaching faculty, General Education Steering Committee, and other relevant parties should consider whether the H-WC instrument is well aligned with revised (as of November 2018) General Education Effective Reading and Written Communication student learning outcomes. If the H-WC instrument is not aligned, then an alternative assessment that is aligned should be identified.
4. Consider results from the assessment to develop interventions or review and update curriculum to align with areas that need improvement.
5. Relevant stakeholders at SU should request further analyses of the H-WC data to address additional questions of interest that were not described here.
6. Determine a timeline to re-collect assessment data related to Effective Reading and Written Communication, tentatively set for re-assessing using the H-WC in fall 2022 and then every 3 years.

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Detailed Effective Reading and Written Communication Report

Instrument

ETS HEIghten Outcomes Assessment Suite

The ETS HEIghten Outcomes Assessment Suite comprises "innovative, modular, computer-delivered assessment tool[s that enable] colleges and universities to measure the student learning outcomes that are essential for academic success" (About the HEIghten Outcomes Assessment Suite 2020). The capitalized HEI in "HEIghten" stands for Higher Education Institution, indicating that the HEIghten Outcomes Assessment Suite instruments align with common general education areas in Higher Education. The instruments are designed and aligned with national frameworks, for the respective instruments. The instrument reporting includes score/subscore benchmark comparisons versus similar institutions. The benchmark comparison values in this report are from the most recently available ETS institutional score reports for the particular HEIghten assessment addressed.

H-WC Instrument

The HEIghten Written Communication (H-WC) assessment is one of the five ETS HEIghten Outcomes Assessment Suite instruments. The H-WC assessment is an instrument which comprises 25 items, across two sections, specifically: "The first section consists of an essay task that requires the test taker to compose an original response which adopts or defends a position on a claim. In the second section, the test taker is presented with two passage-based sets, each of which includes 12 selected-response questions." (ETS HEIghten Written Communication Assessment 2020). Within the second section, the selected-response items may request students to do the following: identify and correct linguistic or conceptual errors; "answer questions about the passages' social and rhetorical features (e.g., intended audience), organization and development, or tone, style, or other linguistic elements" (ETS HEIghten Written Communication Test at a Glance 2015). There are also other follow-up items (e.g., demographics, reason for taking test, did you try your best on this, etc.) following the 25 items. See H-WC sample items in Appendix 1 and information about the instrument's alignment with SU's student learning goals, outcomes, and curricular area mapping in Table 1. Details about the instrument can be found at the ETS HEIghten Written Communication Assessment website (2020), the ETS HEIghten Written Communication Test at a Glance document (2015), and the Sparks *et al.* (2014) ETS Research Report, "Assessing Written Communication in Higher Education: Review and Recommendations for Next-Generation Assessment" that explains the operational definitions and assessment considerations for the development of this particular assessment.

There are several indices which are measured by the H-WC and are described below. The first index is a Direct writing measure score and the second is an overall scaled score, which has 3 scaled subscores related to skills in written communication knowledge areas, with respective percent of aligned items of the assessment, which are: 1) Knowledge of Social and Rhetorical Situations (20%); 2) Knowledge of Conceptual Strategies (40%); and 3) Knowledge of Language Use and Conventions (40%). Also, although it is not measured as a separate scaled subscore, the Procedural Knowledge dimension is embedded as a fourth facet of written communication – within the overall scaled score. That dimension involves the two processes of drafting and revising written communication.

The University Academic Assessment Committee, representing Faculty Senate and multiple departments and programs, and UARA staff agreed that the H-WC instrument is aligned with the General Education Effective Reading and Written Communication student learning outcomes (Table 1).

Table 1. The SU General Education student learning goals, outcomes, and area mapping related to Command of Language: Reading and Command of Language: Writing (prior to November 20, 2018) and Effective Reading and Written Communication (after November 20, 2018).

SU GenEd SLG/SLO Version	Student Learning Goal	Student Learning Outcome	Area Mapping
Prior to November 20, 2018	1.2a. Command of Language: **Reading**	1.2a.1. Engage in active reading strategies to interpret and summarize content of written works.	IA, IB, IIA, IIB, IIIA, IIIB, IVA, V
		1.2a.2. Solve a problem by analyzing the question being asked and identifying the relevant information.	IVA, IVB, IVC
	1.2b. Command of Language: **Writing**	1.2b.1. Synthesize and apply information and ideas in discipline-specific forms of writing.	IA, IIA, IIB, IIIA, IVA, IVB, IVC
		1.2b.2. Use appropriate evidence, organizational patterns, and styles for specific writing tasks.	IA, IIA, IIB
		1.2b.3. Construct thesis-driven arguments that marshal appropriate evidence and counter-arguments.	IA, IB, IIA, IIB, IIIB
		1.2b.4. Select, evaluate, and cite reputable and appropriate sources.[3] (1.4a.2., 1.4b.2.)	IA, IIA, IIB, IIIB
After November 20, 2018	Essential Competencies	**Effective Reading:** Students will be able to extract and construct meaning by interacting with written language.	TBD*
		Written Communication: Students will be able to develop and clearly express ideas through writing, in appropriate styles, by incorporating evidence when warranted.	TBD*

Note. Revised SU General Education student learning goals and outcomes were approved by Faculty Senate November 20, 2018. [3] denotes that this outcome located in three places in the General Education student learning goals and outcomes (prior to November 20, 2018), with the other codes listed after, which correspond to outcomes under the Information Literacy student learning goal. Asterisk (*) denotes that, at this time, there has not been an official area mapping of current courses to the revised SU General Education student learning goals and outcomes.

Related to Effective Reading and Written Communication, results from this instrument can: provide a benchmark of student outcomes at SU; inform instructional efficacy and possible interventions; evaluate curricular strengths and weaknesses; and continuously improve student outcomes if we use this instrument for future GULL Week administrations.

Methodology and Sample

Data were collected from volunteer students at SU who self-selected and signed up to participate in various Gaining Understanding as a Lifelong Learner (GULL) Week testing sessions during a week in September, 2016. GULL Week sessions were open to the entire SU undergraduate student population. The assessments were administered in a proctored computer lab setting and lasted approximately one hour, of which ~45 minutes was dedicated to the H-WC administration and ~15 minutes was dedicated to a different assessment, which included ~5 minutes for a Student Opinion Scale (SOS) Survey (Appendix 2; Sundre & Thelk 2007). The SOS Survey estimates the GULL Week participant's perceived importance of the assessment(s) and effort expended by the participant in completing the assessment(s) (i.e., H-WC).

Some faculty offered incentives (such as extra credit) to participating students, some mentioned GULL Week and encouraged students to participate, and some did not interact with students about GULL Week. The office of University Analysis, Reporting & Assessment (UARA) publicized GULL Week across

campus via many avenues. Particularly, competitions between both Schools and Greek life groups were set up to improve participation.

In all, n = 1388 undergraduates participated in fall 2016 GULL Week and, of those, n = 1052 students (18 years or older) completed the H-WC with quality data (17.7% and 13.4% of total SU fall 2016 undergraduate enrollment (n = 7861), respectively). The H-WC cut-off determination for "quality data" for the analyses in this report was based upon the UAAC decision of a student self-report measure of effort, informed by an *ad hoc* UARA analysis of various quality control metrics. Therefore, any student that self-reported less effort was marked as "not quality data" and therefore not included in these analyses. For the H-WC test, this is based upon the ETS follow-up questions "Did you try your best?" and 302 students (22.3% of the total H-WC test-takers, 18 years or older, that included both "quality data" and "not quality data"; n = 1354) that responded "No" for either the Direct writing or the selected-response section of the instrument were marked as "not quality data" and were only included as H-WC non-test-takers for these analyses. Demographic analyses of the H-WC non-test-takers (n = 6809; 86.6%), including those who participated without providing quality data, were compared to the test-takers that completed H-WC with quality data to evaluate the extent to which the sample of test-takers was representative of the entire SU undergraduate population during fall 2016. Further analyses within the test-takers were performed to evaluate the validity and reliability of the instrument administration at SU as well as to determine whether scores on the instrument varied by student characteristic(s), based upon available data in the Student Information System (GullNet). Some of the data may be missing for some demographic or student data variables for some students, therefore some of these total numbers may be different in the tables and results. The students with data for both H-WC and the SOS Survey were analyzed to evaluate student responses on those scales.

Results

Demographic Comparison of Test-takers vs. Non-test-takers

In general, the demographics of the students who took the H-WC were similar to the non-test-takers (Tables 2-8; lack of significance annotations). However, based upon z-test results of column comparisons with Bonferroni adjusted p-values, Caucasians (Table 2), females (Table 3), SU native first-time students (Table 4), sophomores and juniors (Table 5) as well as students with primary majors in Perdue (Table 6) were disproportionately high in the test-taker group and, in two cases of student success metrics (i.e., High School GPA and SU Cumulative GPA), the test-takers of the H-WC were significantly more successful than the non-test-takers (Table 8); although it should be considered that another set of success metrics (i.e., SAT Math and Verbal scores) indicated the two groups were comparable (Table 7).

Table 2. Student Race/Ethnicity Compared between the H-WC Test-takers, Non-test-takers and All SU Undergraduates

Race/Ethnicity	Test-taker	Non-test-taker	Total
African American	120 (11.4%)*	967 (14.2%)*	1087 (13.8%)
American Indian/ Alaska Native	7 (0.7%)	44 (0.6%)	51 (0.6%)
Asian	38 (3.6%)	217 (3.2%)	255 (3.2%)
Caucasian	765 (72.7%)*	4723 (69.4%)*	5488 (69.8%)
Hispanic	41 (3.9%)	266 (3.9%)	307 (3.9%)
Native Hawaiian/ Pacific Islander	3 (0.3%)	13 (0.2%)	16 (0.2%)
Non-resident Alien	22 (2.1%)	120 (1.8%)	142 (1.8%)
Two or more races	30 (2.9%)	231 (3.4%)	261 (3.3%)
Unknown/ Not specified	26 (2.5%)	228 (3.3%)	254 (3.2%)
Total	1052 (100.0%)	6809 (100.0%)	7861 (100.0%)

Notes. Cell values are counts with percentages reported parenthetically. There was no significant difference of participation categories between test-takers' and non-test-takers' proportions.

Table 3. Student Gender Compared between the H-WC Test-takers, Non-test-takers and All SU Undergraduates

Gender (code)	**Test-taker**	**Non-test-taker**	**Total**
Male (1)	318 (30.2%)*	3077 (45.2%)*	3395 (43.2%)
Female (2)	732 (69.6%)*	3714 (54.5%)*	4446 (56.6%)
Unknown/ Not specified	2 (0.2%)	18 (0.3%)	20 (0.3%)
Total	1052 (100.0%)	6809 (100.0%)	7861 (100.0%)

Notes. Cell values are counts with percentages reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' proportions are indicated by an asterisk (*), $p \leq .05$.

Table 4. Student Admit Type, to SU, Compared between the H-WC Test-takers, Non-test-takers and All SU Undergraduates

SU Admit Type (code)	**Test-taker**	**Non-test-taker**	**Total**
First-time student (F)	753 (71.9%)*	4063 (61.5%)*	4816 (62.9%)
Transfer (T + U)	295 (28.1%)*	2541 (38.5%)*	2836 (37.1%)
Total	1048 (100.0%)	6604 (100.0%)	7652 (100.0%)

Notes. Cell values are counts with percentages reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' proportions are indicated by an asterisk (*), $p \leq .05$. Total values will not match the aforementioned sample values because some students have missing information in GullNet.

Table 5. Student Undergraduate Class Level Compared between the H-WC Test-takers, Non-test-takers and All SU Undergraduates

Class Level (code)	**Test-taker**	**Non-test-taker**	**Total**
Freshmen (1)	191 (18.2%)*	1575 (23.1%)*	1766 (22.5%)
Sophomores (2)	263 (25.0%)*	1473 (21.6%)*	1736 (22.1%)
Juniors (3)	298 (28.3%)*	1636 (24.0%)*	1934 (24.6%)
Seniors (and +) (4)	285 (27.1%)	1825 (26.8%)	2110 (26.8%)
Unclassified, non-degree undergrads (7)	15 (1.4%)*	300 (4.4%)*	315 (4.0%)
Total	1052 (100.0%)	6809 (100.0%)	7861 (100.0%)

Notes. Cell values are counts with percentages reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' proportions are indicated by an asterisk (*), $p \leq .05$.

Table 6. Student School Enrollment Compared between the H-WC Test-takers, Non-test-takers and All SU Undergraduates

School	**Test-taker**	**Non-test-taker**	**Total**
Fulton	262 (24.9%)	1779 (26.1%)	2041 (26.0%)
Henson	257 (24.4%)	1712 (25.1%)	1969 (25.0%)
Perdue	318 (30.2%)*	1339 (19.7%)*	1657 (21.1%)
Seidel	190 (18.1%)*	1504 (22.1%)*	1694 (21.5%)
Undeclared	25 (2.4%)*	475 (7.0%)*	500 (6.4%)
Total	1052 (100.0%)	6809 (100.0%)	7861 (100.0%)

Notes. Cell values are counts with percentages reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' proportions are indicated by an asterisk (*), $p \leq .05$. Fall 2016 pre-dates the SU reorganization of the four named Schools above, particularly programs/majors in Henson and Seidel, into the new College of Health and Human Services (CHHS) – starting in fall 2018.

Table 7. Student SAT Scores Compared between the H-WC Test-takers, Non-test-takers and All SU Undergraduates

SAT Score Range	SAT Math			SAT Verbal		
	Test-taker	Non-test-taker	Total	Test-taker	Non-test-taker	Total
< 500	193 (27.4%)	1234 (30.0%)	1427 (29.6%)	222 (31.5%)	1323 (32.1%)	1545 (32.0%)
500-599	347 (49.2%)	1967 (47.8%)	2314 (48.0%)	350 (49.6%)	2024 (49.2%)	2374 (49.2%)
600-699	150 (21.3%)	854 (20.7%)	1004 (20.8%)	123 (17.4%)	704 (17.1%)	827 (17.2%)
700-800	15 (2.1%)	64 (1.6%)	79 (1.6%)	10 (1.4%)	65 (1.6%)	75 (1.6%)
Total	705 (100.0%)	4119 (100.0%)	4824 (100.0%)	705 (100.0%)	4116 (100.0%)	4821 (100.0%)

Notes. Cell values are counts with percentages reported parenthetically. Within each SAT subject, significant difference of participation categories between test-takers' and non-test-takers' proportions was evaluated, but none were significant, $p > .05$. The SAT score ranges were used so that both the student scores on the old and 2016 SAT versions could be included. Total values will not match the aforementioned sample values because students do not always self-report this information.

Table 8. Student GPA Scores Compared between H-WC Test-takers and Non-test-takers

Success Metric	Test-taker		Non-test-taker	
	n	Avg (SD)	n	Avg (SD)
High School GPA	785	3.73 (.43)**	4519	3.60 (.47)**
SU Cumulative GPA	1047	3.17 (.58)**	6712	2.93 (.69)**

Notes. Cell values are sample sizes (n) or averages with standard deviation reported parenthetically. Significant difference of participation categories between test-takers' and non-test-takers' average values are indicated by two asterisks (**), $p \leq .001$. Total values will not match the aforementioned sample values because students do not always self-report this information or because some students have missing information in GullNet.

Validity and Reliability of the H-WC Administration at SU

The results of our administration of the 25-item H-WC supported its validity and reliability. Much of the validity of the H-WC was described in ETS-related publications (Sparks *et al.* 2014, Rios *et al*. 2017, Swiggett 2017). Content validity was supported via the steps of literature review, review of existing measures, as well as expert review of items (Sparks *et al.* 2014, Swiggett 2017). This latter step also included a standard setting method to identify students' proficiency in Written Communication based on ranges in the overall scaled score and scaled subscores (Table 9; Swiggett 2017). Item analysis (item difficulty and item discrimination) as well as subsequent removal of misfit items is an additional step in the instrument development that supports its reliability. Furthermore, scale analysis was supported using confirmatory factor analyses (Rios *et al*. 2017). Similarly, both individual-level reliability (Cronbach's alpha; $\alpha = .68$ - .77 for the original two test forms) and institutional-level total score reliability ($\alpha = .89$ for both forms) satisfactorily supported the reliability of the overall score (Rios *et al*. 2017).

Reliability analysis of scoring the direct measure (scale of 0 – 6; ETS HEIghten Written Communication Assessment Scoring the Direct Writing Measure 2016) between human and machine (e-rater® automated scoring engine developed at ETS) was also supported (Rios *et al*. 2017). Therefore, the current model of a human rater score and an e-rater score being added together to create the final Direct writing measure score, with a range of 0 - 12, is acceptable. It should also be noted that, as part of

the H-WC Direct writing measure scoring process, if the human and e-rater scores differ by more than 1.5 points, then an adjudicating third human rater's score is doubled and used (ETS HEIghten Written Communication Assessment Scoring the Direct Writing Measure 2016; Rios *et al*. 2017).

Table 9. Performance level descriptions and scaled score/subscore interpretations for the H-WC (ETS HEIghten Written Communication Assessment Performance Level Descriptions 2017; ETS HEIghten Written Communication Sample Institutional Score Report 2016; ETS HEIghten Outcomes Assessment Suite Scores 2020)

Score/Subscore Name	SU Proficiency Level	ETS Proficiency Level	Score/Subscore Range	A typical student at this level…
overall scaled score	Proficient	Advanced	172 – 180	…**has demonstrated the ability to:** do the 11 *Advanced-related skills identified in Appendix 3
		Proficient	161 – 171	…**has demonstrated the ability to:** do the 11 *Proficient-related skills identified in Appendix 3
	Need Improvement	Developing	150 – 160	**…may sometimes:** do the 11 Developing-related skills identified in Appendix 3
Knowledge of Social and Rhetorical Situations scaled subscore	n/a	n/a	1 – 10	Varies
Knowledge of Conceptual Strategies scaled subscore	n/a	n/a	1 – 10	Varies
Knowledge of Language Use and Conventions scaled subscore	n/a	n/a	1 – 10	Varies
Direct writing measure score	n/a	n/a	0 – 12	Varies

Notes. Although the H-WC documentation describes the Advanced and Proficient proficiency levels, SU will only evaluate whether students are proficient or not and the "SU Proficiency Level" information details that difference. Asterisk (*) denotes that to qualify as Proficient or Advanced, students must also earn a minimum essay score of 6 (out of 12).

Although Rios *et al*. (2017) did not evaluate differences between increasing class levels (e.g., freshman, senior) at higher education institutions and the H-WC overall scaled score, criterion and construct validity were supported based upon other metrics (Rios *et al*. 2017). The SAT/ACT Verbal/English scores, after any ACT English scores were transformed into an equivalent SAT Verbal score using concordance tables (when multiple, only the highest score per student was used), were correlated with the overall H-

WC score, *r* = .47 (p < .001). Based on the SU student scores in fall 2016, criterion and construct validity were also supported because students' overall scaled score on this instrument had a large positive correlation with the SU students' related measure of SAT Verbal score range categories, *r* = .505 (p < .001). Similarly, the students' Direct writing measure score and scaled subscores on this instrument had small to moderate positive correlations with the SU students' related measure of SAT Verbal score range categories [Direct writing measure score, *r* = .197 (p < .001); Knowledge of Social and Rhetorical Situations scaled subscore, *r* = .385 (p < .001); Knowledge of Conceptual Strategies scaled subscore, *r* = .397 (p < .001); Knowledge of Language Use and Conventions scaled subscore, *r* = .402 (p < .001)]. The SAT score range categories were from 1 - 4 where: 1 = < 500; 2 = 500-599; 3 = 600-699; and 4 =700-800). Correlation coefficients ≥ .1 but less than .3 are evidence of small effect sizes; ≥ .3 but less than .5 are evidence of medium effect sizes; and those ≥ .5 are evidence of large effect sizes (Field 2013).

SU Student Scores on the H-WC

On average, the SU students who participated (n = 1052) had an overall scaled score of 165.4 (SD = 5.1) with a range of 150 to 178 on the H-WC instrument (Table 10). For the Knowledge of Social and Rhetorical Situations dimension, the average scaled subscore of participants was 4.8 (SD = 1.9) with a range of 1.0 to 7.9. For the Knowledge of Conceptual Strategies dimension, the average scaled subscore of participants was 4.8 (SD = 1.8) with a range of 1.0 to 9.7. For the Knowledge of Language Use and Conventions dimension, the average scaled subscore of participants was 4.8 (SD = 1.7) with a range of 1.0 to 8.8. For the Direct writing measure, the average scaled score of participants was 6.8 (SD = 1.8) with a range of 0 to 12. The possible overall scaled score range is 150 – 180, the possible scaled subscores ranges are 1 – 10, and the possible Direct writing measure score is 0 - 12 (Table 9).

The SU average overall scaled score is greater than that of the ETS comparison group, 164.8 (SD = 6.5), which comprises 7,273 undergraduate students of different class levels across 48 Higher Education institutions (either 2-year or 4-year institutions). In general, the H-WC proficiency levels (Table 9) indicate that SU students are doing well regarding Written Communication and Effective Reading since the SU average overall scaled score of 165.4 is greater than 161, which is the benchmark cut-off for proficiency. However, unlike other HEIghten instruments, a low score on the Direct writing measure (< 6) automatically results in the categorization of a student into the lowest proficiency category group ("Developing," ETS or "Need Improvement," SU; Table 9), regardless of the overall scaled score value. There were 180 students (17.1%) that had overall scaled scores less than 161 (regardless of their Direct writing measure) as well as 96 students (9.1%) that had overall scaled scores that were above 161, but that had a score of 5 or lower on the Direct writing measure. Therefore, the overall individual proficiency analysis indicated that 26.2% of the SU H-WC test-takers (n = 276) need improvement. Similarly, all of the SU average scaled subscores values are equal to those of the comparison group; 4.8 for all (Table 10). In terms of the Direct writing measure score, the SU average of 6.8 is greater than the ETS comparison group (6.2).

Table 10. SU (white columns) and ETS Comparison Group (gray columns) Students' Proficiency Levels on the Scaled Scores/Subscores of the H-WC

Score/ subscore	ETS Comparison Group (n = 7,273)			SU Fall 2016 (n = 1,052)		
	Avg (SD) *SU Proficiency Level*	Percent of Students		Avg (SD) *SU Proficiency Level*	Percent of Students	
		Proficient*	Need Improvement		Proficient*	Need Improvement
overall scaled score	164.8 (6.5) *Proficient*	61%	39%	165.4 (5.1) *Proficient*	73.8%	26.2%
Knowledge of Social and Rhetorical Situations scaled subscore	4.8 (2.0) *n/a*	n/a	n/a	4.8 (1.9) *n/a*	n/a	n/a
Knowledge of Conceptual Strategies scaled subscore	4.8 (2.0) *n/a*	n/a	n/a	4.8 (1.8) *n/a*	n/a	n/a
Knowledge of Language Use and Conventions scaled subscore	4.8 (2.0) *n/a*	n/a	n/a	4.8 (1.7) *n/a*	n/a	n/a
Direct writing measure score	6.2 (2.2) *between Limited and Adequate*	n/a	n/a	6.8 (1.8) *between Limited and Adequate*	n/a	n/a

Note. The ETS comparison group data (gray) is based on the HEIghten Outcomes Assessment Suite Guide to Score Interpretation (2020) and the ETS HEIghten Written Communication Assessment Scoring the Direct Writing Measure (2016). SU proficiency levels for the overall scaled score are: Proficient = students with scores ranging from 161 – 180; Need Improvement = students with scores ranging from 150 – 160 (see Table 9 for more details); whereas the Direct writing measure score levels are based on a rubric (ETS HEIghten Written Communication Assessment Scoring the Direct Writing Measure 2016). Asterisk (*) denotes that in order to be categorized as Proficient, test-takers must have an overall scaled score of at least 161 and a minimum essay score of 6 (out of 12).

On average, SU native, first-time students scored significantly higher on the H-WC overall scaled score as compared to transfer students (Table 11). The difference, 1.8, was significant $t(487.717) = 4.84$, $p < .001$. Similarly, there were significant differences between first-time students' other H-WC score and scaled subscores as compared to transfer students' for the two groups, where the SU native, first-time students had a higher average than the transfer students (Direct writing measure score [.5; $t(491.898) = 4.33$, $p < .001$]; Knowledge of Social and Rhetorical Situations scaled subscore [.3; $t(1046) = 2.07$, $p < .05$]; Knowledge of Conceptual Strategies scaled subscore [.3; $t(1046) = 2.86$, $p < .01$]; Knowledge of Language Use and Conventions scaled subscore [.5; $t(1046) = 4.39$, $p < .001$]; Appendix 3 - Table 1).

Table 11. Student Admit Type, to SU, Average Overall Scaled Scores on the H-WC

SU Admit Type (code)	**n**	**Score**	**SD**	**Percent of Students**	
				Proficient	**Need Improvement**
First-time student (F)	753	165.9**	4.9	77.4%	22.6%
Transfer (T + U)	295	164.2**	5.5	64.7%	35.3%

Notes. Significant difference of categories' average values are indicated by asterisks (**), $p < .001$. In order to be categorized as Proficient, test-takers must have an overall scaled score of at least 161 and a minimum essay score of 6 (out of 12).

Although Rios *et al*. (2017) did not evaluate differences between increasing class levels (e.g., freshman, senior) at higher education institutions and the H-WC overall scaled score, this SU administration of the H-WC did support significant difference of the average overall scaled score between class levels. At SU, as class levels increased, so too did the average score on the instrument (Table 12). Specifically, at SU, seniors and juniors scored greater than freshmen on the H-WC overall scaled score. The effect of difference in average scores between groups, although significant, was small based on effect size value interpretation ($F(3, 1033) = 3.6$, $p < .05$, $r = .10$). Post hoc comparisons, via the Tukey HSD test, were used to identify which class levels' average scores were significantly different. Tests revealed significant pairwise differences between the average scores of freshmen as compared to juniors and seniors ($p < .05$). In general, as class level increased, so too did the students' average Knowledge of Conceptual Strategies scaled subscore (Appendix 3 - Table 2), with a small effect size ($F(3, 1033) = 3.4$, $p < .05$, $r = .10$). Again, post hoc comparison tests revealed significant pairwise differences between the average scaled subscores of freshmen as compared to juniors and seniors ($p < .05$). However, there were no significant differences between class level groups for the Direct writing measure score or the Knowledge of Social and Rhetorical Situations as well as Knowledge of Language Use and Conventions scaled subscores.

Table 12. Student Undergraduate Class Level Average Overall Scaled Scores on the H-WC

Class Level (code)	**n**	**Score**	**SD**	**Percent of Students**	
				Proficient	**Need Improvement**
Freshmen (1)	191	164.4^{a}*	5.3	67.5%	32.5%
Sophomores (2)	263	165.5^{ab}	5.1	71.9%	28.1%
Juniors (3)	298	165.9^{b}*	4.9	80.2%	19.8%
Seniors (and +) (4)	285	165.8^{b}*	5.1	74.0%	26.0%
Unclassified, non-degree undergrads (7)	15	$162.9^{n/a}$	5.5	53.3%	46.7%

Notes. Subset groups' average scores are indicated by group letters $^{a, b}$ or $^{n/a}$. The latter is because there were fewer than 30 students in the Unclassified, non-degree undergraduates group; therefore, these students were removed prior to the ANOVA analysis. Results from sample sizes fewer than 30 should be interpreted with caution. In order to be categorized as Proficient, test-takers must have an overall scaled score of at least 161 and a minimum essay score of 6 (out of 12). Where a group differs significantly compared to another group is indicated by an asterisk (*), $p < .05$.

Student performance by SU School is listed in Table 13. There was a significant difference in the H-WC overall scaled score based on enrollment in School at SU, but the effect of difference in average scores between groups was small based on effect size value interpretation ($F(3, 1023) = 7.1$, $p < .001$, $r = .14$). Post hoc comparisons, via the Tukey HSD test, were used to identify which Schools' average scores were significantly different. Tests revealed significant pairwise differences between the average score of students from Henson, which was significantly higher, as compared to the average scores of students from Perdue ($p < .01$) and Seidel ($p = .001$). The average overall scaled scores of students from Henson

and Fulton do not significantly differ (p > .05). Similarly, the average scores of students from Fulton, Perdue, and Seidel do not significantly differ (p > .05).

In general, the overall scaled score trends were similar to those from the students' average Direct writing measure score and scaled subscores (Appendix 3 - Table 3), with small effect sizes for each relationship [Direct writing measure score, (F(3, 1023) = 4.2, p < .01, *r* = .11); Knowledge of Social and Rhetorical Situations scaled subscore, (F(3, 1023) = 5.9, p < .001, *r* = .13); Knowledge of Conceptual Strategies scaled subscore, (F(3, 1023) = 4.5, p < .01, *r* = .11)]. The only scaled subscale that did not have a significant difference between School groups was Knowledge of Language Use and Conventions (F(3, 1023) = 2.5, p > .05). In general, for the scaled subscores that did have a significant difference, post hoc comparisons revealed similar results of the Schools' significant pairwise differences. Tests revealed significant pairwise differences between the average scaled subscores of students from Henson, which was significantly higher, as compared to the average scaled subscores of students from Perdue (Knowledge of Social and Rhetorical Situations, p < .01) as well as Seidel (Knowledge of Social and Rhetorical Situations, p < .01; and Knowledge of Conceptual Strategies, p < .05). Similarly, tests revealed significant pairwise differences between the average scaled subscores of students from Fulton, which was significantly higher, as compared to the average scaled subscores of students from Seidel (Knowledge of Social and Rhetorical Situations and Knowledge of Conceptual Strategies, p < .05). In the case of those scaled subscores, there were no other significantly different relationships between the average scaled subscores of students from the other Schools (p > .05). The Direct writing measure score average also had a significant difference based upon School enrollment, where the average for the Henson majors was statistically greater than the average of the students from Seidel (p < .05) and Perdue (p < .01). There were no other significantly different relationships between the Direct writing measure score averages of students between the other Schools (p > .05).

Table 13. Student School Enrollment Average Overall Scaled Scores on the H-WC

School	n	Score	SD	Percent of Students	
				Proficient	Need Improvement
Fulton	262	165.7^{bc}	5.0	76.0%	24.0%
Henson	257	166.5^{c}*	5.0	78.6%	21.4%
Perdue	318	165.0^{ab}*	5.2	70.8%	29.2%
Seidel	190	164.5^{a}*	4.9	70.0%	30.0%
Undeclared	25	163.8$^{n/a}$	6.0	68.0%	32.0%

Notes. Subset groups' average scores are indicated by group letters $^{a, b, c}$ or $^{n/a}$. The latter is because there were fewer than 30 students in the Undeclared group; therefore, these students were removed prior to the ANOVA analysis. Results from sample sizes fewer than 30 should be interpreted with caution. In order to be categorized as Proficient, test-takers must have an overall scaled score of at least 161 and a minimum essay score of 6 (out of 12). Where the group category differs significantly compared to different group category is indicated by an asterisk (*), p < .01.

Although not presented here, student performance by primary major is available upon request to programs or Departments when at least 30 students in that major participated in this instrument's administration. These data can be used for informal review and improvement efforts, or for more formal program review and improvement efforts such as Academic Program Review required reporting related to assessment of program student learning outcomes aligned with this instrument, when applicable.

H-WC and SOS Survey Student Responses

Many of the H-WC test-takers also took the SOS Survey (n = 960; Table 14; Appendix 2). We were able to evaluate the reliability of both subscales within the SOS Survey. The *Importance* subscale, which addresses the extent to which the student thought it was important to do well on the H-WC, demonstrated reliability (α = .752). Similarly, the *Effort* subscale, which addresses the extent to which the student fully engaged in effortful behavior on the H-WC, demonstrated reliability (α = .775). The validity of the instrument is discussed in the SOS Survey Manual (Sundre & Thelk 2007). The 10 items, five in each subscale, are measured in a 1 to 5 scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. There are four items that are negatively worded, and their scores were reverse coded prior to analysis.

In general, students selected "Neutral" or "Agree" in their responses for the *Importance* subscale and "Agree" in their responses for the *Effort* subscales. For *Importance,* this indicates that students thought that their scores on the H-WC instrument would affect them a little to somewhat in either a positive or negative way. For *Effort*, it indicates that students put in a moderate effort towards completing the H-WC instrument. The two subscales had a moderate positive correlation with one another, $r = .357$ ($p < .001$; medium effect size). The *Importance* subscale was minimally positively correlated with the H-WC overall scaled score, $r = .167$ ($p < .001$). The *Effort* subscale had a moderate correlation with the H-WC overall scaled score, $r = .334$ ($p < .001$). The SOS subscales' positive correlations with the H-WC overall scaled score seem to indicate that the students who self-reported that the H-WC was an important test and exerted more effort on performance on the test also scored slightly greater than those who did not self-report the high importance of the test or exerting as much effort on the test, respectively, although the effect sizes were small to medium, respectively.

Table 14. Student Opinion Scale (SOS) Survey subscales' administrative results for the students who also participated in the H-WC instrument administration

SOS Subscale	Number of Items	Reliability (α)	n	Average Score (out of 25)	SD
Importance	5	.752	960	15.6	3.4
Effort	5	.775	960	18.9	3.0

Discussion

Based on the results presented here it seems that there is room for improvement in the Effective Reading and Written Communication student learning outcomes at SU. Several action items are suggested below towards this end.

1. To determine whether our students are meeting SU expectations for Effective Reading and Written Communication, the benchmarks with which SU students' Effective Reading and Written Communication are compared should be evaluated by objective faculty and/or staff with expertise in the discipline or assessment of them. For example, what percentage of students do we expect to be proficient?
2. Perform an area/course mapping of the current SU courses that align with the revised Effective Reading and Written Communication student learning outcomes.
3. Based on discussions and decisions related to Action Items #1-2, relevant parties such as faculty teaching courses aligned with these student learning outcomes and the General Education Steering Committee should consider whether the H-WC instrument is aligned well with the revised (as of November 2018) SU General Education Effective Reading and Written

Communication student learning outcomes. If it is not aligned, then an alternative assessment that is aligned should be identified.

4. Relevant stakeholders at SU should consider the results from the H-WC assessment to develop interventions or review and update curricula to align with areas that need improvement. However, certain groups can be targeted for improvement with respect to trends in H-WC score/subscore (see Tables 11 – 13 and aligned Appendix 3 - Tables 1 - 3). For example, transfer students would benefit from interventions related to these learning outcomes. In particular, and possibly in conjunction with Action Item #2, these data can be re-evaluated to help identify particular courses that students with high H-WC scores/subscores have completed at SU to investigate potentially successful Effective Reading and Written Communication-related interventions on campus. Successful projects at other institutions may be considered to guide instructional interventions at SU.
5. Relevant stakeholders at SU should request further analyses of the H-WC data to address additional questions of interest that were not described here (e.g., potential analyses for particular courses or programs).
6. Based on discussions and decisions related to Action Items #1-5, a timeline for re-assessment of the SU General Education Effective Reading and Written Communication student learning outcomes should be finalized. At this time, in addition to being re-assessed in spring 2019, the H-WC is planned to be re-assessed in fall 2022 and every three years after. This will allow an analysis of whether there is change in student learning outcomes based upon either a change in assessment or instructional or curricular interventions.

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Salisbury University H-WC Reporting Documentation

The following related reporting documentation can be found at the General Education Outcome Assessment Report website:

1. Fall 2016 Written Communication and Effective Reading ONESHEET
2. Spring 2019 Written Communication and Effective Reading Assessment Report
3. Spring 2019 Written Communication and Effective Reading ONESHEET

Appendices

Appendix 1. ETS HEIghten Written Communications Sample Items

Note: These following sample items and answer key are for reference only and are originally from the ETS HEIghten Written Communications Sample Items document (2020). They provide examples of skills measured, contexts covered and the difficulty of the questions.

Direct Writing Measure (Constructed Response Question)

The following argument appeared in an opinion piece in your local newspaper.

"We live in an age that gives us more choice than ever before—so much so that we're in danger of 'choice overload,' as any trip to the supermarket will confirm. Just choosing among all the different types of cereals or shampoos can be confusing and frustrating. What about making a major life decision with long-term consequences? We've assumed that since choice is good, more choice is better. But this seemingly reasonable assumption turns out to be false. Having so many options for every decision, big and small, can create stress, indecision, and 'paralysis by analysis' rather than liberation. Ironically, we would all be better off with less choice."

In a well-organized letter to your local newspaper, use your understanding of the above argument to develop your own position on whether we would all be better off with less choice. Support your argument with reasons and examples from your own experience, observations, reading, and/or analysis of the reasoning in the above argument.

Selected Response Questions

Questions 1 - 6 are based on the following passage.

(1) Comic Sans MS may be the world's most hated typeface, or font. **(2)** It is, for the most part, a sans serif typeface, which means that it lacks the small embellishment strokes at the ends of letters (the exception is the uppercase "I," which includes the horizontal bars at the top and bottom of the letter). **(3)** The creation of Vincent Connare, Comic Sans is one of the default typefaces of Microsoft's popular Word series of word processing software. **(4)** In recent years, however, it has become the center of some heated debates regarding when different fonts should be used for various purposes.

(5) In order to understand the reactions people have to the Comic Sans typeface, it is important to understand its origins. **(6)** Vincent Connare invented Comic Sans in the 1990s when he was working on a program called Microsoft Bob, it was designed to help children and new computer users navigate personal computers. **(7)** The program used a cartoon dog to guide users through the experience. **(8)** When Connare saw the working prototype of the software, they worried that the font used for the dog's speech bubbles looked too formal. **(9)** He needed a typeface that seemed inviting and relaxed—something that would help users feel at home.

(10) For inspiration, Connare turned to two comic books he had in his office: Watchmen and The Dark Knight Returns (lettered by Dave Gibbons and John Costanza, respectively). **(11)** The lettering in those works had exactly the sort of relaxed, informal look that Connare wanted. **(12)** From these inspirations,

he created a typeface that struck a balance between the formal and the informal, between more traditional fonts and the lettering used in comic book speech bubbles.

(13) Today, Comic Sans is probably best known for the really bitter ranting it inspires: critics object to the growing use of this informal typeface for more serious messages. **(14)** The Comic Sans font has been used on ambulances, electrical warning signs, and even in a scientific presentation by a lead researcher at the European Organization for Nuclear Research (CERN). **(15)** This kind of usage spawned movements such as Ban Comic Sans, a mostly tongue-in-cheek Internet campaign to do away with the type, and it also prompted the creation of Web sites such as Comic Sans Criminal, a light-hearted educational tool designed to teach people to select the correct typeface for the situation at hand. **(16)** The lesson, according to opponents of Comic Sans, is not that an informal typeface is never appropriate, just that it should only be used in appropriately informal situations.

1. Which of the following best describes the purpose of sentence 5 (highlighted and underlined)?

(5) In order to understand the reactions people have to the Comic Sans typeface, it is important to understand its origins.

(A) It restates the main idea of the passage.
(B) It provides a transition that effectively introduces important background material.
(C) It establishes the writer's credibility by acknowledging counterarguments to the passage's position.
(D) It raises an important objection to the idea introduced in the previous sentence.

2. Which, if any, of the highlighted and underlined portions of sentence 6 needs to be corrected?

(6) Vincent Connare invented Comic Sans in the 1990s when he was working on a program called Microsoft Bob, it was designed to help children and new computer users navigate personal computers.

(A) invented
(B) when
(C) it
(D) (No error)

3. Which, if any, of the highlighted and underlined portions of sentence 8 needs to be corrected?

(8) When Connare saw the working prototype of the software, they worried that the font used for the dog's speech bubbles looked too formal.

(A) saw
(B) they
(C) for
(D) (No error)

4. Which of the following, if added immediately after sentence 12 (highlighted and underlined), provides the most effective conclusion to the paragraph?

(12) From these inspirations, he created a typeface that struck a balance between the formal and the informal, between more traditional fonts and the lettering used in comic book speech bubbles.

(A) He named the resulting typeface Comic Sans as a nod to the comic books that inspired him.
(B) He never expected, however, that his invention would end up being used in nearly every subsequent Microsoft program.
(C) He became so notorious for creating the Comic Sans typeface that he was asked to give the keynote speech at the 2014 Boring Awards.
(D) Today there are many other fonts, such as Cartoon Script and Captain Comic, that also mimic the effect of comic books.

5. Which of the following is the most effective change to make to sentence 13 (highlighted and underlined)?

(13) Today, Comic Sans is probably best known for the really bitter ranting it inspires: critics object to the growing use of this informal typeface for more serious messages.

(A) Change “is probably best known” to “must be best known”.
(B) Change “really bitter ranting” to “vitriol”.
(C) Change “growing” to “continually increasing”.
(D) Change “serious” to “highbrow”.

6. The writer wishes to provide a graphic to illustrate one of the points made in the fourth paragraph (highlighted and underlined).

(13) Today, Comic Sans is probably best-known for the really bitter ranting it inspires: critics object to the growing use of this informal typeface for more serious messages. **(14)** The Comic Sans font has been used on ambulances, electrical warning signs, and even in a scientific presentation by a lead researcher at the European Organization for Nuclear Research (CERN). **(15)** This kind of usage spawned movements such as Ban Comic Sans, a mostly tongue-in-cheek Internet campaign to do away with the type, and it also prompted the creation of Web sites such as Comic Sans Criminal, a light-hearted educational tool designed to teach people to select the correct typeface for the situation at hand. **(16)** The lesson, according to opponents of Comic Sans, is not that an informal typeface is never appropriate, just that it should only be used in appropriately informal situations.

Which of the following is the most effective choice?

(A) A table showing the number of visitors to the Web site of the Ban Comic Sans campaign
(B) A chart comparing the physical details of the Comic Sans and the Times New Roman fonts
(C) A slide from the CERN scientific presentation that uses the Comic Sans font
(D) A photo of the founders of the Ban Comic Sans movement, Dave and Holly Combs

Keys
1. B
2. C
3. B
4. A
5. B
6. C

Appendix 2. Student Opinion Scale (SOS) Survey (Sundre & Thelk 2007)

Item	Item Text	Subscale
1	Doing well on these tests was important to me.	Importance
2	I engaged in good effort throughout these tests.	Effort
3*	I am not curious about how I did on these tests.	Importance
4*	I am not concerned about the scores I receive on these tests.	Importance
5	These were important tests to me.	Importance
6	I gave my best effort on these tests.	Effort
7*	While taking these tests, I could have worked harder on them.	Effort
8	I would like to know how well I did on these tests.	Importance
9*	I did not give these tests my full attention while completing them.	Effort
10	While taking these tests, I was able to persist to completion of the tasks.	Effort

Notes. Asterisk (*) denotes items that are reversed prior to scoring.

Appendix 3. Additional H-WC descriptions and results

H-WC Assessment Level Descriptions

As is indicated by the ETS HEIghten Written Communication Assessment Performance Level Descriptions (2017), the descriptions for the three respective proficiency-related categories (proficiency) are listed below. The difference between the group is determined not only by the skills included in the descriptions, but also by the statement preceding the descriptions (i.e., "has demonstrated the ability to" for Advanced and Proficient categories vs. "may sometimes" for the Developing category).

**Note: To qualify as Proficient or Advanced, test takers must also earn a minimum essay score of 6.*

Advanced*

A typical student at the advanced level has demonstrated the ability to:

1. compose or revise texts to successfully meet demands of purpose, audience, context and task.
2. successfully adhere to genre conventions, such as argument and exposition/explanation in writing or revising texts.
3. easily navigate source texts in different genres and rhetorical modes.
4. successfully use or recognize the use of appropriate information from source texts to convincingly support ideas.
5. accurately represent a source's meaning, effectively using summary, paraphrase and quotation, and to use or recognize appropriate citations.
6. fully develop ideas or recognize the full development of ideas using compelling reasons, examples and evidence.

7. effectively present ideas or recognize the effective presentation of ideas in an organized, logical and coherent sequence in order to make complex ideas clear and understandable.
8. effectively compose or recognize text that conveys meaning clearly by using engaging word choice, sentence variety, tone, voice and style; what is appropriate will be determined by the context, purpose and genre of writing.
9. successfully compose or revise text to be free of all but minor errors in grammar, usage, mechanics, syntax and spelling.
10. demonstrate mastery of the fundamental skills needed to produce fluent text.
11. demonstrate strategic knowledge of the writing process, including drafting, reviewing, revising and editing.

Proficient*

A typical student at the proficient level has demonstrated the ability to:

1. compose or revise texts, for familiar tasks and genres, to meet demands of purpose, audience, context and task.
2. adhere to genre conventions, such as argument and exposition/explanation in writing or revising texts.
3. navigate source texts in different genres and rhetorical modes.
4. use or recognize the use of appropriate information from source texts.
5. represent a source's meaning with general accuracy, using summary, paraphrase and quotation appropriately, and to use or recognize citations.
6. develop ideas or recognize the development of ideas using sufficient reasons, examples and evidence.
7. present ideas or recognize the presentation of ideas in an organized, logical and coherent sequence in order to make complex ideas clear and understandable.
8. compose or recognize text that conveys meaning clearly by using appropriate word choice, sentence variety, tone, voice and style; what is appropriate will be determined by the context, purpose and genre of writing.
9. compose or revise text to be generally free of errors in grammar, usage, mechanics, syntax and spelling.
10. demonstrate command of the fundamental skills needed to produce fluent text.
11. demonstrate adequate knowledge of the writing process, including drafting, reviewing, revising and editing.

Developing

A typical student at the developing level may sometimes:

1. have difficulty meeting demands of purpose, audience, context and task, even for familiar tasks and genres.
2. have difficulty adhering to genre conventions, such as argument and exposition/explanation in writing or revising texts.
3. not be able to navigate source texts in different genres and rhetorical modes.
4. not consistently use or recognize the use of appropriate information from source texts.
5. be unable to represent a source's meaning with accuracy, using summary, paraphrase and quotation appropriately, and may have trouble with citations.
6. have difficulty developing ideas or recognizing the development of ideas using valid reasons and appropriate examples and evidence.
7. struggle to present ideas or recognize the presentation of ideas in an organized, logical and coherent sequence in order to make complex ideas clear and understandable.

8. have difficulty composing or recognizing text that conveys meaning clearly by using appropriate word choice, sentence variety, tone, voice and style; may struggle to know what is appropriate as determined by the context, purpose and genre of writing.
9. have difficulty composing or revising text to be generally free of errors in grammar, usage, mechanics, syntax and spelling.
10. demonstrate limited command of the fundamental skills needed to produce fluent text.
11. lack sufficient knowledge of the writing process, including drafting, reviewing, revising and editing.

Additional H-WC scaled subscore results by demographic groups

Appendix 3 - Table 1. Student Admit Type, to SU, Average Score and Scaled Subscores on the H-WC

Score/ Scaled Subscore	**SU Admit Type** (code); sample size			
	First-time student (F); n = 753		**Transfer** (T + U); n = 295	
	Score	**SD**	**Score**	**SD**
Knowledge of Social and Rhetorical Situations scaled subscore	4.9*	1.9	4.6*	2.0
Knowledge of Conceptual Strategies scaled subscore	4.9**	1.8	4.6**	1.8
Knowledge of Language Use and Conventions scaled subscore	4.9***	1.7	4.4***	1.7
Direct writing measure score	7.0***	1.7	6.5***	1.9

Note. By respective score or scaled subscore, significant differences of categories' average values are indicated by an asterisk (*), $p < .05$, or two (**), $p < .01$, or three (***), $p < .001$.

Appendix 3 - Table 2. Student Undergraduate Class Level Average Score and Scaled Subscores on the H-WC

Score/ Scaled Subscore	**Class Level** (code); sample size									
	Freshmen (1); n = 191		**Sophomores** (2); n = 263		**Juniors** (3); n = 298		**Seniors (and +)** (4); n = 285		**Unclassified, non-degree undergrads** (7); n = 15	
	Score	**SD**	**Score**	**SD**	**Score**	**SD**	**Score**	**SD**	**Score**	**SD**
Knowledge of Social and Rhetorical Situations scaled subscore	4.7	2.0	4.8	1.9	4.9	1.9	4.9	1.9	$4.0^{n/a}$	1.8
Knowledge of Conceptual Strategies scaled subscore	4.5^{a}*	1.8	4.9^{ab}	1.9	4.9^{b}*	1.7	4.9^{b}*	1.7	$4.1^{n/a}$	1.9
Knowledge of Language Use and Conventions scaled subscore	4.5	1.8	4.7	1.6	4.9	1.6	4.9	1.8	$4.5^{n/a}$	1.6
Direct writing measure score	6.7	1.8	6.9	1.8	7.0	1.8	6.8	1.8	$6.1^{n/a}$	1.4

Notes. Subset groups' average scores are indicated by group letters $^{a, b}$ or $^{n/a}$. The latter is because there were fewer than 30 students in the Unclassified, non-degree undergraduates group; therefore, these students were

removed prior to the ANOVA analysis. Results from sample sizes fewer than 30 should be interpreted with caution. By respective score or scaled subscore, where a class level differs significantly compared to another class level is indicated by an asterisk (*), $p < .05$.

Appendix 3 - Table 3. Student School Enrollment Average Score and Scaled Subscores on the H-WC

Score/ Scaled Subscore	**School**; sample size									
	Fulton; n = 262		**Henson**; n = 257		**Perdue**; n = 318		**Seidel**; n = 190		**Undeclared**; n = 25	
	Score	**SD**	**Score**	**SD**	**Score**	**SD**	**Score**	**SD**	**Score**	**SD**
Knowledge of Social and Rhetorical Situations scaled subscore	5.0^{bc*}	1.8	5.1^{c*}	1.9	4.6^{ab*}	1.9	4.5^{a*}	1.9	$4.5^{n/a}$	2.1
Knowledge of Conceptual Strategies scaled subscore	5.0^{b*}	1.8	5.0^{b*}	1.7	4.7^{ab}	1.9	4.5^{a*}	1.7	$4.3^{n/a}$	1.8
Knowledge of Language Use and Conventions scaled subscore	4.8	1.7	5.0	1.7	4.7	1.7	4.6	1.7	$4.3^{n/a}$	2.0
Direct writing measure score	6.8^{ab}	1.8	7.2^{b*}	1.8	6.7^{a*}	1.8	6.7^{a*}	1.8	$6.8^{n/a}$	1.4

Notes. Subset groups' average scores are indicated by group letters $^{a, b, c}$ or $^{n/a}$. The latter is because there were fewer than 30 students in the Undeclared group; therefore, these students were removed prior to the ANOVA analysis. Results from sample sizes fewer than 30 should be interpreted with caution. By respective score or scaled subscore, where a group differs significantly compared to another group is indicated by an asterisk (*), $p < .05$.