



## Open Pathway Quality Initiative Report

### Institutional Template

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The enclosed Quality Initiative Report represents the work that the institution has undertaken to fulfill the quality improvement requirements of the Open Pathway.

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*Signature of Institution's President or Chancellor*

*Date*

Michael Crow, President

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*Printed/Typed Name and Title*

Arizona State University

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*Name of Institution*

Tempe, Arizona

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*City and State*

The institution uses the template below to complete its Quality Initiative Report. The institution may include a report it has prepared for other purposes if it addresses many of the questions below and replaces portions of the narrative in the template. This template may be used both for reports on initiatives that have been completed and for initiatives that will continue and for which this report serves as a milestone of accomplishments thus far. The complete report should be no more than 6,000 words.

The report must be submitted by June 1 of Year 9.

Submit the report as a PDF file at [hlcommission.org/upload](https://hlcommission.org/upload). Select "Pathways/Quality Initiatives" from the list of submission options to ensure the institution's materials are sent to the correct HLC staff member. The file name of the report should follow this format: QIRReport[InstitutionName] [State].pdf (e.g., QIProposalNoNameUniversityMN.pdf). The file name must include the institution's name (or an identifiable portion thereof) and state.

**Date: 5-27-22**

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## Report Categories

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### Overview of the Quality Initiative

#### **1. Provide a one-page executive summary that describes the Quality Initiative, summarizes what was accomplished and explains any changes made to the initiative over the time period.**

Arizona State University's (ASU) Quality Initiative (QI) developed and piloted an infrastructure for general education assessment. In addition to the existing assessment of program-specific knowledge and skills imparted within students' majors, ASU seeks to conduct a holistic, comprehensive assessment of students' competencies in the general education curriculum. This requires an expanded assessment approach for general education outcomes that the QI was designed to address. This initiative is timely because ASU is in the process of revising the general education curriculum to be aligned with the new Arizona Board of Regents (ABOR) General Education policy. The revised curriculum includes assessment as an integral component, and assessments will be completed in key areas at regular frequency at all three of Arizona's public universities. These changes require a new approach to general education assessment at ASU.

The QI piloted an infrastructure of general education assessment using ASU's writing program as its model program. This pilot incorporated course-embedded artifacts from ASU's written composition courses, used measurements for written communication that aimed to provide both depth and breadth of learning, engaged faculty in the assessment process, and resulted in technology creation to support assessment efforts.

Two major factors influenced the evolution of the project: (1) more faculty engagement in the process was deemed crucial for successful, widespread implementation of assessment practices; (2) the enactment in 2021 of ABOR Policy 2-210 on General Education shifted assessment requirements. The QI's approach was revised to align its practices with those developed to meet the new General Education policy which included a modified assessment tool co-developed by Arizona's three public universities being used to measure the learning outcome of written communication.

Four key lessons have been learned from this project. First, university leadership is essential for engaging faculty, negotiating compensation and funding for assessment work, and setting a culture that values university-wide assessment of general education. Second, selection of artifacts and scorers, and the interplay between the assessment and the role of the artifact in a course, is crucial to successful assessment across a large scale. Third, robust assessment technology designed to match other data systems is essential for assessment of general education at our scale. Fourth, a university-level authority is necessary to coordinate communication across academic units, analyze data, and recommend continuous improvements applicable across the entire university curriculum.

### Scope and Impact of the Initiative

#### **2. Explain in more detail what was accomplished in the Quality Initiative in relation to its purposes and goals. (If applicable, explain the initiative's hypotheses and findings.)**

The goal of the QI was to develop and pilot an infrastructure for general education assessment, using best practices in assessment, to provide a more accurate and consistent reflection of students' knowledge and skills gained during their time at ASU. Prior assessment efforts have been insufficient to meet ASU's larger institutional goals of creating a generally applicable model for general education assessment at university-scale. Previous efforts included a curriculum gap analysis and two longitudinal studies using externally developed testing instruments to assess select general education learning outcomes. These prior studies hoped to provide student learning data to inform decision-making for curriculum, instruction, and academic

support services. However, both strategies – the Collegiate Learning Assessment and ETS Proficiency Profile – were expensive and did not produce the type and level of student learning data required for curricular and academic support decisions. Furthermore, ASU’s general education courses are offered as independent offerings with little to no connection and absence of opportunities where faculty can conduct a holistic, comprehensive assessment of competencies in the general education curriculum.

**Table 1**

*Comparison of Approach 1 vs. Approach 2*

	<b>Approach 1</b>	<b>Approach 2</b>
Measurement tool	AAC&U Value Rubric for Written Communication	<u>Modified</u> AAC&U Value Rubric for Written Communication
Sample	AY’17-18 English 101	Fall 2021 English 101 – Tempe English 105 – Tempe English 101 – ASU Online
Ideal Artifact Characteristics	<ul style="list-style-type: none"> <li>- Analytical or opinion-focused</li> <li>- Defense of a specific position</li> <li>- Cites evidence</li> <li>- Develops conclusions</li> </ul>	English 101: <ul style="list-style-type: none"> <li>- Analytical or opinion-focused</li> </ul> English 105: <ul style="list-style-type: none"> <li>- Develops causal argument</li> <li>- Compares and evaluates multiple pieces of evidence</li> </ul>
Sampled Artifact(s)	End-of-semester writing assignment	Tempe (3x) – First, middle, and end of semester writing assignments  Online (1x) – End of semester writing assignment
Evaluators	Graduate students	English Faculty
Evaluation Training	<ul style="list-style-type: none"> <li>- Two-day AAC&amp;U led value rubric training session</li> <li>- Rubric norming session (20 artifacts)</li> </ul>	<ul style="list-style-type: none"> <li>- Assessment focused informational webinar</li> <li>- Rubric training session led by AAC&amp;U trained QI researchers</li> <li>- Rubric norming session (3 artifacts)</li> </ul>
Technological Tools	<ul style="list-style-type: none"> <li>- Digication ePortfolio system</li> </ul>	<ul style="list-style-type: none"> <li>- Canvas</li> <li>- UOEEE rubric evaluation site</li> </ul>

For this project, our writing programs were used as a model to test our assessment infrastructure and practices. As outlined in **Table 1**, two different methodologies were evaluated. Both approaches included course-embedded artifacts, a nationally normed rubric, and rubric training and norming. The project also evaluated the resources necessary to support an expanded assessment approach including faculty responsibilities and time, and assessment technology.

Under both approaches, the measurement tool was a rubric, with the requirement that the rubric be able to measure both depth and breadth of student learning through the direct assessment of student course artifacts. For Approach One, the rubric was the American Association of Colleges & Universities (AAC&U) Valid Assessment of Learning in Undergraduate Education (VALUE) Rubric for written communication. This rubric was developed over twelve years by the AAC&U with input from faculty from different institutions. It has proven to be valid and reliable in documenting student performance across many learning outcomes and in varying disciplines. The rubric can be easily modified to meet individual course specifications.

For Approach Two, the AAC&U VALUE Rubric for written communication was adapted. Arizona Board of Regents policy 2-210 specifies new requirements for general education at Arizona's public universities including annual assessment exercises undertaken across all three universities. A tri-university writing advisory group designed the assessment for written composition using a Modified VALUE Rubric.

To provide an accurate and consistent reflection of students' knowledge and skills gained during their time at ASU, authentic, course-embedded student artifacts were assessed for this project. Approach One examined artifacts from ASU's English 101 student cohort from Fall 2017. As the first-year composition course taken by approximately half the freshmen at ASU, English 101 was selected for the pilot initiative.

Artifact appropriateness was determined by examining English 101 artifacts for the elements contained in the written communication rubric produced by AAC&U. Artifacts that are primarily analytical or opinion-focused were considered appropriate as they provided students the opportunity to build and defend content/ positions, cite evidence, and develop conclusions. Approach One assessed a final version (i.e., revised from previous writing submissions) of students' end-of-semester writing assignments.

Approach Two also used course-embedded artifacts within English Composition courses. This approach is aligned with the ABOR requirement that universities employ rigorous strategies relying primarily on direct measures of student attainment (i.e., using actual student work or student performance). Specifically, artifacts came from sections within ASU's English 101/105 student cohorts from Fall 2021 in the Tempe Writing Program and English 101 from the Online Writing Program. Of the types of writing used in English 101, as in Approach One, those that were analytical or opinion focused were considered appropriate. For 105, samples for the QI project included artifacts that developed a causal/definitional argument, emphasized the ability to judge the merit of appropriate evidence, weighed evidence against one another, and engaged in intellectual dialogue with the authorities represented by that evidence. The Tempe campus sections provided three writing assignments that were final versions of students' first, middle, and end of semester writing assignments. Tempe instructors graded students' artifacts with the Modified VALUE Rubric, i.e., used the score as a grade in the class. The Online Writing Program scored the final version of students' end of semester writing assignments using the Modified Value Rubric but did so outside of the Canvas LMS. The scores were solely used for assessment purposes.

A contributing factor in changing the approach for the QI was to increase faculty engagement in assessment efforts. Under Approach One, external raters (graduate student workers) scored the artifacts. In response to faculty feedback from an AAC&U VALUE rubric training – that faculty involvement in assessments is paramount to sound assessment practices – Approach Two engaged faculty instructors for scoring with the Modified VALUE Rubric.

Under Approach One, external raters were trained in the use of rubrics by a representative of the AAC&U who conducted a two-day training session with the external raters. The QI team also invited faculty members and staff from across the institution to attend the training to learn more about the rubrics as a primary approach to assessment of authentic student work products. The two-day session started with an introduction to the AAC&U VALUE rubrics and the VALUE rubric approach to assessing written communication. On day two, participants were able to “test” the assessment approach for both the critical thinking and written communication VALUE rubrics utilizing a sampling of true ASU student artifacts.

Following the AAC&U training, the external scorers were taken through a process of norming – or reaching consensus on an agreed score – on 20 practice artifacts. Consensus occurs through a process of discussing individual scores awarded by each rater and developing a shared understanding of how to apply the rubric criteria to an artifact to produce consistent scores. An artifact is considered normed when scores awarded to artifacts are within one-point on a four-point scale.

Under Approach Two, faculty scorers were first presented a webinar with background information on assessment and rubrics along with details on the pilot project. Faculty were then trained by members of the QI research team (themselves trained by the previous two-day AAC&U VALUE workshop material and previous outside experience with rubric norming training). Faculty practiced using the Modified VALUE Rubric on three samples of student work and were considered normed once they were within one-point on a four-point scale.

Infrastructure development also involved evaluating options for technology to gather, score, and develop dashboards from the scoring of artifacts. Under Approach One, the 2017 artifacts from English 101 courses were housed within ASU’s ePortfolio system, Digication. Given limitations of using Digication as the assessment tool, the QI team sought alternatives. Rather than attempting to score within Digication, a python web-scraping program was written to pull writing samples from portfolios and save the submissions to a separate database. Over thirteen thousand possible artifacts were collected. Writing samples suitable for review were selected by graduate students through a review of the submissions and Fall 2017 syllabi. A web application assessment scoring system was developed to collect scores and manage completion of multiple independent scores for each submission.

Approach Two technology involved updating the scoring web application with the Modified VALUE Rubric, but also incorporated using the rubric as a course-embedded Canvas assignment rubric. The Canvas learning management system only allows one grading rubric per assignment. In those cases, faculty used the Modified VALUE Rubric for both assessment scoring and grading. To help with the use of the technology, a member of the QI research team ensured the appropriate Modified VALUE Rubric was attached to the student assignments. This required faculty to designate a member of the QI research team as an “instructor” in Canvas. This process is not scalable or practical for future ASU general education assessment practice.

### **3. Evaluate the impact of the initiative, including any changes in processes, policies, technology, curricula, programs, student learning and success that are now in place in consequence of the initiative.**

ASU used the QI to conduct an examination of policies, procedures, resources, technology, and practices for assessment. Our goal was to determine how to expand our current assessment efforts to include general education outcomes. Initially, our QI began prior to ABOR’s new policy statement on General Education (ABOR Policy 2-210). Our second pilot was able to incorporate this policy into our approach.

- General education and assessment of student learning have always been a priority for the Arizona Board of Regents (ABOR). Concomitant with passage of ABOR policy 2-210 in 2021, ASU began participating in harmonized assessments across all three Arizona public universities. They assess one of four competencies each year: written composition, quantitative reasoning, critical thinking, and civic

engagement. QI Approach Two is aligned with the methodology employed for the ABOR written composition assessment in 2021-2022 in which a shared rubric was employed across all three universities to assess both incoming and outgoing student artifacts.

- This QI project defined the technology, specialized staff, and financial needs for this type of assessment. In particular, faculty time for planning and training, and compensation were evaluated to build a financial model for future assessments. Funding was also needed to develop technology to upload documents to Canvas and to design a UOEEE assessment site for the online writing program instructors.
- Collaboration between writing faculty and assessment personnel gained buy-in and realized a shared purpose to support assessment and student success.

#### 4. Explain any tools, data or other information that resulted from the work of the initiative.

The QI goal was to expand general education assessment at the institution, starting with the examination of program learning outcomes for written communication. The project generated three key outcomes: (1) the Modified VALUE Rubric for written communication, created by a working group composed of subject matter experts from the three Arizona public universities; (2) new assessment technology aligned with ASU data systems to score rubrics, create data reports, and display data dashboards to allow constituencies to participate in the analysis and planning based on the findings; and (3) a financial model for the resources necessary for this type of assessment including compensation for scorers' time.

In addition to the broader infrastructure goals, as shown in **Tables 2-4**, the QI also provided data regarding student achievement in ASU's first-year composition program. **Table 2** shows Approach Two yields higher scores than Approach 1. This observation will be discussed in more detail in section 5. **Table 3** shows online scores are significantly lower than Tempe campus scores. Faculty focus groups suggest this difference arises from the fact that Tempe campus faculty used the rubric for grading and explained that the rubric did not allow for providing points for growth or effort. As described in more detail below, this led us to conclude that future assessments should not be included in course grades, and it may be necessary to use more narrowly defined

**Table 2**

*Comparison of Average Scores by Approach and AAC&U Norms*

	Approach 1 (n = 916)	Approach 2† (n = 497)	AAC&U Norms‡
Context	2.07	3.27	1
Content	1.88	3.16	1
Syntax	2.22	3.45	1
Total	2.06	3.29	1

† Scores exclude 0's and are averaged across locations, courses, and assignments

‡ A score of "1" reflects the starting level of performance expected of "entering students"

All scores between Approach 1 and Approach 2 were significantly different with  $p < .001$

rubrics which simply specify mastery at the general education level or not. Similarly, **Table 4** shows that the Modified VALUE rubric employed was not sensitive enough to detect student growth in a single class across assignments. This may be yet another indication that it is important to have excellent alignment between learning outcomes, rubric and course artifacts to ensure the scores measure the depth and breadth of learning.

**5. Describe the biggest challenges and opportunities encountered in implementing the initiative.**

The goal of this project was to pilot test assessment approaches for ASU’s revised general education program to ensure its assessment generates data that can be used to inform learning outcomes and drive continuous program improvement. Through execution of this project, we discovered three key areas for

**Table 3**

*Comparison of Average Scores by Campus*

	Tempe† (n = 378)	Online (n = 119)
Context	3.47	2.64
Content	3.39	2.42
Organization	3.58	2.48
Syntax	3.72	2.58
Total	3.54	2.53

† Scores are averaged across assignments  
All scores between Tempe and Online were significantly different with  $p < .001$

**Table 4**

*Comparison of Average Score by Assignment*

	Assignment 1	Assignment 2	Assignment 3
Context	3.35 <sup>c</sup>	3.42 <sup>c</sup>	3.66 <sup>ab</sup>
ENG 101	3.37 <sup>c</sup>	3.48 <sup>c</sup>	3.69 <sup>ab</sup>
ENG 105	3.30 <sup>c</sup>	3.31 <sup>c</sup>	3.60 <sup>ab</sup>
Content	3.29 <sup>c</sup>	3.36 <sup>c</sup>	3.51 <sup>ab</sup>
ENG 101	3.35 <sup>c</sup>	3.43 <sup>c</sup>	3.56 <sup>ab</sup>
ENG 105	3.16 <sup>c</sup>	3.23 <sup>c</sup>	3.40 <sup>ab</sup>
Organization	3.50 <sup>c</sup>	3.57 <sup>c</sup>	3.68 <sup>ab</sup>
ENG 101	3.44 <sup>c</sup>	3.55	3.63 <sup>a</sup>
ENG 105	3.61 <sup>c</sup>	3.61 <sup>c</sup>	3.78 <sup>ab</sup>
Syntax	3.70	3.73	3.72
ENG 101	3.65 <sup>b</sup>	3.77 <sup>a</sup>	3.71
ENG 105	3.81 <sup>b</sup>	3.64 <sup>a</sup>	3.76
Total	3.70	3.73	3.72

ENG 101 n = 257

ENG 105 n = 121

<sup>a</sup> Significantly different from Assignment 1

<sup>b</sup> Significantly different from Assignment 2

<sup>c</sup> Significantly different from Assignment 3

additional consideration, resources, infrastructure, or policies.

First, direct faculty engagement in assessment of general education should be increased. Since no single academic unit is responsible for general education and ASU does not mandate faculty participation in assessment generally, identifying faculty for general education assessment is a challenge. This includes both utilization of faculty as assessors and as an administrative body to make programmatic decisions. While ASU has a General Studies Council comprised of faculty to decide which courses meet criteria for inclusion in the general education program, that council has not historically played a role in assessment or had access to assessment data from the general education program.

The QI project presented an opportunity to negotiate details around how this project's responsibilities would fit into adjunct and full-time writing instructors' teaching loads. Approaches included stipends, teaching release time, and incorporation into service responsibility. For Approach Two, faculty negotiations around time and rewards for participating in assessment resulted in a delay in data collection and took careful deliberations to ensure faculty buy-in. Although incorporating a large number of faculty in the process required development of new processes and infrastructure, involving faculty in the process and using course-embedded student artifacts improved overall validity and made the results more meaningful for faculty.

Second, there is no single academic unit responsible for administration of general education at ASU. Seemingly simple aspects of the assessment project like selection of courses to assess, extraction of artifacts from Canvas shells, and identifying faculty to analyze results were relatively complicated because of a lack of authority to turn to for this work. Thus, this project and the parallel redesign of the general education curriculum, have motivated discussion of modifications to the faculty governance structure to more adequately support assessment and incorporate its results into curriculum.

Third, as shown in **Table 2**, scores from Approach Two are higher than expected based on the AAC&U VALUE Rubric projections. This may reflect improved student achievement, but it is likely other factors play a role including differences between the two rubrics, invalid scores, or a difference between faculty and research assistant scoring. In Approach One, trained research assistants scored the rubric as opposed to faculty. In reflective discussions of the QI results, the Writing Directors recommended the use of faculty assessors due to their higher level of skill/experience with evaluating student learning in their discipline. Another possible reason could be the explanation faculty provided in the focus groups. Faculty assessors revealed a reticence to award lower scores both because the score was included in the grade for the course (only in Tempe) and because the course instructor consciously considered student effort and improvement in scoring. Thus, although the AAC&U VALUE rubric distributes the scoring at levels beginning with first year students and progressing to professional writing, a level even outgoing students may not achieve, faculty were largely unwilling to use lower categories.

## Commitment to and Engagement in the Quality Initiative

### 6. Describe the individuals and groups involved at stages throughout the initiative and their perceptions of its worth and impact.

- **Dr. Andrew Webber, Executive Director; Dr. Pamela Garrett, Associate Director; and Rebecca Estomago, Management Research Analyst. University Program Review and Accreditation (UPRA):** Developed proposal and project. Trained and normed rubric raters to score student artifacts. Extracted student artifacts from Canvas. Moderated focus groups with faculty instructors participating in the project. Analyzed project data and wrote report.
- **Dr. Shelly Potts, Senior Director; Dr. Lisa Bortman, Director, Assessment; Dr. Gerald Blankson, Director, Surveys & Systems; and Dr. Wells Ling, Management Research Analyst. University Office of Evaluation and Educational Effectiveness (UOEEE):** Developed proposal and project.



- Developed assessment technology for the project. Developed Modified VALUE Rubric. Extracted student artifacts from Digication. Analyzed project data and wrote the report. Created project budget.
- **Provost's Office:** Developed proposal and project. Selected courses to participate in the project. Approved project budget.
  - **Dr. Anne Jones, Vice Provost, Undergraduate Education:** Reviewed project progress, provided feedback and implications of practice for QI report.
  - **University Technology Office (UTO):** Developed assessment technology for the project.
  - **Dr. Kyle Jensen, Director Writing Programs/Arizona State University Writing Programs:** Developed Modified VALUE Rubric. Provided samples of student artifacts for faculty rubric training and norming. Provided feedback on QI report.
  - **Dr. Michelle Stuckey, Director Online Writers' Studio/Arizona State University Writing Programs:** Provided feedback on QI report.
  - **Tamara Deuser, Vice President and COO, Academic Enterprise:** Project management.
  - **University of Arizona Writing Programs:** Developed Modified VALUE Rubric.
  - **Northern Arizona University Writing Programs:** Developed Modified VALUE Rubric.
  - **Arizona Board of Regents:** Developed Modified VALUE Rubric.
  - **American Association of Colleges & Universities (AAC&U):** Trained and normed rubric raters.
  - **Arizona State University, Tempe Writing Faculty:** Scored artifacts. Participated in a focus group.
  - **Arizona State University, Online Writer's Studio Faculty:** Scored artifacts. Participated in a focus group.
  - **Arizona State University Graduate Assistants:** Scored student artifacts for Approach One.
  - **HLC Re-accreditation Committee:** Dr. Andrew Webber; Dr. Pamela Garrett; Dr. Shelly Potts; Dr. Lisa Bortman; Dr. Craig Thatcher; Tamara Deuser: Reviewed progress, provided feedback on QI report.

Two examples of the QI's importance and impact are (1) the administration's use of 'lessons learned' from this initiative in the re-envisioning of ASU's general education program (e.g., using assessment results to guide continuous improvement, the importance of aligning rubrics with SLO's, and scaling technology to meet assessment needs) and (2) the ASU Writing Programs' recognition of the need for better assessment structures and processes and their eagerness to engage in discussions about using assessment data.

## 7. Describe the most important points learned by those involved in the initiative.

Based on this project, the QI team has communicated the following observations and recommendations to the ad hoc committee currently developing ASU's revised general education curriculum. In keeping with the goal of this project to develop infrastructure for more robust assessment, most of these recommendations are related, not to the writing programs specifically, but to overall assessment processes.

1. Shared, university-wide learning outcomes should underpin the general education curriculum and serve as the basis for assessment. This point has largely driven ASU's current reform of general education. ASU's new general education program, recently approved by the Arizona Board of Regents and to be considered by the faculty senate in fall 2022, includes common outcomes to define each knowledge area, and faculty will agree to include signature assignments for assessment in all courses.
2. Establish a university-level administrator with the authority to lead the assessment process. This leader would guide the process of recruiting faculty, choosing courses and artifacts, negotiating funding, and sharing data with faculty in relevant academic areas to guide continuous improvement. Although this project was successful without such a position, it is anticipated that expanding to other assessments will require this additional leadership.
3. Faculty participation in assessment is essential and time-consuming. Faculty participation in general education assessment should be considered in advance, incorporated into faculty workload

expectations, and rewarded. Faculty should be familiar with the assessment rubrics in advance to enable design of appropriate assignments for use in the assessments. Faculty should also be employed as raters, but not for artifacts from their own courses.

4. Although faculty who teach general education courses should be involved in the assessment, and course artifacts should be used for assessment, general education should be assessed independently of class grades. The validity and reliability of the results are affected by the context of the class, its outcomes, and student progress.
5. Although there are advantages to using a national, standardized rubric, that may not be the best approach for general education. As stated by faculty in the focus groups, the rubric was not suited to grading and giving students credit for growth in the process. Instead of using a rubric designed to assess competency across a wide range of levels, it may be more appropriate to create and normalize a narrower rubric focused only on mastery at the general education level. Complementary, disciplinary assessments are already employed in all majors across the university.
6. Scope of practice also must be considered. Given the size of ASU, collecting a meaningful sample results in a great number of considerations. Representing the student population, modalities, and colleges is important. This significantly impacts the number of artifacts, program areas, schools, and campuses now needing to be represented within the data set. For future projects, the scope of practice is an aspect that must be considered to ensure projects are scalable and resources are sufficient.
7. The writing programs managed by the different colleges at ASU have distinct approaches and program learning outcomes. As a result of this project, in academic year 2022-2023, they will undergo a design process to establish shared outcomes to guide future programming. In connection with the re-envisioning of general education, connections with upper division writing courses will be deliberately built. A faculty community of practice is to be developed in which faculty share access to pedagogical approaches and resources for teaching shared learning outcomes.
8. The project revealed a need for technology to enable easier exchange between artifacts, rubrics, and data. Currently, the University Technology Office is creating dashboards that can be used with Canvas, the learning management system. ASU anticipates investing in technology in this area, and it is not yet clear that commercial products will be sufficient to meet the need at our scale.

## Resource Provision

### 8. Explain the human, financial, physical and technological resources that supported the initiative.

This initiative required significant human and technological resources. It took advantage of both in-kind work from existing staff and new staff dedicated to the project. New staff included:

1. three graduate student workers hired with wages and benefits as external scorers for Approach One;
2. a management research analyst hired with salary and benefits for Approach Two for an 18-month term to conduct research, train faculty scorers, and write project reports; and
3. faculty raters for Approach Two who were paid supplemental stipends totaling over \$40,000.

Additionally, as outlined in section 6, several existing UOEEE staff and writing program faculty spent considerable time developing, executing, analyzing, and summarizing this project.

UOEEE created new technology for each of the approaches in this initiative. For Approach One, a python-based web-scraping program was written to search for portfolios and save writing submissions to an independent database. The web-based scoring application was also built during this phase. For Approach Two, the web application was adapted to also serve as a repository for the artifacts from the online writing program with scoring capability that allowed for dimension ratings to be linked to each artifact.

## Plans for the Future (or Future Milestones of a Continuing Initiative)

### 9. Describe plans for ongoing work related to or as a result of the initiative.

The goal of the QI was to develop and pilot an infrastructure of general education assessment, starting with written communication. This pilot was launched to provide holistic assessment of students' skills gained over the course of their time at ASU, support the changes that ASU's general education curriculum is undergoing and the consequent expansion of assessment outcome areas. Due to such general education assessment changes, it was necessary to adapt the current infrastructure. The work of this QI will be on-going in three key areas.

First, faculty governance of the new general education program is being re-envisioned with the lessons of this project in mind. The timing of the QI was concurrent with the new Arizona Board of Regents General Education Policy. The policy necessitates changes to the content of ASU's general education curriculum. In spring 2022, a new curricular framework was approved by the regents. The new curriculum is defined in terms of knowledge outcomes to facilitate assessment. ASU's current general studies council has historically served as arbiters for deciding whether a course is included in the general studies curriculum. In the new system, they are anticipated to take a role in analyzing assessment results to guide continuous improvement.

Second, the assessment strategy of the QI is being modified for use with other institutional learning outcomes. Plans are already underway to undertake assessment of quantitative reasoning in AY 2022-2023. In parallel, written composition assessment will be undertaken on a smaller scale to provide continuity of data as the program evolves. The quantitative reasoning assessment, like Approach Two of the QI, will be undertaken in concert with the two other Arizona public universities. The QI has shown us the significance of carefully aligning rubrics with learning outcomes for these assessments.

Third, technology needed to scale such expanded assessment in general education outcomes is being developed to serve as a repository for artifacts, to reduce faculty scoring time, to analyze data more seamlessly, and to allow for data visualization.

### 10. Describe any practices or artifacts from the initiative that other institutions might find meaningful or useful and please indicate if you would be willing to share this information.

The QI's lessons learned from implementing the Modified VALUE Rubric in written communication can be shared. Other universities may also find it beneficial to learn about the initiative's process of engaging instructors in assessment activities, which included training materials compiled on the use of rubrics as a measurement tool and norming artifacts. The creation of an assessment site to house artifacts and link rubric scores also may be useful to other universities.

The university's comprehensive report on this initiative is housed within the University Office of Evaluation and Educational Effectiveness.