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ASSESSMENT OF COMMUNICATION USING ADAPTED AAC&U VALUE RUBRICS AT THE UNIVERSITY OF TEXAS AT ARLINGTON

FALL 2014 REPORT

Assessment of the Communication Core Objective Assessment at UTA

Communication skills are important areas of focus across academic disciplines. The ability to take information and pass it to another individual is a valuable ability not only in academic pursuits but in all of life. Whether the information is an idea or a message; whether the transfer of information is verbal, written, visually displayed, or in the form of a non-verbal gesture; it is all communication. As such, educational objectives often emphasize elements of communication alongside the presentation of curriculum content. Indeed, assessment of content mastery in many disciplines takes the form of the communication of course-related information in a written paper or a verbal presentation.

Communication was selected as one of the six core objectives when the Texas Higher Education Coordinating Board (THECB) established the current Core Curriculum in 2011 (THECB, 2015). In fact, the assessment of the Communication Objective is required in all of the eight Foundational Component Areas (FCA) listed by THECB. Throughout Texas, the six objectives, including Communication, are implemented within coursework at the undergraduate level. The University of Texas at Arlington (UT Arlington) assesses each objective on a multi-year cycle to determine the extent of student achievement.

At UT Arlington, the Communication Objective is assessed using samples of undergraduate student work from approved Signature Assignments embedded in the existing coursework. The approval process for Core Curriculum courses purposefully looks for the demonstrable presence of communication skills. Because the assessment cycle is organized by FCA, it is important to note that two of the eight areas are included in this report: Communication and Mathematics. The quality of student work in the Signature Assignment was

measured using well-established rubrics developed by the Association of American Colleges and Universities ([AAC&U](); Rhodes, 2010) and adapted for UT Arlington. The purpose of this report is to present information related to the Communication Objective among UT Arlington undergraduates using student work samples collected during the 2014 fall semester.

Methodology

Participants

Written student work samples were obtained from five hundred sixty-two undergraduates enrolled in Core Curriculum courses at UT Arlington. About half of the participants were female (54%; $n = 301$), the remainder were male (46%; $n = 261$). In terms of race and ethnicity, more than a third of the student participants identified as White (36%; n = 200), almost a third identified as Hispanic (26%; $n = 145$) and the third grouping was evenly split between African American (14%; $n = 80$), Asian (12%; $n = 65$), and other (13%; $n = 72$). Students represented nine of ten colleges and schools at UT Arlington (see Table 1). In addition, 14% of the students in the sample ($n = 80$) had not identified a major and were therefore not members within a particular college or school.

Table 1

Student composition by College/School

College/School	Number of Students (Percent)
Liberal Arts	102 (18%)
Engineering	88 (16%)
Business	80 (14%)
Science	70 (13%)
Nursing and Health Innovation	62 (11%)
Education	48 (9%)
Social Work	16 (3%)
Architecture	10 (2%)
University College	6 (1%)
Urban and Public Affairs	0 (0%)

Note: This sample represents the students with identified majors ($n = 482$).

Procedure

Ungraded samples of student writing were collected from undergraduate courses. The students received assignment instructions that were similar to other course work, however, in the syllabus this composition was designated as the Signature Assignment.

Assessment Instrument

For the student work samples, UT Arlington used an adapted form of the Association of American Colleges and Universities' (AAC&U) Valid Assessment of Learning in Undergraduate Education (VALUE) Rubric for Written Communication (AAC&U, 2015). The adapted rubric categorizes communication skills into five dimensions: *Context and Purpose*, *Organization and Structure*, *Content Development*, and *Control of Syntax and Mechanics* (see Figure 2). The rubric uses a four-point Likert scale for determining scores; the higher values indicate more evidence of communication development. Samples were rated and each dimension was assigned a score.

It is important to note that in one of the courses, students were not asked to demonstrate work related to one of the five dimensions on the rubric, *Sources and Evidence*, in the assignment. Thus, the raters were unable to score those compositions for *Sources and Evidence,* however, this group of student samples were scored for the other four dimensions. In addition, for the Mathematics FCA, UT Arlington further adapted the communication rubric to align with the assignment and added a dimension to measure visual elements such as charts and graphs. This dimension labeled, *Representation,* was substituted for *Sources and Evidence* for this purpose in Mathematics compositions. See Figures 1 and 2 for expanded information on the rubrics that were used to rate the student work.

Communication Rubric

Criteria		Capstone 4	Milestone 3	Milestone 2	Benchmark 1
	Levels of Achievement				
Context and Purpose		Demonstrates a thorough understanding of context, audience, and purpose and a clear focus on the assigned task.	Demonstrates adequate consideration of context, audience, and purpose and is responsive to the assigned task.	Demonstrates awareness of context, audience, and purpose and to the assigned task.	Demonstrates minimal attention to context, audience, purpose, and to assigned task.
Organization and Structure		Demonstrates detailed attention to successful organization, content presentation, formatting, and stylistic choices.	Demonstrates consistent use of organization, content presentation, formatting, and stylistic choices.	Follows expectations for basic organization, content presentation, formatting, and stylistic choices.	Attempts to use a consistent system for basic organization and presentation.
Content Development		Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and shaping the whole work.	Uses appropriate, relevant, and compelling content to explore ideas within the context of the discipline and shape the whole work.	Uses appropriate and relevant content to develop and explore ideas through most of the work.	Uses appropriate and relevant content to develop simple ideas in some part of the work.
Sources and Evidence		Demonstrates skillful use of high quality, credible, relevant sources to develop ideas. Writer contextualizes sources and credits sources throughout the essay an in a works cited/bibliography page or other appropriate source documentation format.	Demonstrates consistent use of credible, relevant sources to support ideas. Writer clearly identifies sources in essay and in a works cited/bibliography page or other appropriate source documentation format.	Demonstrates an attempt to use credible and/or relevant sources to support ideas. Writer generally identifies sources in essay and in a works cited/bibliography page or other appropriate source documentation format.	Demonstrates a basic attempt to use sources to support ideas. Writer does not consistently credit borrowed material to its source in essay and/or in a works cited/bibliography page or other appropriate source documentation format.
Control of Syntax and Mechanics		Uses effective, virtually error-free, language that skillfully communicates meaning to readers with clarity and fluency.	Uses straightforward language with minimal errors to convey clear meaning to readers.	Uses language that conveys general meaning to readers although the language may contain some errors.	Uses language that sometimes impedes meaning because of errors in usage.

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AAC&U Association of American Colleges and Universities

Figure 1. Communication Rubric for English

Communication Rubric

Criteria	Capstone 4	Milestone 3	Milestone 2	Benchmark 1
Context and Purpose	Demonstrates a thorough understanding of context, audience, and purpose and a clear focus on the assigned task.	Demonstrates adequate consideration of context, audience, and purpose and is responsive to the assigned task.	Demonstrates awareness of context, audience, and purpose and to the assigned task.	Demonstrates minimal attention to context, audience, purpose, and to assigned task.
Organization and Structure	Demonstrates detailed attention to successful organization, content presentation, formatting, and stylistic choices.	Demonstrates consistent use of organization, content presentation, formatting, and stylistic choices.	Follows expectations for basic organization, content presentation, formatting, and stylistic choices.	Attempts to use a consistent system for basic organization and presentation.
Content Development	Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and shaping the whole work.	Uses appropriate, relevant, and compelling content to explore ideas within the context of the discipline and shape the whole work.	Uses appropriate and relevant content to develop and explore ideas through most of the work.	Uses appropriate and relevant content to develop simple ideas in some part of the work.
Representation (Ability to denote relevant information in various mathematical forms (e.g., equations, graphs, diagrams, tables, words) to illustrate conceptual understanding or to develop mathematical ideas.)	Skillfully denotes relevant information in various mathematical forms in an insightful mathematical portrayal and in a manner that contributes to further or deeper understanding or development of mathematical concepts.	Competently denotes relevant information in various mathematical forms in an appropriate and consistent mathematical portrayal.	Denotes relevant information in various mathematical forms, but resulting mathematical portrayal is only partially appropriate or partially consistent.	Demonstrates a basic attempt to denote information in various mathematical forms, but resulting mathematical portrayal is inappropriate or inconsistent.
Control of Syntax and Mechanics	Uses graceful, virtually error-free, language that skillfully communicates meaning to readers with clarity and fluency.	Uses straightforward language with minimal errors to convey clear meaning to readers.	Uses language that conveys general meaning to readers although the language may contain some errors.	Uses language that sometimes impedes meaning because of errors in usage.

Figure 2. Communication Rubric for Mathematics

Raters, Rater Calibration, and Scoring

Two separate scoring days were held to rate the student writing samples. Samples were separated by rubric to ensure rating congruency for the three different rubric permutations. The rater group included twenty-two faculty members and four professional staff with advanced degrees. The raters were primarily affiliated with the College of Liberal Arts ($n = 18$), however representatives participated from the College of Nursing and Health Innovation ($n = 2$) and the School of Social Work ($n = 2$).

Rating calibration took place after an orientation and description of the rating process. Each rater in the group read one anchor paper, chosen beforehand for discussion. This discussion, based on the dimensions of the rubric within the anchor paper, was aimed at reaching a common understanding of Communication and the levels of mastery within the rubric.

Two different raters read each paper and each one scored it using the 4-point Likert scale based on the rubric dimensions. Each dimension score was calculated as the average of the two rater scores as long as the values assigned by the raters differed by 2 points or less. If the scores differed by more than 2 points, a third rater read and scored the paper and then the average of the two most similar scores became the dimension score.

Analysis and Results

The final data set contains aggregated rating scores for all six dimensions for the two rubrics. Frequencies were calculated for each dimension by rating score. These are presented in Table 3. Across the six dimensions, students in this sample scored higher in *Context and Purpose*, *Organization and Structure*, *Control of Syntax and Mechanics*, and *Representation*. Students scored lower in the *Content Development* and *Sources and Evidence* dimensions of the rubric. Scores by gender, ethnicity, and college are presented in Appendices A, B, and C.

Table 3

Communication Scores by Dimension

Written Communication Dimensions	Mean	Communication Scores			
		4 n (%)	3 n (%)	2 n (%)	1 n (%)
Context and Purpose	2.98	154 (27)	259 (46)	135 (24)	14 (3)
Organization and Structure	2.78	106 (19)	248 (44)	185 (33)	23 (4)
Content Development	2.69	93 (17)	230 (41)	211 (38)	28 (5)
Sources and Evidence	2.79	97 (17)	214 (38)	146 (26)	26 (5)
Control of Syntax and Mechanics	2.91	118 (21)	297 (53)	127 (23)	20 (4)
Visual Communication Dimension					
Representation	2.63	2 (4)	27 (59)	15 (33)	2 (4)

Note: The sample size for each dimension is *n* = 562, with the exception of *Sources and Evidence* (*n* = 483) and *Representation* (*n* =46).

Inter-rater Agreement

Inter-rater agreement was examined to see how frequently the rater pairs for each paper agreed on scoring. The inter-rater agreement level was determined by calculating the intra-class correlation coefficient (ICC). High ICC values indicate more agreement between raters. Commonly accepted guidelines for the interpretation of ICC results suggest that values above 0.74 indicate excellent agreement, values below 0.40 indicate poor agreement, and values in-between are considered fair to good (Fleiss, 1986; Shrout & Fleiss, 1979).

The ICC values for *Context and Purpose*, *Organization and Structure*, *Content Development, Sources and Evidence,* and *Control of Syntax and Mechanics* indicated good inter-rater agreement. The *Representation* dimension had a low ICC value. Table 5 contains the ICC values for each of the six dimensions.

Table 5

ICC Values by Communication Dimension

Communication Dimension	ICC Value
Context and Purpose	.681
Organization and Structure	.675
Content Development	.682
Sources and Evidence	.703
Control of Syntax and Mechanics	.695
Representation	.356

Note: The sample size for each dimension is *n = 562*, with the exception of *Sources and Evidence* (*n* = 483) and *Representation* (*n* = 46).

Summary

This report assessed student work from the Communication and Mathematics Foundational Component Areas using rubrics based on those developed by the AAC&U. Adaptations to the existing AAC&U VALUE rubric helped UT Arlington align the rubric with the Signature Assignment instructions received by the students, resulting in more accurate scoring as evidenced by good to excellent agreement among the rating pairs for five of the six dimensions.

A pattern of strengths and weaknesses for this sample of undergraduates emerged from assessing the student work samples. According to the rating scores, student work exhibited strength in four areas: *Context and Purpose*, *Organization and Structure*, *Control of Syntax and Mechanics*, and *Representation*. However, the student work was rated lower in two dimensions: *Content Development* and *Sources and Evidence*. This pattern may indicate two areas in which students need to refine their skills, however, as in the case of *Sources and Evidence*, it may suggest areas in which Signature Assignments instructions were not specific about expectations for elements to include in the composition.

Limitations

A small number of papers were rated for the dimension, *Representative,* and the forty-six that were rated received high scores. As the multi-year cycle unfolds, whether to regard this dimension as a strength area must be examined within larger groups. In addition, while the gender was evenly mixed, the ethnic representation in the sample was not consistent with the diversity of the undergraduate population at UT Arlington. It may be useful to consider operationalizing ethnic labels for overlap. For example, one in thirteen students self-reported their race/ethnicity as *other*, which is often an indication of a multiple race/ethnicity background. It would be helpful to know more about this group to portray the student sample more accurately. Adaptation of the VALUE rubrics improved their alignment with the Signature Assignments submitted for rating Core Objectives but more tailoring may need to be considered.

Overall, this assessment of the THECB Communication Core Objective built on results from the pilot study that was conducted at UT Arlington in the summer of 2014. This report expanded that work by including student work samples from across eight of the ten colleges and schools in two Foundational Component Areas: Mathematics and Communication. Our multi-year plan to assess the Communication Core Objective at UT Arlington will encompass all eight Foundational Component Areas when completed in 2017.

References

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Appendix A

Communication Scores by Gender

Communication Dimensions	Gender	Score Frequency (Percent)			
		4	3	2	1
Context and Purpose	Female	84 (28%)	132 (44%)	75 (25%)	10 (3%)
	Male	70 (27%)	127 (49%)	60 (23%)	4 (2%)
Organization and Structure	Female	53 (18%)	136 (45%)	101 (34%)	11 (4%)
	Male	53 (20%)	112 (43%)	84 (32%)	12 (5%)
Content Development	Female	47 (16%)	126 (42%)	112 (37%)	16 (5%)
	Male	46 (18%)	104 (40%)	99 (38%)	12 (5%)
Sources and Evidence	Female	54 (18%)	106 (35%)	66 (22%)	12 (4%)
	Male	43 (17%)	108 (41%)	80 (31%)	14 (5%)
Control of Syntax and Mechanics	Female	59 (20%)	165 (55%)	65 (22%)	12 (4%)
	Male	59 (23%)	132 (51%)	62 (24%)	8 (3%)

Appendix B

Communication Scores by Ethnicity

Communication Dimensions	Ethnicity	Score Frequency (Percent)			
		4	3	2	1
Context and Purpose	African American	11 (14%)	43 (54%)	23 (29%)	3 (4%)
	Asian	13 (20%)	35 (54%)	14 (22%)	3 (5%)
	White	79 (40%)	83 (42%)	35 (18%)	3 (2%)
	Hispanic	35 (24%)	67 (46%)	39 (27%)	4 (3%)
Organization and Structure	African American	6 (8%)	36 (45%)	32 (40%)	6 (8%)
	Asian	9 (14%)	30 (46%)	24 (37%)	2 (3%)
	White	56 (28%)	91 (46%)	49 (25%)	4 (2%)
	Hispanic	23 (16%)	62 (43%)	52 (36%)	8 (6%)
Content Development	African American	6 (8%)	29 (36%)	39 (49%)	6 (8%)
	Asian	8 (12%)	32 (49%)	22 (34%)	3 (5%)
	White	49 (25%)	89 (45%)	53 (27%)	9 (5%)
	Hispanic	20 (14%)	53 (37%)	65 (45%)	7 (5%)
Sources and Evidence	African American	6 (8%)	35 (44%)	25 (31%)	7 (9%)
	Asian	13 (20%)	30 (46%)	19 (29%)	1 (2%)
	White	51 (26%)	72 (36%)	37 (19%)	5 (3%)
	Hispanic	17 (12%)	52 (36%)	40 (28%)	9 (6%)
Control of Syntax and Mechanics	African American	7 (9%)	41 (51%)	29 (36%)	3 (4%)
	Asian	14 (22%)	34 (52%)	14 (22%)	3 (5%)
	White	61 (31%)	110 (55%)	26 (13%)	3 (2%)
	Hispanic	28 (19%)	75 (52%)	36 (25%)	6 (4%)

Note: This table represents the students in the sample who self-identified membership in one of four ethnic groups ($n = 490$). It does not include students who self-identified their ethnicity as "other."

Appendix C

Communication Scores by College

Communication Dimensions	College	Score Frequency (Percent)			
		4	**3**	**2**	**1**
Context and Purpose	Business	20 (25%)	37 (46%)	20 (25%)	3 (4%)
	Education	3 (6%)	22 (46%)	21 (44%)	2 (4%)
	Engineering	22 (25%)	45 (51%)	19 (22%)	2 (2%)
	Liberal Arts	25 (25%)	51 (50%)	24 (24%)	2 (2%)
	Nursing	21 (34%)	29 (47%)	11 (18%)	1 (2%)
	Science	22 (32%)	28 (41%)	18 (26%)	1 (1%)
Organization and Structure	Business	13 (16%)	31 (39%)	33 (41%)	3 (4%)
	Education	1 (2%)	17 (35%)	27 (56%)	3 (6%)
	Engineering	21 (24%)	39 (44%)	25 (28%)	3 (3%)
	Liberal Arts	15 (15%)	47 (46%)	36 (35%)	4 (4%)
	Nursing	11 (18%)	31 (50%)	19 (31%)	1 (2%)
	Science	16 (23%)	33 (48%)	16 (23%)	4 (6%)
Content Development	Business	16 (20%)	26 (33%)	34 (43%)	4 (5%)
	Education	0 (0%)	16 (33%)	29 (60%)	3 (6%)
	Engineering	13 (15%)	43 (49%)	31 (35%)	1 (1%)
	Liberal Arts	13 (13%)	44 (43%)	43 (42%)	2 (2%)
	Nursing	13 (21%)	25 (40%)	21 (34%)	3 (5%)
	Science	15 (22%)	28 (41%)	17 (25%)	9 (13%)
Sources and Evidence	Business	12 (15%)	34 (43%)	27 (34%)	4 (5%)
	Education	0 (0%)	2 (4%)	5 (10%)	1 (2%)
	Engineering	21 (24%)	41 (47%)	23 (26%)	3 (3%)
	Liberal Arts	12 (12%)	34 (33%)	27 (27%)	4 (4%)
	Nursing	15 (24%)	24 (39%)	18 (29%)	4 (7%)
	Science	17 (25%)	32 (46%)	11 (16%)	7 (10%)
Control of Syntax and Mechanics	Business	15 (19%)	44 (55%)	17 (21%)	4 (5%)
	Education	3 (6%)	26 (54%)	17 (35%)	2 (4%)
	Engineering	23 (26%)	44 (50%)	18 (21%)	3 (3%)
	Liberal Arts	18 (18%)	54 (53%)	27 (27%)	3 (3%)
	Nursing	12 (19%)	37 (60%)	13 (21%)	0 (0%)
	Science	19 (28%)	36 (52%)	9 (13%)	5 (7%)

Note: This table represents groups of students with identified majors in colleges/schools ($n = 450$). Each group contained at least nine percent of the sample.