

2019 Report
Of
The Provost's Assessment Committee
For
General Education Learning Outcomes

Committee Members

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The Provost's Assessment Committee for General Education Learning Outcomes (PAC GELO) was formed in the fall of 2016 and was charged with developing assessment tools and a process to assess the extent to which UAS undergraduate students have acquired broadly expected academic skills through the completion of UAS prescribed General Education Requirements (GER) coursework. The committee is comprised of faculty members from the three UAS campuses and from different disciplines within the schools of Education and Career Education, and the departments of Humanities, Social Sciences, Natural Sciences, and Business Administration. Work on identifying and creating General Education Learning Outcomes (GELO) began soon after representatives from the committee attended an Association of American Colleges & Universities (AAC&U) workshop in February 2017.

Since its inception, the PAC GELO has been on an accelerated timeline in preparation for the Northwest Commission on Colleges and Universities (NWCCU) UAS Accreditation Site Visit in the spring of 2019. Despite this accelerated timeline, the PAC GELO has been successful in developing and applying general education student learning outcomes along with accompanying rubrics.

This report comprises four sections, each of which outlines phases through which the PAC GELO has passed in meeting its obligations to date.

I. General Education Learning Outcomes and Rubric Development

With the UAS Student Competencies in mind (see <http://catalog.uas.alaska.edu/student-competencies/>) and recommendations in the highly regarded AAC&U Value Rubrics (Rhodes, 2010) found at <https://www.aacu.org/value-rubrics>, the following GELOs were developed and presented by the PAC GELO to the UAS Faculty Senate. The Senate approved continued work by the PAC GELO on these at their November 2017 meeting.

1. **Effective Communication:** *Communicate thoughts and ideas effectively, orally and in writing.*
2. **Critical Thinking:** *Demonstrate comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.*
3. **Creative Thinking:** *Present creative works of expression, innovative approaches to tasks, or solutions to problems.*
4. **Empirical Reasoning:** *Articulate the scientific method and pose well-reasoned questions in the search for answers through data.*
5. **Synthesis and Analysis:** *Use and extend theoretical concepts to qualitative and quantitative applications and problem solving.*
6. **Environmental and Community Engagement:** *Use and extend Indigenous and global cultural perspectives with respect for diversity of people, the sustainable use of resources, and awareness of the environment.*

Rubrics for assessing the level to which UAS undergraduate students acquire these Values (and satisfy the corresponding GELOs) were adapted for UAS from the material provided in the AAC&U Value Rubrics resources.

After extensive discussions, the PAC GELO settled on adapting rubrics for use on assessing UAS undergraduate general education learning that are general enough to apply to a wide range of artifacts. In addition, the rubrics were designed to provide insightful information about the level of student learning. The three levels chosen are classified as *Beginning*, *Proficient*, and *Mastery*.

Each rubric was carefully created to demonstrate that an undergraduate student has acquired some level of competency in each of the six learning outcomes. After creating and reviewing the rubrics for the first four competencies in 2018, the committee worked on the last two rubrics (*Synthesis and Analysis*, and *Environmental and Community Engagement*) in spring 2019. During several work sessions it was determined that the SLO *Synthesis and Analysis* GELO overlapped significantly with *Empirical Reasoning* GELO and *Critical Thinking* GELO, and was therefore unnecessary. The committee has requested that the Faculty Senate approve the removal of *Synthesis and Analysis* GELO from the original list of SLOs.

During the spring 2019 rubric development period, the last GELO (*Environmental and Community Engagement*) was closely reviewed, and the descriptor for the outcome was ultimately revised to more accurately reflect the desired student learning outcome. The committee worked with the Campus Advisory Committee on Native Education to revise the descriptor for the GELO which will help guide the completion of the rubric in fall 2019.

GELOs with proposed edits as of March 2019:

1. **Effective Communication:** *Communicate thoughts and ideas effectively, orally and in writing.*
2. **Critical Thinking:** *Demonstrate comprehensive exploration of issues, ideas and/or theories, artifacts, and events before accepting or formulating an opinion, conclusion, or solution.*
3. **Creative Thinking:** *Present creative works of expression, innovative approaches to tasks, or solutions to problems.*
4. **Empirical Reasoning:** *Articulate the scientific method and pose well-reasoned questions in the search for answers through data.*
5. **Environmental and Community Engagement:** *Explore Indigenous and global social perspectives with respect for diversity of people, different perspectives of resource sustainability, and human impact on the environment.*

II. Method of Assessment

In the first year of assessment (spring 2018), the PAC GELO assessed the first two GELOs, *Effective Communication* and *Critical Thinking*. This year, in a fall 2018 workshop, the team assessed two more GELOs, *Empirical Reasoning* and *Creative Thinking*. Then, in a spring 2019 workshop, the team completed a second assessment cycle for the *Effective Communication* and *Critical Thinking* GELOs. This process involved three stages.

Stage 1 - Selecting Learning Artifacts

Fall 2018 Assessment - Empirical Reasoning and Creative Thinking Artifacts

In preparation for the fall 2018 workshop, the PAC GELO solicited artifacts from faculty in their respective areas that could be used to assess the *Empirical Reasoning* and *Creative Thinking* GELOs. They obtained two artifacts that were applicable to the *Creative Thinking* GELO, but were only able to obtain one that was applicable to the *Empirical Reasoning* GELO.

The artifact for the *Empirical Reasoning* GELO came from the following course:

- a 200-level statistics course: Students wrote a paper exploring and analyzing data in a subject area of their choice.

The artifacts for the *Creative Thinking* GELO came from the following courses:

- a 200-level creative writing course: Students wrote either a poem or story, which was then workshopped by the class and then further revised.
- a 200-level education course: In this introductory teaching course, students wrote an essay describing what their ideal future classroom would include. They could add what it would look, sound, and feel like. They included their experiences from the 25-hour classroom practicum, required text reading materials, class discussions, practicum journals, and their research writing project. They were told they could be creative in their writing, while capturing their ideal classroom practices and beliefs of teaching.

For each learning artifact, the GELO rubrics were applied to ten randomly selected samples of student work. This left the Creative Thinking team to assess two artifacts with ten student work samples each (20 total), and the Empirical Reasoning team to assess one artifact with ten different work samples (10 total). Although the Empirical Reasoning team had fewer work samples to assess, the papers they were assessing tended to be longer than the work samples for the two Creative Thinking artifacts. In both cases, the teams found it difficult to thoroughly assess all work samples within the allotted three-hour time frame. Also, one of the artifacts (from the education course) turned out not to be a good fit for assessing the Creative Thinking GELO, due to the fact that the assignment was not explicitly intended to be creative.

Prior to the workshop, the PAC GELO emailed rubrics and an exemplary student work sample for each artifact to the assessment team members. Participants were asked to apply the rubric to the student work samples in advance of the workshop, and these were used for norming the rubrics at the start of the workshop.

Spring 2019 Assessment - Critical Thinking and Effective Communication Artifacts

Based on the time constraints that the teams had experienced in the fall 2018 workshop, the team opted to trim back to assessing only seven student work samples per artifact in the spring 2019 workshop. This was intended to give reviewers more time to spend assessing and discussing each work sample. The team used the same artifacts for the *Effective Communication* GELO as were used in the first assessment cycle (in spring 2018). For the *Critical Thinking* GELO, only one of the artifacts used in the previous year had turned out to be a good fit for the rubric, so only one from the previous year was used again. The PAC GELO was unable to find another artifact, so they opted to move forward with the single artifact, and to assess 14 student work samples rather than seven.

The artifacts for *Effective Communication* were selected from the following courses:

- a 200-level writing course: A brief paper in which students summarized the first 50 pages of a novel, focusing on its main plot points (seven student work samples).
- a 200-level business course: A project in which students completed an emotional intelligence self-assessment and summarized and reflected upon their results (seven student work samples).

The artifact for *Critical Thinking* included student work selected from the following course:

- a 100-level psychology course: A portion of the final paper in which students were assigned to research a topic of interest and to find a peer-reviewed article on that topic. They then summarized the article and discussed what interested them about it (14 student work samples)

Student work samples in all three courses were selected at random from among all students in the course. This random selection was done by assigning each potential student work sample a sequential number. A random number-generating tool was then used to select the work samples.

About the Students Being Assessed

The typical student taking any one of these courses is enrolled in either an associate or bachelor's degree program. Specifically:

- The 100-level psychology course is a general education option within the Social Sciences category. To enroll in this course, students must have either passed a 100-level writing course, or have instructor permission.
- The 100-level mathematics course is the most common mathematics general education option. To enroll in this course, students must have either passed MATH 105 Intermediate Algebra with a C or better, or they must place into the class by taking a placement exam.
- The 200-level statistics course also serves as a general education option and requires that students have either passed MATH 105 Intermediate Algebra with a B or better, or that they've placed into the class by taking a placement exam
- The 200-level education course is required of all students in the Bachelor of Arts in Elementary Education.
- The 200-level creative writing course is another general education option. To enroll in this course, students must have passed a 100-level GER writing course with a C or better.

- The 200-level writing course is a general education course, and it is one of two courses students must choose from to meet the writing requirement in all bachelor's degree programs. To enroll in this course, students must have passed a 100-level GER writing course with a C or better.
- The 200-level business course is taken by students in either the Associate of Applied Science in Business, or the Bachelor of Business Administration degree, usually before they move on to their upper division coursework.

Stage 2 – Forming Assessment Teams

In fall 2018, the PAC GELO co-facilitators created the teams and split up the committee members evenly. Three PAC GELO faculty and four volunteer faculty assessed the two sets of Creative Thinking artifacts. The first set of eight artifacts were from a 200-level English course. The second set of eight artifacts was from an Education 200-level course. The teams scored in two different conference rooms on campus. Each team had participants from Sitka and Ketchikan calling in on the audio conference, which worked very well.

In spring 2019, the PAC GELO co-facilitators created the teams and split up the committee members, with three on the Effective Communication team, and three on the Critical Thinking team. The seven faculty volunteers were also split up, with four on the Critical Thinking team and three on the Effective Communication team. The main consideration in dividing up the teams had to do with spreading the committee members around as evenly as possible, since they were more familiar with the rubrics, artifacts, and processes. It made sense to have the mathematics faculty member on the critical thinking committee with the mathematics artifact. Again, the teams were working in two different conference room sites on UAS Juneau campus, including Ketchikan and Sitka site assessment teams via audio conference.

Stage 3 – The Assessment Workshops

The PAC GELO co-facilitators distributed selected student work samples to workshop participants, along with the relevant rubric via email a few days before the workshop. Participants were asked to use the rubrics to score the sample artifacts prior to the workshops. For the fall workshop, these samples were selected at random. After the workshop, the PAC GELO decided that it would be more helpful to workshop participants to assess an exemplary student work sample, rather than a randomly selected one. This would presumably provide workshop participants with a work sample that at least encouraged them to consider the top level (“mastery”) in the rubric.

At the start of the workshop, each team walked through the rubric together, comparing scores and discussing questions raised about applying the rubrics. Each team then developed their own process for scoring the work samples during the workshop, with some teams checking back with each other after assessing each student work sample, and others completing several work sample assessments before checking back in with the team.

At the conclusion of the workshops, PAC GELO gathered score sheets and manually entered them into a spreadsheet for later summarization and analyses. Members were also asked for any feedback regarding the workshop, rubrics, and process. After the workshop, the co-facilitators followed up with thank-you letters to faculty volunteers.

III. Results

As with the previous round of assessments, raw scores assigned by assessment teams were summarized using pivot tables with two aims. The first was to determine the consistency among evaluator scores, and the second was to assess student learning, the actual purpose of the assessment process.

It should be noted that after the first (AY 2018) round of assessments using rubrics for the Effective Communication and Critical Thinking values, some revisions were made to those rubrics based on observations made during the course of those first set of assessments. In anticipation of similar issues with other rubrics, the lessons learned were taken advantage in fine-tuning the Creative Thinking and Empirical Reasoning rubrics as well.

Summaries of the results from each of Effective Communication, Critical Thinking, Creative Thinking, and Empirical Reasoning follow. The raw data and accompanying pivot tables containing finer details of the raw score summaries are available upon request.

Results for Effective Communication

Table 3.1 provides an overall summary of the scores obtained using seven sample works from a 200-level writing course. Figure 3.1 provides a graphical breakdown of score distributions within each outcome.

Average overall scores (for Outcomes 1 through 5) across each of the sample works ranged from 0.73 through 1.37 with standard deviations ranging from 0.52 through 0.96.

Scores within each Outcome were fairly consistent for the most part, with the exception being Outcome 5 which had the lowest mean and highest standard deviation. Interestingly, Outcome 4 had the highest mean and the lowest standard deviation.

While all five outcomes for the majority of items were at the beginning or higher levels of proficiency, less than 40% of the scores assigned were at the proficient level or higher.

It is evident that the samples assessed revealed a particular weakness in Outcome 5 and, to a lesser degree, a weakness in Outcome 1.

Table 3.1: Summary of scores obtained from the Effective Communication sample works; includes mean scores (μ), standard deviations (s), and percentages of items with scores greater than or equal to each benchmark.

Outcomes		% of work products with a score \geq				
		μ	s	1	2	3
	1. Context	1.07	0.75	76.19	30.95	0.00
	2. Arrangement	1.29	0.74	90.48	30.95	7.14
	3. Content Material	1.31	0.81	85.71	38.10	7.14
	4. Supporting Material	1.33	0.72	90.48	38.10	4.76
	5. Use of Language	0.90	1.01	54.76	26.19	9.52
	Overall summaries	1.18	0.82	79.52	32.86	5.17

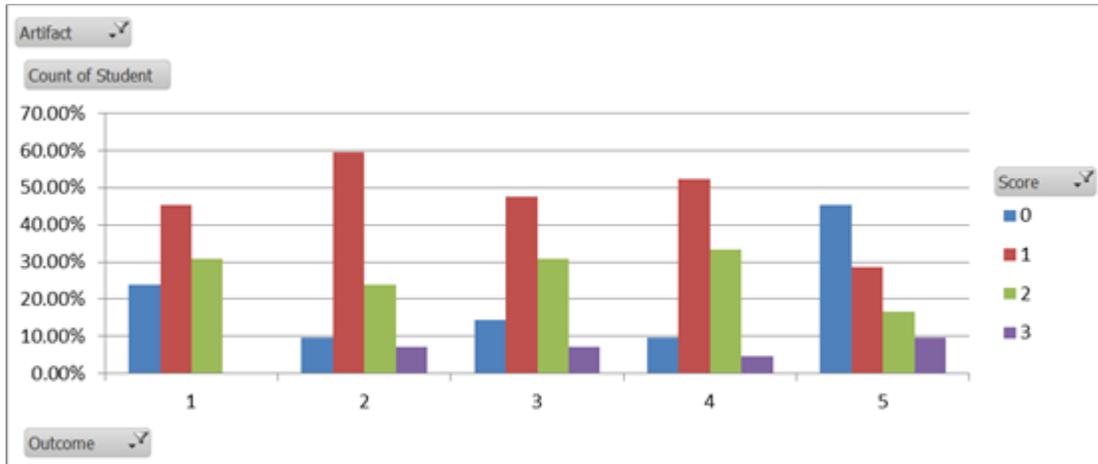


Figure 3.1: Distribution of scores assigned (ranging from 0 through 3) within each of the five student learning outcomes for Effective Communication.

Results for Critical Thinking

Table 3.2 provides an overall summary of the scores obtained using fourteen sample works from local and distance delivered sections of an introductory psychology course. Figure 3.2 provides a graphical breakdown of score distributions within each outcome.

Average overall scores (for Outcomes 1 through 5) across each of the sample works ranged from 0.76 through 2.55 with standard deviations ranging from 0.44 through 0.81.

Scores within each Outcome were fairly consistent with standard deviations of 0.89 or lower. The highest mean scores were for Outcomes 3 and 5 in which over 50% of the samples assessed received scored at or above the proficient level.

While Outcomes 1, 2, and 4 for the majority of items were at the beginning or higher levels of proficiency, here too less than 40% of the scores assigned were at the proficient level or higher.

The one noticeable fact in Table 3.2 is that a reasonably large proportion of the works assessed were considered at the mastery level with respect to Outcome 3.

Table 3.2: Summary of scores obtained from the Critical Thinking sample works; includes mean scores (μ), standard deviations (s), and percentages of items with scores greater than or equal to each benchmark.

Outcomes		μ	s	% of work products with a score \geq		
				1	2	3
	1. Position	1.27	0.86	83.33	34.52	9.52
	2. Assumptions	1.14	0.89	72.62	35.71	5.95
	3. Issue or Problem	1.73	0.81	96.43	57.14	19.05
	4. Info. From Sources	1.43	0.63	98.81	38.10	5.95
	5. Conclusion or Outcomes	1.63	0.65	97.62	58.33	7.14
	Overall summaries	1.44	0.80	89.76	44.76	9.52

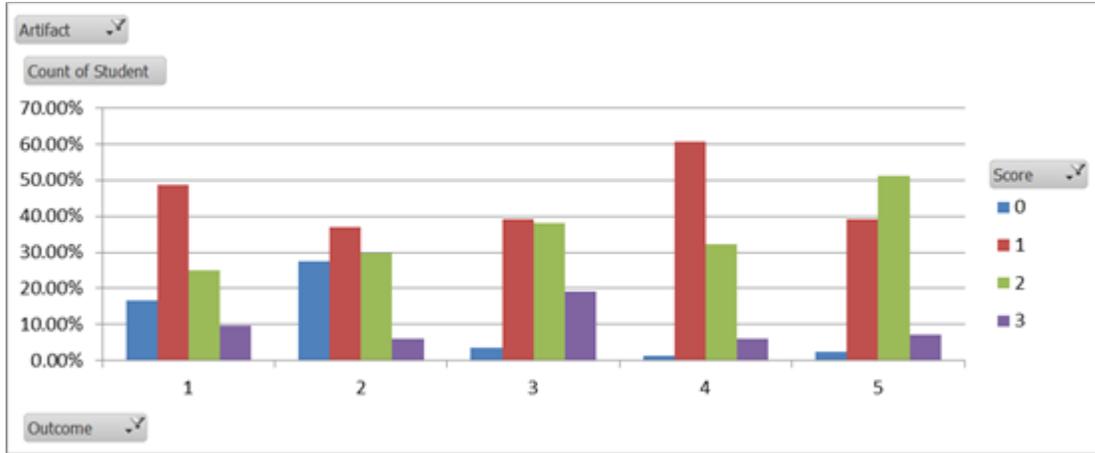


Figure 3.2: Distribution of scores assigned (ranging from 0 through 3) within each of the five student learning outcomes for Critical Thinking.

Results for Creative Thinking

Table 3.3 provides an overall summary of the scores obtained using sixteen sample works, eight from a 200-level creative writing course and eight from a 200-level education course. Figure 3.3 provides a graphical breakdown of score distributions within each outcome.

It should be noted that the sample works provided, Outcome 4 could not be assessed.

Average overall scores (for Outcomes 1 through 5, excluding 4) across each of the sample works ranged from 0.57 through 2.04 with standard deviations ranging from 0.34 through 0.66.

Scores within each Outcome were fairly consistent with standard deviations of 0.81 or lower. The lowest mean score was for Outcome 3 in which only 66% of the samples assessed received scored at or above the beginning level and less than 1% were ranked at the mastery level.

While all Outcomes for the majority of items were at the beginning or higher levels of proficiency and less than 50% were at the proficient or higher levels, it is worth noting that Outcomes 1 and 2 had a respectable proportion of scores being at the proficient or higher levels.

Table 3.3: Summary of scores obtained from the Creative Thinking samples; includes mean scores (μ), standard deviations (s), and percentages of items with scores greater than or equal to each benchmark.

Outcomes		% of work products with a score \geq				
		μ	s	1	2	3
1. Process		1.46	0.61	98.21	42.86	4.46
2. Novel or Unique Ideas		1.33	0.74	86.61	43.75	2.68
3. Alternative Approaches		0.96	0.81	66.07	28.57	0.89
4. New Ideas or Solutions						
5. Outcomes		1.21	0.59	91.35	29.81	0.00
Overall summaries		1.24	0.72	85.45	36.36	2.05

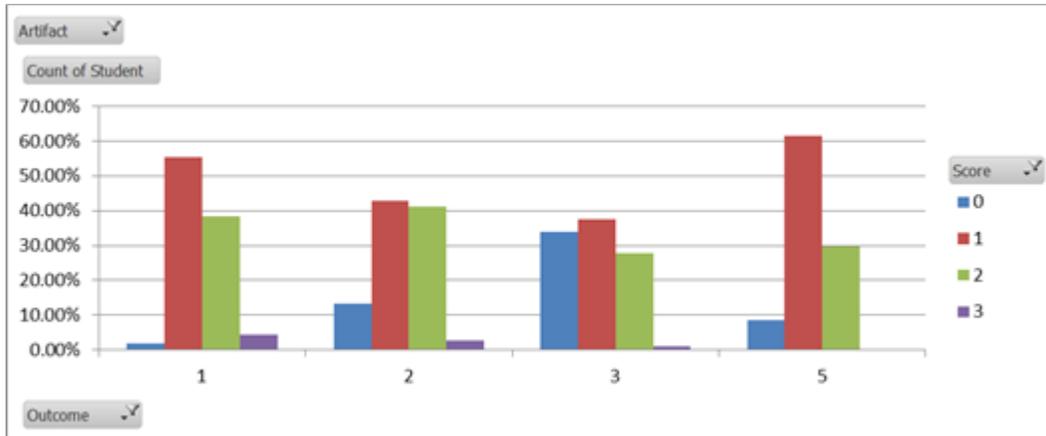


Figure 3.3: Distribution of scores assigned (ranging from 0 through 3) within each of the five student learning outcomes for Creative Thinking (Note the absence of Outcome 4).

Results for Empirical Reasoning

Table 3.4 provides an overall summary of the scores obtained using ten sample works from an elementary statistics class. Figure 3.4 provides a graphical breakdown of score distributions within each outcome.

Average overall scores (for Outcomes 1 through 5) across each of the sample works ranged from 1.14 through 2.57 with standard deviations ranging from 0.49 through 0.73.

Scores within each Outcome were fairly consistent with standard deviations of 0.80 or lower. The lowest mean score was for Outcome 5; however, 61% of the samples assessed received scored at or above the proficient level for this outcome.

All Outcomes for the majority of items received scores that were at the proficient or higher levels of proficiency. Outcomes 1 and 2 received a reasonably high proportion of works ranked at the mastery level. Areas of potential work may be those addressing Outcomes 3 and 5.

Table 3.4: Summary of scores obtained from the Empirical Reasoning sample works; includes mean scores (μ), standard deviations (s), and percentages of items with scores greater than or equal to each benchmark.

Outcomes		μ	s	% of work products with a score \geq		
				1	2	3
1. Description		2.04	0.79	100.00	71.43	32.86
2. Factors Applicable		2.00	0.88	97.14	67.14	35.71
3. Design of Study		1.77	0.62	100.00	67.14	10.00
4. Data Collection Methods		1.94	0.70	100.00	72.86	21.43
5. Results		1.69	0.60	100.00	61.43	7.14
Overall summaries		1.89	0.74	99.43	68.00	21.43

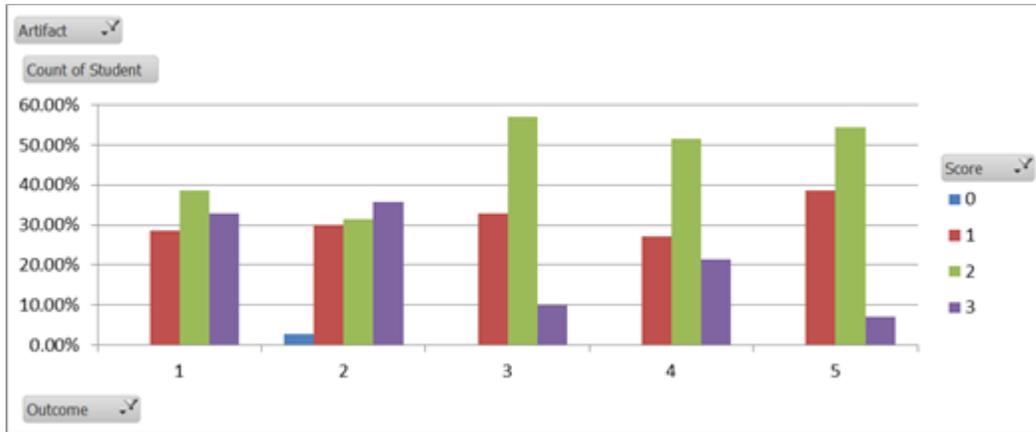


Figure 3.4: Distribution of scores assigned (ranging from 0 through 3) within each of the five student learning outcomes for Empirical Reasoning.

IV. Lessons Learned and Next Steps

The PAC GELO members believe they have continued to be largely successful in continuing efforts to assess the GERs. Reflecting on our first year of assessment, the committee agrees that the process has become a lot more streamlined. In the past year, we have had the opportunity to address a number of our initial concerns resulting in a more standardized approach to assessment. This overall progress has also allowed us to focus on some more detail-oriented improvements, specifically with regards to rubric development.

This section includes a breakdown of observations by PAC GELO members and assessment workshop participants, as well as an outline of the committee's proposed next steps in completing the task of preparing and implementing an effective general education student learning assessment plan.

Workshop Challenges

After our second year of assessment workshops, the group feels confident in the process and structure. That being said, there were a few minor issues that we hope to address moving forward.

One general challenge in this process is the extent to which the quality of the writing interferes with the ability to objectively assess an artifact. Our mission is not to evaluate writing quality; however, when the quality is so poor that it inhibits understanding, it becomes challenging to not let this impact scores.

Related, it can be difficult to differentiate between assessing the assignment versus assessing the artifact according to the rubric. After last year's workshop, we noted that appropriate artifact selection was essential to the success of the assessment process. This year, we were more aware of what kinds of artifacts would work for this process and were much more successful in our selection.

We have found that it is challenging to retroactively fit an existing assignment to our assessment needs. In other words, most individual assignments within a course are not designed with a specific GELO in mind, thus leading to gaps between the criteria of an assignment and a rubric. One potential solution would be to design an assessment tool for the purpose of use in our workshops. This is a method that has been used at other universities, and we wish to explore the possibility further in the future.

Additionally, the timeline was sometimes a challenge depending on the length of the artifacts to be assessed. As a result, groups tended to feel rushed, and the three-hour workshop might need to be extended if we continue to assess twenty artifacts per group.

Rubric Design

Actual application of the rubrics during the workshops has provided crucial feedback resulting in more user-friendly versions of the rubrics. We have now piloted four of the five rubrics and made edits to all four rubrics based on feedback from workshop participants. Edits were generally relatively minor

including changes in language and rearranging of columns. One of the more major edits involved removing entire columns from the rubric. All updated rubrics are attached in the following pages.

GELO Edits

While working on modifying rubrics, we encountered an unexpected update. Though initially we had six GELOs, as was mentioned previously, the group has determined that the *Synthesis and Analysis* GELO is unnecessary. It measures certain skills already measured in other areas, particularly the *Critical Thinking* and *Empirical Reasoning* GELOs, and we found redundancies in some of the overlap. Additionally, the *Synthesis and Analysis* GELO seems to be more appropriate and applicable to upper division courses rather than lower division GER courses. After reviewing the UAS Core themes, it seems evident that the five GELOs minus the *Synthesis and Analysis* GELO adequately cover all of the themes. For the sake of efficiency, we have therefore recommended to Faculty Senate that the *Synthesis and Analysis* GELO be deleted, with the understanding that these are better assessed within the majors in upper division courses. Further, we made slight modifications to the *Critical Thinking* GELO in order to ensure that it captured some of the important information we did not want to lose from the *Synthesis and Analysis* GELO.

Next Steps

Moving forward, one of our main goals concerns the use of tools developed by this PAC GELO by future assessment committees. It will be necessary to develop clear and specific instructions for later committee members on how to assemble effective teams and how to independently use the rubrics in evaluating artifacts. Having at least one past assessment team member on subsequent GELO assessment committees might also be useful.

Directions and advice on how to address these matters will most likely be developed in discussions on preparing the GELO Assessment Plan. This will be one of the main agenda items come fall 2019.

We also plan to continue in our assessment cycle and plan to assess GELOs #3 and #5 in the fall semester. From here on, we will continue to assess two GELOs each semester in order to rotate which two GELOs are assessed at one time in an effort to gain fresh perspective as we juxtapose two different GELOs each assessment period. The committee will therefore work according to the following tentative assessment schedule:

- Fall 2019: GELO #5 (*Environmental and Community Engagement*) & GELO #3 (*Creative Thinking*)
- Spring 2020: GELO #4 (*Empirical Reasoning*) & GELO #1 (*Effective Communication*)
- Fall 2020: GELO #2 (*Critical Thinking*) & GELO #5 (*Environmental and Community Engagement*)
- Spring 2021: GELO #3 (*Creative Thinking*) & GELO #4 (*Empirical Reasoning*)

This means that after 3.5 years of assessment, we'll have assessed GELOs #1-4 three times each and GELO #5 two times.

The majority of our efforts until this point have revolved around creating and implementing a process for assessment. Next year, we plan to take the next big step, which is to begin looking at ways to close the

assessment loop. With that goal in mind, we will start to explore whether students are generally meeting the general education learning outcomes, and if it is determined that they are not, we will seek to figure out what improvements can be made.

REVISED RUBRICS

1. EFFECTIVE COMMUNICATION: Communicate thoughts and ideas effectively, orally and/or in writing.

	AUDIENCE, FOCUS, AND PURPOSE...	ARRANGEMENT OF MATERIAL...	CONTENT MATERIAL...	SUPPORTING MATERIAL...	USE OF LANGUAGE...
NOT APPLICABLE	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
NOT YET (0)	<input type="checkbox"/> ...are not considered.	<input type="checkbox"/> ...is not organized.	<input type="checkbox"/> ...is not appropriate for the assigned task.	<input type="checkbox"/> ...is not present or is not appropriate.	<input type="checkbox"/> ...is not clear and/or lacks focus and/or contains significant errors.
BEGINNING (1)	<input type="checkbox"/> ...are considered.	<input type="checkbox"/> ...incorporates basic transitions through shifts in topic.	<input type="checkbox"/> ...is presented in a somewhat general manner that is relevant to the assigned task.	<input type="checkbox"/> ...is clearly referenced within the work.	<input type="checkbox"/> ...is clearly focused and contains only few errors.
PROFICIENT (2)	<input type="checkbox"/> ...are clearly aligned with the assigned task.	<input type="checkbox"/> ...follows consistent patterns throughout the entire work.	<input type="checkbox"/> ...is developed or presented in a specific and detailed manner.	<input type="checkbox"/> ...is relevant to the assigned task and is integrated effectively.	<input type="checkbox"/> ...is expressive of meaning through clarity and fluency.
MASTERY (3)	<input type="checkbox"/> ...are thoroughly addressed by the assigned task.	<input type="checkbox"/> ...skillfully maintains the work's cohesiveness.	<input type="checkbox"/> ...illustrates mastery of the topic, conveying the writer's understanding of the material.	<input type="checkbox"/> ...is used to thoroughly develop ideas appropriate for the discipline and genre of the assigned task.	<input type="checkbox"/> ...actively enhances the effectiveness of the work as a whole.

2. **CRITICAL THINKING:** Demonstrate comprehensive exploration of issues, ideas and/or theories, artifacts, and events before accepting or formulating an opinion, conclusion, or solution.

	ISSUE OR PROBLEM TO BE CONSIDERED CRITICALLY...	PERSPECTIVE, THESIS, OR HYPOTHESIS...	ASSUMPTIONS...	INFORMATION TAKEN FROM SOURCES...	CONCLUSION OR RELATED OUTCOMES...
NOT APPLICABLE	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
NOT YET (0)	<input type="checkbox"/> ...is not stated.	<input type="checkbox"/> ...is not stated.	<input type="checkbox"/> ...are not acknowledged.	<input type="checkbox"/> ...is not present.	<input type="checkbox"/> ...is not present.
BEGINNING (1)	<input type="checkbox"/> ...is implied.	<input type="checkbox"/> ...is implied.	<input type="checkbox"/> ...are identified.	<input type="checkbox"/> ...is included.	<input type="checkbox"/> ...is tied to some of the information discussed.
PROFICIENT (2)	<input type="checkbox"/> ...is presented in a clear and logical manner.	<input type="checkbox"/> ...is explicitly stated.	<input type="checkbox"/> ...are discussed.	<input type="checkbox"/> ...is used to develop a coherent analysis or synthesis.	<input type="checkbox"/> ...clearly identifies some related outcomes (consequences or implications).
MASTERY (3)	<input type="checkbox"/> ...is framed in such a manner that delivers information necessary for clear and complete understanding.	<input type="checkbox"/> ...takes into account the complexities of the issue.	<input type="checkbox"/> ...are used to question the context and/or others' assumptions.	<input type="checkbox"/> ...is used to develop an effective and comprehensive analysis or synthesis.	<input type="checkbox"/> ...incorporates opposing viewpoints and/or limitations.

3. **CREATIVE THINKING:** Present creative works of expression, innovative approaches to tasks, or solutions to problems.

	STUDENT'S VISION AND FRAMEWORK OF EXPLORING IDEAS...	DETAILS IN STUDENT'S IDEAS, QUESTIONS, FORMATS, OR PRODUCTS...	STUDENT'S APPROACH TO THE TASK...	STUDENT'S USE OF EXISTING MODELS...	STUDENT'S OUTCOME (OBJECT, SOLUTION, OR IDEA)...
NOT APPLICABLE	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
NOT YET (0)	<input type="checkbox"/> ...relates strictly to the assigned task.	<input type="checkbox"/> ...relate strictly to the assigned task.	<input type="checkbox"/> ...relates strictly to the assigned task.	<input type="checkbox"/> ...copies or restates what is already available.	<input type="checkbox"/> ...does not serve its intended purpose.
BEGINNING (1)	<input type="checkbox"/> ...considers alternative perspectives.	<input type="checkbox"/> ...show signs of original thought.	<input type="checkbox"/> ...considers alternative processes.	<input type="checkbox"/> ...shows signs of deviation from expectations and common assumptions.	<input type="checkbox"/> ...serves its intended purpose (for example, solving a problem or addressing an issue).
PROFICIENT (2)	<input type="checkbox"/> ...actively explores alternative perspectives.	<input type="checkbox"/> ...demonstrate uniqueness and novelty.	<input type="checkbox"/> ...experiments with alternative processes.	<input type="checkbox"/> ...actively explores ideas in alternative contexts.	<input type="checkbox"/> ...makes an original contribution in its intended purpose.
MASTERY (3)	<input type="checkbox"/> ...engages in untested and potentially risky approaches to the assigned task(s).	<input type="checkbox"/> ...challenge traditional limitations.	<input type="checkbox"/> ...applies alternative processes with consideration to consequences.	<input type="checkbox"/> ...synthesizes what is already available to apply ideas in a new context.	<input type="checkbox"/> ...provides a meaningful answer to the task in an original and surprising context.

4. **EMPIRICAL REASONING:** Apply the scientific method to well-reasoned questions in the search for answers through data.

	A DESCRIPTION OF THE PROBLEM...	FACTORS APPLICABLE TO THE PROBLEM...	DESIGN OF THE STUDY...	DATA COLLECTION METHOD...	RESULTS...
NOT APPLICABLE	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
NOT YET (0)	<input type="checkbox"/> ...is not present.	<input type="checkbox"/> ...are not identified.	<input type="checkbox"/> ...is not present.	<input type="checkbox"/> ...is not identified.	<input type="checkbox"/> ...are not present.
BEGINNING (1)	<input type="checkbox"/> ...is outlined.	<input type="checkbox"/> ...are identified.	<input type="checkbox"/> ...is described in terms of its purpose and objective.	<input type="checkbox"/> ...is identified.	<input type="checkbox"/> ...are summarized as appropriate to the discipline.
PROFICIENT (2)	<input type="checkbox"/> ...is clear and complete.	<input type="checkbox"/> ...are classified clearly.	<input type="checkbox"/> ...identifies appropriate methodology.	<input type="checkbox"/> ...is implemented correctly.	<input type="checkbox"/> ...are interpreted as appropriate to the discipline.
MASTERY (3)	<input type="checkbox"/> ...is formulated to include a proper and precise research question.	<input type="checkbox"/> ...are formulated into an appropriate testable hypothesis.	<input type="checkbox"/> ...identifies limitations of the proposed study.	<input type="checkbox"/> ...is used to produce (or leads toward) consistent and accurate data.	<input type="checkbox"/> ...are used to provide clear and concise scientific explanations of analysis.

5. **ENVIRONMENTAL AND COMMUNITY ENGAGEMENT:** Explore Indigenous and global social perspectives with respect for diversity of people, different perspectives of resource sustainability, and human impact on the environment.

	INFLUENCE OF CULTURAL NORMS...	LOCAL INDIGENOUS KNOWLEDGE (LIK) AND PERSPECTIVES...	GLOBAL PERSPECTIVES...	HUMAN IMPACT ON AN ENVIRONMENT...
NOT APPLICABLE	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
NOT YET (0)	<input type="checkbox"/> ...is not identified.	<input type="checkbox"/> ...are not acknowledged.	<input type="checkbox"/> ...are not addressed.	<input type="checkbox"/> ...is not addressed.
BEGINNING (1)	<input type="checkbox"/> ...is identified.	<input type="checkbox"/> ...are acknowledged.	<input type="checkbox"/> ...are addressed.	<input type="checkbox"/> ...is addressed.
PROFICIENT (2)	<input type="checkbox"/> ...is explained.	<input type="checkbox"/> ...are developed or presented in an effective manner.	<input type="checkbox"/> ...are developed or presented in an effective manner.	<input type="checkbox"/> ...is described along with its consequences.
MASTERY (3)	<input type="checkbox"/> ...is analyzed and/or interrogated.	<input type="checkbox"/> ...are analyzed to thoroughly develop ideas.	<input type="checkbox"/> ...are analyzed to thoroughly develop ideas.	<input type="checkbox"/> ...is analyzed in a way that expresses the need for respectful engagement.