

America's Brightest ORANGE

# Oklahoma State University Committee for the Assessment of General Education and The Office of University Assessment and Testing Annual Report, 2017

Committee for the Assessment of General Education (CAGE): Jon Comer, Ph.D., (Co-Chair), Geography Bridget Miller, Ph.D., (Co-Chair), Applied Health & Educational Psychology Melanie Bayles, Ph.D., Plant and Soil Sciences Carol Johnson, Ph.D., Accounting Ginger Welch, Ph.D., Human Development and Family Science (Vacant) College of Engineering, Architecture and Technology

Office of University Assessment & Testing (UAT): Ryan Chung, Ph.D., Director Kelva Hunger, M.S., Assistant Director, Assessment & Analysis Wei-Kang Kao, M.S., Graduate Research Assistant <u>assessment@okstate.edu</u> (405)744-6685

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### **Executive Summary**

The purpose of general education assessment is to provide information on students' achievement of the student learning objectives of the General Education program outcomes using an institutional portfolio process. In fall 2016 and spring 2017, student artifacts were gathered and in summer 2017, three teams of faculty raters scored 225 artifacts using the AAC&U Critical Thinking VALUE rubric, and three teams of faculty raters scored 223 artifacts using the AAC&U Written Communication VALUE rubric.

### Key findings:

- The skills of critical thinking and written communication were assessed for freshmen and seniors during the 2016- 2017 academic year. The majority of students (84%) **met or exceeded expectations** on both skills in terms of general education assessment.
- In critical thinking, students did well in the category of Explanation of Issues.
- In written communication, students did well in the categories of <u>Context of and Purpose for</u> <u>Writing</u> and <u>Genre and Disciplinary Conventions</u>.
- Key findings for 2017 of the assessment of Critical Thinking and Written Communication, compared to the 2014 assessment, are similar:
  - There was little difference in the Critical Thinking scores of freshmen and seniors. The majority of the students sampled scored a 2<sup>1</sup> or 3, regardless of class rank.
  - There was a distinct difference in the Written Communication scores of freshmen and seniors. More seniors scored a 3<sup>1</sup> or 4 than did freshmen, and more freshmen scored a 2 than did seniors.
- Inter-rater reliabilities are excellent for Critical Thinking (Cronbach's alpha = .956; N = 225) and Written Communication (Cronbach's alpha = .909; N = 223), suggesting that the VALUE rubrics are reliable instruments to evaluate the student artifacts.

### **Recommendations:**

- In assessing Critical Thinking and Written Communication, UAT will proceed with the same strategy moving forward, but we will aim to include a wider variety of programs and a larger sample size.
- UAT will collaborate and share more detailed findings among colleges for further discussion, to gather more feedback and comments, and to acquire more thorough and comprehensive artifacts for the next cycle.
- CAGE agreed that the planned process for collecting data on assessment of critical thinking and written communication were on the right track and worked well among faculty and instructors who provided the artifacts for review.

<sup>&</sup>lt;sup>1</sup> The VALUE rubrics are scored on a scale of 1 to 4, where 1 (low) is defined as benchmark, 2 and 3 are defined as milestones, and 4 (high) is defined as capstone.



Assessment of general education is a critical aspect of our work to continuously improve our institution. We are fortunate that Oklahoma State University provides substantial resources to assess students' learning and to consider ways in which learning might be improved. Our challenge moving forward is clear: to make the most of this investment by using the results to make meaningful changes to our programs.

Thank you for your time and support of general education assessment. Please let us know if you have any additional questions or comments.

Sincerely,

Chih Ming (Ryan) Chung, Ph.D. Director, University Assessment and Testing University Assessment and Testing Oklahoma State University Kelva Hunger, M.S. Assistant Director, Assessment & Analysis, University Assessment and Testing Oklahoma State University

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#### Overview

#### Introduction

General education at Oklahoma State University (OSU) is intended to:

- A. Construct a broad foundation for the student's specialized course of study,
- B. Develop the student's ability to read, observe, and listen with comprehension,
- C. Enhance the student's skills in communicating effectively,
- D. Expand the student's capacity for critical analysis and problem solving,
- E. Assist the student in understanding and respecting diversity in people, beliefs, and societies, and
- F. Develop the student's ability to appreciate and function in the human and natural environment.

Full details of the General Education program can be found at <u>https://academicaffairs.okstate.edu/sites/default/files/gened-criteriagoals.pdf</u>

Four components are used to evaluate the general education program at OSU:

- 1. **Diversity** (student artifacts/interviews/surveys)
- 2. Written Communication and Critical Thinking (student artifacts)
- 3. Beginning College Survey of Students Engagement (BCSSE) and National Survey of Student Engagement (NSSE) (survey instruments)
- 4. Information Literacy (student artifacts)

OSU has been involved in assessment of general education for more than 15 years. Three approaches are used to evaluate the general education program: institutional portfolios, review of general education course database, and college-, department-, and program-level approaches. This report focuses on OSU's use of institutional portfolios to assess the general education program. Institutional portfolios provide direct evidence of student achievement of the overall goals of general education. Institutional portfolios have been/will be developed in three areas that represent the overall goals of the general education program (letters in parentheses map portfolios and survey instruments to the goals above):

- 1. Written communication (A, B, C, and D)
- 2. Critical thinking (A, B, and D)
- 3. Diversity (A, E, and F)
- 4. Student engagement (A, C, D, E, and F)
- 5. Information Literacy (A, B, C, D, and F)

Recognizing that these goals cannot be achieved only through completion of courses with general education designations, student artifacts are collected from courses across campus that reveal students' achievement in each institutional portfolio area. These student artifacts are then assessed by a panel of faculty members using AAC&U VALUE rubrics.

Assessment data from the general education assessment process are used in three main ways:

- 1. to implement improvement initiatives (e.g., faculty, staff, and instructor professional development; modification of assessment processes)
- 2. to monitor recent curricular changes, and
- 3. to consider and discuss additional modifications to the general education program (e.g., modifying general education curricula, syllabi, instructional methodologies, general education course designations, or designation goals/criteria).



### The Review Process and Reporting

The general education assessment process is organized by the faculty on the Committee for the Assessment of General Education (CAGE) and facilitated by staff in the Office of University Assessment and Testing (UAT). Students are informed about their possible participation in this assessment process in the Assessment section of the University Catalog<sup>2</sup>.

A statistically representative sample of artifacts from freshmen in their first semester of enrollment and a statistically representative sample of artifacts from seniors in their last semester of enrollment should be evaluated in an effort to demonstrate value-added and gains made during students' college careers. At OSU, as in previous years, these artifacts were reviewed by teams of faculty volunteers. In 2017, 12 faculty reviewers participated in the assessment process—six reviewers were assigned to Critical Thinking assessment (three teams of two raters each), and six reviewers were assigned to Written Communication assessment (three teams of two raters each).

Each CAGE committee member representative communicated with their college faculty members who taught general education courses and encouraged students to perform to their best ability to produce the artifact for the class. Students are informed about their participation in this assessment process as a requirement for the course work.

CAGE contacted departments who have gathered artifacts for the general education assessment. At the end of the 2016-2017 academic year, 225 students participated in the critical thinking assessment and 223 students participated in the written communication assessment. Participants were selected from different classes: English, Philosophy, Sociology, History, Psychology, and Animal Science.

### AAC&U VALUE Rubrics

Results from assessments using the AAC&U's VALUE rubrics<sup>3</sup> can be used to report student learning outcomes. There are 16 VALUE Rubrics; two of these rubrics—Critical Thinking and Written Communication—were used in the 2017 general education assessment at OSU. The VALUE rubrics are scored on a scale of 1 to 4, where 1 (low) is defined as benchmark, 2 and 3 are defined as milestones, and 4 (high) is defined as capstone.

- **Critical Thinking** is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.
- Written communication is the development and expression of ideas in writing. Written communication involves learning to work in many genres and styles. It can involve working with many different writing technologies, and mixing texts, data, and images. Written communication abilities develop through iterative experiences across the curriculum.

<sup>&</sup>lt;sup>3</sup> See <u>https://www.aacu.org/value/rubrics</u> for more information.



<sup>&</sup>lt;sup>2</sup> <u>http://registrar.okstate.edu/University-Catalog</u>

#### Results

### Key Findings: Critical Thinking

The assessment was divided into three sub-groups: **all students**, **freshmen only**, and **seniors only**.

In critical thinking, five categories of the AAC&U Critical Thinking VALUE rubric and the overall student ratings were assessed. The five categories were:

- 1. Explanation of Issues
- 2. Evidence
- 3. Influence of Context and Assumptions
- 4. Students' Position (Perspective, Thesis/Hypothesis)
- 5. Conclusion and Related Outcomes (Implications and Consequences)

For more information about the above five categories or to view the AAC&U Critical Thinking VALUE rubric, please refer to:

https://uat.okstate.edu/sites/default/files/assessPDFs/GenEdRubrics/rubric\_criticalthinking.pdf

### All Students

In the assessment which included all students, reliability was tested by calculating Cronbach's Alpha. The resulting statistic suggested that the scale's reliability is "Excellent" (Cronbach's Alpha = .956; N = 225).

- Overall, 79.5% of the students' artifacts were rated as Milestones (n = 179), and 12.9% of the students' artifacts were rated as Capstone (n = 29). In other words, the majority of students **met or exceeded expectations** in critical thinking.
- Below are the results for each rubric category:
  - 1. Explanation of Issues:

78.7% of the students' artifacts were rated as Milestones (n = 177), and 16% of the artifacts were rated as Capstone (n = 36).

- 2. Evidence: 81.4% of the students' artifacts were rated as Milestones (n = 183), and 12% of the artifacts were rated as Capstone (n = 27).
- 3. Influence of Context and Assumptions: 78.7% of the students' artifacts were rated as Milestones (n = 177), and 10.2% of the artifacts were rated as Capstone (n = 23).
- Student's Position (Perspective, Thesis/Hypothesis): 78.7% of the students' artifacts were rated as Milestones (n = 177), and 12.4% of the artifacts were rated as Capstone (n = 28).
- 5. <u>Conclusion and Related Outcomes (Implications and Consequences)</u>: 77.8% of the students' artifacts were rated as Milestones (n = 175), and 11.6% of the artifacts were rated as Capstone (n = 26).



### Freshmen Only

In the assessment for freshman only, reliability was tested by calculating Cronbach's Alpha. The resulting statistic suggested that the scale's reliability is "Excellent" (Cronbach's Alpha = .960; N = 113).

- Overall, 75.2% of the students' artifacts were rated as Milestones (n = 85), and 13.3% of the artifacts were rated as Capstone (n = 15).
- Below are the results for each rubric category:
  - 1. Explanation of Issues: 77% of the students' artifacts were rated as Milestones (n = 87), and 16% of the artifacts were rated as Capstone (n = 18).
  - 2. Evidence: 81.4% of the students' artifacts were rated as Milestones (n = 92), and 12.4% of the artifacts were rated as Capstone (n = 12).
  - 3. Influence of Context and Assumptions: 72.6% of the students' artifacts were rated as Milestones (n = 82), and 10.6% of the artifacts were rated as Capstone (n = 12).
  - <u>Student's Position (Perspective, Thesis/Hypothesis):</u> 75.2% of the students' artifacts were rated as Milestones (*n* = 85), and 12.4% of the artifacts were rated as Capstone (*n* = 14).
  - <u>Conclusion and Related Outcomes (Implications and Consequences)</u>: 75.2% of the students' artifacts were rated as Milestones (*n* = 85), and 11.5% of the artifacts were rated as Capstone (*n* = 13).

### Seniors Only

In the assessment for seniors only, reliability was tested by calculating Cronbach's Alpha. The resulting statistic suggested that the scale's reliability is "Excellent" (Cronbach's Alpha = .951; N = 112).

- Overall, 83.9% of the students' artifacts were rated as Milestones (*n* = 94), and 12.5% of the artifacts were rated as Capstone (*n* = 14).
- Below are the results for each rubric category:
  - 1. Explanation of Issues: 80.4% of the students' artifacts were rated as Milestones (n = 90), and 16.1% of the artifacts were rated as Capstone (n = 18).
  - 2. Evidence: 80.5% of the students' artifacts were rated as Milestones (n = 91), and 11.6% of the artifacts were rated as Capstone (n = 13).
  - Influence of Context and Assumptions: 84.9% of the students' artifacts were rated as Milestones (n = 95), and 9.8% of the artifacts were rated as Capstone (n = 11).



- 4. <u>Student's Position (Perspective, Thesis/Hypothesis):</u>
  82.2% of the students' artifacts were rated as Milestones (*n* = 92), and 12.5% of the artifacts were rated as Capstone (*n* = 14)
- 5. <u>Conclusion and Related Outcomes (Implications and Consequences)</u>: 80.4% of the students' artifacts were rated as Milestones (n = 90), and 11.6% of the artifacts were rated as Capstone (n = 13).

### Further Analysis and Explanation - Critical Thinking

According to the Frequencies (Percentages) Table (Table 1), there is little difference in the Critical Thinking scores of freshmen and seniors. The majority of the students sampled scored a 2 or 3, regardless of class rank.

A Mann-Whitney U test was performed to test differences among Critical Thinking scores between freshmen and seniors (Table 2). The Mann-Whitney U results suggest there is no evidence to support a statistically significant difference between the distributions of the two classifications (freshmen versus seniors; p > .05).

Table 1

	Benchmark (1)	Milestones (2)	Milestones (3)	Capstone (4)	Total N
Freshmen	76(11.2%)	285(42.0%)	231(34.1%)	86(12.7%)	678
Seniors	37(5.5%)	248(36.9%)	304(45.2%)	83(12.4%)	672
Total N	113	533	535	169	1350

#### Table 2

#### Mann-Whitney U Test - Critical Thinking

	Context and Purpose for Writing	Content Development	Genre and Disciplinary Conventions	Sources and Evidence	Control of Syntax and Mechanics	Overall
Mann- Whitney U	5548.0	5715.0	5546.0	5767.5	5636.5	5469.5
Significance (2-tailed)	.085	.175	.087	.220	.128	.060

\*Significant at alpha = .05

\*\*Significant at alpha = .01



### Key Findings: Written Communication

In written communication, five categories of the AAC&U Written Communication VALUE rubric and the overall student ratings were assessed. The five categories were:

- 1. Context of and Purpose for Writing
- 2. Content Development
- 3. Genre and Disciplinary Conventions
- 4. Sources and Evidence
- 5. Control of Syntax and Mechanics.

For more information about the above five categories or to view the AAC&U Written Communication VALUE rubric, please refer to:

https://uat.okstate.edu/sites/default/files/assessPDFs/GenEdRubrics/rubric\_writtencommunication.pdf

### All Students

In the assessment which included all students, reliability was tested by calculating Cronbach's Alpha. The resulting statistic suggested that the scale's reliability is "Excellent" (Cronbach's Alpha = .909; N = 223).

- Overall, 89.3% of the students' artifacts were rated as Milestones (*n* = 201), and 5.8% of the artifacts were rated as Capstone (*n* = 13). In other words, the majority of students met or exceeded expectations in written communication.
- Below are the results for each rubric category:
  - <u>Context of and Purpose for Writing:</u> 82.7% of the students' artifacts were rated as Milestones (*n* = 189), and 12.9% of the artifacts were rated as Capstone (*n* = 29).
  - 2. <u>Content Development:</u> 81.3% of the students' artifacts were rated as Milestones (n = 183), and 10.7% of the artifacts were rated as Capstone (n = 24).
  - 3. <u>Genre and Disciplinary Conventions:</u> 86.3% of the students' artifacts were rated as Milestones (n = 194), and 9.8% of the artifacts were rated as Capstone (n = 22).
  - 4. <u>Sources and Evidence:</u> 77.7% of the students' artifacts were rated as Milestones (n = 175), and 13.8% of the artifacts were rated as Capstone (n = 31).
  - <u>Control of Syntax and Mechanics:</u> 83.5% of the students' artifacts were rated as Milestones (*n* = 188), and 8% of the artifacts were rated as Capstone (*n* = 18).



### Freshmen Only

In the assessment for freshman only, reliability was tested by calculating Cronbach's Alpha. The resulting statistic suggested that the scale's reliability is "Good" (Cronbach's Alpha = .895; n = 112).

- Overall, 90% of the students' artifacts were rated as Milestones (n = 103), and 4.5% of the artifacts were rated as Capstone (n = 5).
- Below are the results for each rubric category:
  - 1. <u>Context of and Purpose for Writing:</u> 85.7% of the students' artifacts were rated as Milestones (n = 94), and 10.7% of the artifacts were rated as Capstone (n = 12).
  - 2. <u>Content Development:</u> 83.9% of the students' artifacts were rated as Milestones (n = 94), and 8% of the artifacts were rated as Capstone (n = 9).
  - 3. <u>Genre and Disciplinary Conventions:</u> 89.4% of the students' artifacts were rated as Milestones (n = 100), and 6.3% of the artifacts were rated as Capstone (n = 7).
  - Sources and Evidence: 84.8% of the students' artifacts were rated as Milestones (n = 95), and 7.1% of the artifacts were rated as Capstone (n = 8).
  - 5. <u>Control of Syntax and Mechanics:</u> 83.9% of the students' artifacts were rated as Milestones (n = 94), and 6.3% of the artifacts were rated as Capstone (n = 7).

### Seniors Only

In the assessment for seniors only, reliability was tested by calculating Cronbach's Alpha. The resulting statistic suggested that the scale's reliability is "Excellent" (Cronbach's Alpha = .916; n = 111).

- Overall, 88.3% of the students were rated as Milestones (*n* = 98), and 7.2% of the students were rated as Capstone (*n* = 8).
- Below are the results for each rubric category:
  - 1. <u>Context of and Purpose for Writing:</u> 81.1% of the students' artifacts were rated as Milestones (n = 90), and 15.3% of the artifacts were rated as Capstone (n = 17).
  - 2. <u>Content Development:</u> 80.2% of the students' artifacts were rated as Milestones (n = 89), and 13.5% of the artifacts were rated as Capstone (n = 15).
  - 3. <u>Genre and Disciplinary Conventions:</u> 84.7% of the students' artifacts were rated as Milestones (n = 94), and 13.5% of the artifacts were rated as Capstone (n = 15).



- 4. Sources and Evidence: 72.1% of the students' artifacts were rated as Milestones (n = 80), and 20.7% of the artifacts were rated as Capstone (n = 23).
- 5. Control of Syntax and Mechanics: 84.7% of the students' artifacts were rated as Milestones (n = 94), and 9.9% of the artifacts were rated as Capstone (n = 11).

### Further Analysis and Explanation - Written Communication

According to the Frequencies (Percentages) Table (Table 3), there was a distinct difference in the Written Communication scores of freshmen and seniors. More seniors scored a 3 or 4 than did freshmen, and more freshmen scored a 2 than did seniors.

A Mann-Whitney U test was performed to test differences among Critical Thinking scores between freshmen and seniors (Table 4). The Mann-Whitney U results suggest that Freshmen's Written Communication scores are significantly lower than Seniors' scores in the following four categories and overall: Content Development (p < .01), Genre and Disciplinary Conventions (p<.01), Sources and Evidences (p <.01), Control of Syntax and Mechanics (p <.01) and Overall (p < .01).

#### Table 3

	Benchmark (1)	Milestones (2)	Milestones (3)	Capstone (4)	Total N
Freshmen	43(6.4%)	258(38.4%)	318(47.3%)	53(7.9%)	672
Seniors	31(4.7%)	164(24.6%)	387(58.1%)	84(12.6%)	666
Total N	74	422	705	137	1338

#### Table Marile

#### Table 4

#### Mann-Whitney U Test - Written Communication

	Context and Purpose for Writing	Content Development	Genre and Disciplinary Conventions	Sources and Evidence	Control of Syntax and Mechanics	Overall
Mann- Whitney U	5432.0	4756.5	4943.5	4852.0	4531.5	5094.0
Significance (2-tailed)	.070	.001***	.002***	.002***	< .001***	.008***

\*\*Significant at alpha = .05

\*\*\*Significant at alpha = .01



### **Critical Thinking and Written Communication Artifact Collection**

Critical Thinking and Written Communication artifacts (embedded course assignments) were collected from faculty by direct request from three sources: 1) courses that carry a general education designation (e.g., S, H, I, or D); 2) courses that do not carry a general education designation but require students to complete assignments that meet the criteria for the general education outcomes being assessed; and 3) courses in which the instructor of record attended the *Provost's Faculty Development Initiative: Focus on General Education* assessment workshop series. The courses from which artifacts were sampled are shown in Table 3. Artifacts selected for the Institutional Portfolio were coded, and all identifying information was removed.

#### Table 5

nunication Artifacts
mber of Artifacts
Scored
30
29
25
23
20
19
14
12
12
9
9
9
7
7
225

Collection of Critical Thinking and Written Communication Artifacts



#### **Use of Results and Future Plans**

In conclusion, students **met or exceeded expectations** in critical thinking. In particular, students did well in the category of <u>Explanation of Issues</u>. In written communication, students **met or exceeded expectations**, particularly in the categories of <u>Context of and Purpose for</u> <u>Writing</u> and <u>Genre and Disciplinary Conventions</u>. In general, seniors scored better than freshmen in Written Communication, and about the same in Critical Thinking.

The Committee for the Assessment of General Education (CAGE) agrees that longitudinal analysis would be meaningful; however, in the current assessment procedure of gathering student artifacts, we are unable to track students into subsequent semesters. Also, OSU currently does not have an assessment management system capable of doing this type of assessment. Therefore, at this time, it is not possible to track students into subsequent semesters.

The committee affirmed that if the added follow-up analysis shows to be beneficial and cost efficient, CAGE will consider implementation of a method/procedure and software for longitudinal data collection. CAGE will begin to look into this possibility in the near future which will include more detailed discussions among colleges and departments.

Assessment data collected from the general education assessment process will be shared broadly (both internally and publicly) to encourage discussion and consideration of additional curricular, programmatic, and/or assessment changes that may result in improvement to the general education assessment program and/or to student achievement of the general education goals.

Specifically, the General Education Advisory Council (GEAC), the Committee for the Assessment of General Education (CAGE), and the Assessment and Academic Improvement Council (AAIC) meet together once per year to discuss general education assessment results, consider needed changes, and provide recommendations for improvement. During this meeting, results of this assessment and future plans will be discussed.

