AUTHENTIC ASSESSMENT OF BROAD LEARNING SKILLS WITHIN COMPETENCY-BASED EDUCATION:

RECOMMENDATIONS FROM A PILOT STUDY WITH THE UW FLEXIBLE OPTION PROGRAM

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Why Authentic Assessment of Broad Skills Should be Part of Competency-Based Education

A promise is made to students when they enroll in higher education: They will learn more, they will be able to do more, and they will be able to translate those gains into future success. While learning does, in part, require the acquisition of a knowledge base and relevant content areas, student success beyond college lies in the ability to engage with knowledge through the application of skills that enable students to problem-solve across contexts, create new knowledge, innovate to expand boundaries, and understand who they are within local, national, and global locales.

The University of Wisconsin System has acknowledged the meaning of articulating this set of skills through its system-wide learning outcomes.[1] The system outcomes, closely aligned with the AAC&U's LEAP Essential Learning Outcomes Framework[2], promise that students seeking an education within the UW System will gain, in addition to general and area specific knowledge (referred to as "Knowledge of Human Cultures and the Natural World"), broad skill development in areas related to:

- **Critical and Creative Thinking**
  - Inquiry, problem-solving, and qualitative and quantitative reasoning
- **Effective Communication Skills**
  - Listening, speaking, reading, writing, and information literacy
- **Intercultural Knowledge and Competence**
  - Ability to interact and work with people from diverse backgrounds and cultures; lead or support to those who lead; empathize with people who are different
- **Individual, Social, and Environmental Responsibility**
  - Civic knowledge and engagement, ethical reasoning and action

A 21st century education achieved through the UW Flexible Option (Flex) provides the opportunity to meaningfully link competency-based education (CBE) with students' acquisition of knowledge and broad and transferable skills, as articulated through the UW Systems' learning outcomes. Flex, specifically, is a non-term, CBE program in which students advance through the program based on their demonstrated mastery of defined competencies that are evaluated using direct assessment. The cumulative completion of competency assessments provides a means for students to

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[1] https://www.wisconsin.edu/regents/download/meeting_materials/2008/december/december(5).pdf#page=77

[2] https://www.aacu.org/leap/essential-learning-outcomes

reflect upon and demonstrate higher-order learning outcomes, such as critical thinking and communication skills.

The great promise of Flex, and CBE in general, is the equitable provision of access to higher education for a wide range of students, particularly adult students who do not have a college degree. Nevertheless, the quality of a competency-based education in its ability to guide students toward intended outcomes should not be assumed. Rather, like any other learning environment, a rigorous assessment of the educational experience should be made an intentional, transparent part of every CBE program. This author argues for the connection of authentic assessment within competency-based education as a means for capturing educational quality through the measurement of broad skills shared across colleges and universities nationally, including the UW System, and across degree programs, even those that are professionally accredited (e.g. nursing).

Connecting Assessment of Broad Learning Outcomes with CBE
The need for higher education to focus students' development of broad learning skills, such as critical thinking, written communication, and quantitative literacy among others, has been widely endorsed by employers.[3] These skills are also widely shared across accreditation standards for pre-professional and professional programs, such as nursing, business, and engineering. For example, American Association of Colleges of Nursing (AACN) standards require students to, in addition to acquiring knowledge, have the ability to communicate effectively, engage in ethical reasoning, integrate knowledge, and value lifelong learning.[4] Such skills suggest that nurses with a BSN are competent not only in their ability to administer an IV, but also in their ability to evaluate the context in which the IV is administered, problem-solve new technologies and situations, and apply reason to ethical ambiguities. As one nurse educator within the Flex program explained in an interview in which the relevance of broad skills was being discussed, "The reason …critical thinking and [broad] skills are so important is those are the essential competencies that our professional organization says make a nurse different if she has a baccalaureate [degree]…Because if [students] want to just be a technical nurse they could go to a two-year tech school. So, the reason they are in a four-year school is to bring those meta-cognitive skills, [like] critical thinking…into their practice."[5]

The benefits of pursuing assessment of broad skills, such as critical thinking and effective communication skills, are two-fold. The first benefit is the ability at the system level to provide a full picture of student learning and success within the Flex program. The completion of competency assessments provides one measurement of students' progress through the program. However, the evaluation of students' broad skill development over time is necessary for the system and for individual programs to ascertain if they are meeting their full commitment to student development and success. Second, students themselves need to be aware and empowered by their attainment of these broad skills. As essential as it is for students to understand the knowledge skills

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[3] https://www.aacu.org/leap/public-opinion-research. Also https://cew.georgetown.edu/cew-reports/recovery-job-growth-and-education-requirements-through-2020/.
[4] http://www.aacn.nche.edu/education-resources/curriculum-standards.
[5] Interview transcript. Interview conducted 2/11/16.

gained through competency task completion, they similarly need to be empowered by their progress in skills such as writing, information literacy, and ethical reasoning. The confidence students have in knowing they can *apply* knowledge within and across a range of real-world contexts and circumstances is as important as having gained the knowledge in the first place.

The Benefit of Authentic Assessment for Capturing Skill Development within CBE

From the perspective of the UW Flexible Option, authentic assessment refers to an assessment that tests a particular skill or knowledge set as closely to real-life application as possible. For example, a UW Flexible Option assessment in the RN-to-BSN program requires students to demonstrate critical thinking through their evaluation of a health-related website as a potential resource for patients.

The demonstration of broad skills, such as critical thinking or written communication, requires doing multiple cognitive tasks at once. For example, demonstrating proficiency in critical thinking, such as in the assessment referenced above, requires students to write an organized summary, using the APA format, of the website strengths and limitations and the resulting implications and conclusions about whether or how this resource might be helpful for patients.. Thus, the measurement of student development of broad learning skills requires assessment across multiple dimensions of specific skills.

An example of assessment tools designed to assess broad learning skills using authentic assessment is the set of AAC&U VALUE rubrics. These rubrics provide a guiding framework for authentic assessment of student learning modeled on interdisciplinary collaboration among faculty and other educational professionals across varied institutional types (see Rhodes, 2010). Each of 16 rubric development teams focused on a single learning outcome, constructing and revising each rubric over a period of 18 months from 2007-2009. Teams received feedback on the readability, applicability, and comprehensiveness of each rubric from approximately 100 campuses to guide the revision process.

Structurally, the VALUE rubrics enable complex outcomes to be articulated across progressive levels of a student's cognitive development. The rows of each rubric explicate essential components of a particular learning outcome that a student is expected to demonstrate. The columns of each VALUE rubric indicate the progress in students' cognitive development over time using a five-point scale (that includes a zero point) and performance labels reflecting "capstone" (4), two "milestone" markers (3 and 2), "benchmark" (1), and "below benchmark" (0) levels. Descriptors at the "capstone" level are intended to reflect achievement at the end of a baccalaureate degree, whereas "benchmark" descriptors indicate a typical student's performance upon entering college. "Milestone" descriptors help to articulate a student's progress along the path from benchmark to capstone. "The performance levels…do not represent year in school (freshman, sophomore…), nor do they correspond to grades (A, B, C…)" (Rhodes, 2010, p2).

Practical Implications for Connecting Authentic Assessment with CBE

Though rubrics are fairly common assessment tools, most faculty have not had the training to apply rubrics aimed at assessing broad skills at progressive levels of cognitive development, such as the AAC&U VALUE rubrics are designed to do. Thus, while the case can be made for the need to assess broad skills within CBE, faculty and instructors need training to do so.

There are at least two notable challenges for connecting authentic assessment with CBE. The first is the need for faculty to explicitly and intentionally highlight broad skills within CBE curricula to understand the value of CBE relative to other modes of learning, such as online course delivery. The second challenge is the need to leverage faculty development so as to scale the implementation and assessment of broad skills across CBE programs. In order to address the first challenge, a pilot assessment of critical thinking was launched within the University of Wisconsin-Milwaukee nursing program to compare the assessment of students' performance on this skill between those taking traditional online courses and those concurrently enrolled in CBE courses. Nursing faculty members—who teach in both the online and CBE nursing programs and had participated in faculty development training on connecting broad skills with program curricula—revised assignments to more explicitly invite students to demonstrate criteria of critical thinking using the AAC&U Critical Thinking VALUE rubric as a guide for assignment design. The modified version of this rubric was then used by two nursing faculty— who did not teach the courses during the pilot study—to evaluate a sample of student essays from the online and CBE courses. The pilot results indicated slightly higher learning gains among CBE students.

Though the results of this pilot in terms of student learning should be interpreted with some caution because of the limited scope of student work analyzed, another important outcome of the pilot is its positive effect on faculty development. The nursing faculty who participated benefitted from engaging assessment training that equipped them to evaluate broad skills. They also comment on the utility of developing procedures for explicitly connecting skills, such as critical thinking, with existing curricula. As one nursing faculty member stated in a 2016 interview, "Flex has totally changed my opinion on the concept of using objective multiple choice exams, because I really do not think those…demonstrate critical thinking, and in fact I feel so strongly about it that I've gotten rid of every one in the Flex program."[6] Another faculty member noted the value in connecting assignments intended to invite students to demonstrate a particular skill, like critical thinking, with a rubric intended to measure that skill. "I used the critical thinking rubric first and then I tried to align it with the [grading] rubric that was currently in use and then I went back to see if the assignment was giving the student the opportunity to show that they have the ability to think critically. And then sometimes that assignment had to be tweaked a little bit."[7] Additionally, the faculty indicated training in connecting broad skills with authentic assessment had encouraged them to apply this approach to educating students who were not in CBE. As one faculty member noted, "So, we have used [the VALUE] rubrics as a guide to improve the grading rubrics in the traditional

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[6] Ibid.
[7] Ibid.

undergraduate [nursing] program. Which once we learned about [the VALUE rubrics] we [thought], 'Wow! This is so great! There's more to this education than just the nursing skills.'"[8]

The positive reactions of the nursing faculty who participated in the authentic assessment and CBE pilot were encouraging for the benefits of scaling faculty development more broadly. But the challenges of doing so were still evident even among the largely positive comments of these faculty. As one nursing faculty member noted, "[using rubrics to assess broad skills is] something that requires more work on the teacher's part. But once you did it, and you can understand it, then you can explain it to your students and then you can see how your students have progressed…So, that might be the problem. You have to treat people who you want to jump on board with [this kind of assessment] more gently, and slowly…"[9] Another nursing faculty member suggested part of the challenge was in helping colleagues to expand their thinking about new tools. "I just recently got two new RN …faculty…that were using quizzes and exams and I said, 'Tell me how that's demonstrating critical thinking.' And they just sort of stared at me. So, I got them to take [the quizzes] out, but people don't have other tools, so if they would have other tools perhaps they would think differently."[10]

To provide exposure to using authentic assessment with broad skills, a number of faculty development workshops were offered over the course of the Lumina Grant on the UW Flexible Option. An initial day-long workshop for UW-Milwaukee and UW Colleges faculty was offered in the summer of 2013 to engage faculty in thinking about how broad skills articulated at the UW System level could also be seen within their curricula and the degree to which these skills were made explicit to students. Additional workshops were offered in the summer of 2015 and 2016 to continue to examine the articulation of broad skills and also to connect assessment using rubrics to measure progression of learning over time. Participation in these workshops spanned faculty in the Flex CBE program and also faculty teaching in traditional programs. Workshop topics focused on the construction of logic models that intentionally map learning practices with outcomes and viable assessment evidence and also intentional assignment design for aligning expectations for demonstrated learning with assessment rubrics. Additionally, a rubric norming exercise was conducted with the nursing faculty who served as scorers of student work for the assessment pilot. Due to travel and resource constraints, the norming exercise was conducted remotely with two faculty sitting together in the same room and being guided via video conference through a discussion of how they applied the VALUE Critical Thinking rubric to samples of student work. Although not ideal, this training was essential for assuring that the faculty scorers were interpreting and applying the rubric in similar ways before going into the pilot assessment of student work in the Flex program as compared to students taking nursing courses in the traditional online format. An additional step was taken during the pilot assessment in which scorers discussed any rating discrepancies that exceeded a point of difference. For example, if one scorer gave a particular student work product a score of 1 for a certain rubric criterion and the other

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[8] Ibid.
[9] Ibid.
[10] Ibid.

scorer provided a score of 3 on the same criterion, the scorers would discuss their rationale and arrive at a common score.

Recommendations for Scaling Broad Skills and Authentic Assessment Across CBE Programs

Assessment of broad skills within CBE can begin with the work already accomplished via the articulation of program-level learning outcomes. CBE faculty might begin by reviewing program-level outcomes with an eye toward language that suggests an emphasis on broad skills, such as those articulated in the UW System's learning framework. It should not be assumed, for example, that every CBE program must address each articulated outcome under the five broad categories of the UW System's learning outcomes framework. Rather, it might be expected that each program commit to meeting one or two outcomes in each area. For example, a program might commit to addressing one or two outcomes related to intellectual and practical skills (areas 2 and 3) and one or two outcomes related to personal and social responsibility (areas 4 and 5). An example of the translation of the UW System goals into program goals might look like the following:

- Area 1: Knowledge of Human Cultures and the Natural World content
  - Addressed through content-focused competency assessments
- Area 2: Critical and Creative Thinking
  - Addressed through faculty specified competency assessments that are <u>also</u> structured to engage students' critical thinking skills
- Area 3: Effective communication skills
  - Addressed through faculty specified competency assessments that are <u>also</u> structured to engage students' written communication skills
- Area 4: Intercultural Knowledge and Competence
  - Addressed through faculty specified competency assessments that are <u>also</u> structured to engage students' interactions and reflections on diverse interactions
- Area 5: Individual, Personal, and Social Environmental Responsibility
  - Addressed through faculty specified competency assessments that are <u>also</u> structured to engage students' civic knowledge and engagement

The UW System might provide a guideline for the minimum number of outcome areas that are to be addressed by programs. It might also be helpful to allow programs to decide which outcomes to pursue and then at the system-level analyze the degree of coverage across system-wide learning goals. Over time and with ongoing faculty development, it is possible that programs will expand the number of outcomes that are integrated into program-level assessment.

Recommendations for Engaging Faculty in Defining Broad Skills and Applying Authentic Assessment
- Review competency assessments with a lens toward identifying broad skills that are implicit within the assignment to be more explicit and set as closely as possible to real-life application. This may take some redesign of assignments. To facilitate faculty learning and to manage time expectations, faculty may be

encouraged to use existing assignments as a starting point for connecting assignments with broad skills. Faculty might be invited to consider questions such as: What competency assessments require a student to, for example, write, think critically, think creatively, and/or exercise ethical reasoning? How is the application of knowledge in practice assessed, such as through projects? How might emphasis on one or two of these skills be made clearer to students?

- Not <u>every</u> competency assessment needs to be associated with or intentionally designed to meet a broad skill. Instead, particular competency assessments (sometimes referred to as "signature assignments") can be flagged for broad skill assessment.
- A single competency assessment can be used to address more than one broad skill. However, this implies greater intentionality on the part of the instructor to design the assignment in such a way as to meet multiple skills. Appropriate rubrics can be used to help guide assignment design to ensure students are being asked to demonstrate learning across all (or most) dimensions of intended skills.
- A sample of student work from within each CBE program can be gathered for assessment of broad skills within a particular program. Additionally, samples of student work can be gathered *across* CBE programs for assessment of broad skills at the system-level using similar AAC&U VALUE rubrics, whether in their original form or modified.
- AAC&U VALUE rubrics (or modified versions of the rubrics) can also be used for students' own self-assessment in order to monitor their progress over time. This is most effectively done through the incorporation of student electronic portfolios.
- Faculty workload can be managed by focusing on the articulation, assignment design, and assessment of one to two skills at a time. Successful and sustainable assessment programs typically distribute the assessment of broad skills over a multi-year cycle, by assessing one to two outcomes per year.

Conclusion

As with traditional forms of instruction and student learning in higher education, there are important connections to be made between authentic assessment and competency-based education. It should be stressed that authentic assessment, in and of itself, is not the end point. The goal is evaluating the quality of the educational experience in its ability to provide students with broad skills development within a competency-based education. Authentic assessment is an essential means for reaching those goals through the use of faculty designed assignments, students' own work, and fully articulated rubrics designed to capture development, over time, of students' knowledge and skills applied in a real-world context. The pilot study compared demonstrated levels of critical thinking among students enrolled in the Flex CBE program with students in traditional online courses suggests possible benefits for student learning in CBE. The results of the pilot should be interpreted with caution because of the small sample size of enrolled students and the number of student work products evaluated. Still, the process for developing the sample assignments in Flex, the assessment of the student work, and interpretation of rubric results represents a promising process for expanding the pilot across courses and disciplines.

The integration of authentic assessment within CBE is also happening at a critical moment in terms of national capacity building around this form of assessment. As lessons continue to be learned from the increasing number of campuses that incorporate the VALUE rubrics and authentic assessment into their own individual assessment efforts, CBE programs, such as Flex, also can benefit from national projects that are advancing authentic assessment of broad skills. For example, the Degree Qualifications Profile[11] (DQP) and its associated DQP/Tuning coaching program[12] provide institutions a learning outcomes framework that spans associate, bachelor's and master's degree levels, in addition to trained assessment experts who work one-on-one with institutional stakeholders to develop outcomes-based assessment plans using the DQP.

Additionally, the National Institute for Learning Outcomes Assessment (NILOA), in association with the DQP, has developed a national assignment library[13] intended to assist faculty in connecting effective assignments with broad skills. The library holds examples of effective assignments across a range of disciplines from which faculty can draw upon for their own intentional assignment design around particular skill development.

Finally, the gathering of national data from authentic assessment is being advanced by the Multi-State Collaborative (MSC)[14] project. This national project is focused on connecting authentic assessment of written communication, quantitative reasoning, and critical thinking skills across 13 states and approximately 80 two- and four-year institutions. The MSC has produced a number of helpful resources for campuses and faculty, including models for calibration trainings with rubrics, guidance on sampling procedures, and examples for assignment design.

Though the learning environment and students themselves may look different across CBE programs, the goals for quality and students' 21st century skill development and success do not need to differ from other modes of learning. Within CBE, like other learning environments, authentic assessment is an effective model for capturing learning and skill development. Additionally, as demonstrated through the work of Flex, this assessment model also can be leveraged to engage faculty in the process through collaboration, assignment design, and assessment of student work. It is this engagement that is essential for any assessment plan, because faculty are ultimately the ones who take most campus initiatives to scale. CBE represents the next frontier for authentic assessment and for engaging faculty and students in new ways of thinking and learning. Such thinking is exemplified in the following comment from a Flex faculty member:

> *[Understanding the VALUE rubrics and authentic assessment] was like this huge light went on because...[Flex] students...are nurses who have practical skills and what they need is the liberal arts and metacognitive skills...[The VALUE rubrics] changed everything about what I think in terms of student*

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[11] http://degreeprofile.org/
[12] http://degreeprofile.org/coaches/
[13] http://www.assignmentlibrary.org/
[14] http://www.sheeo.org/projects/msc-multi-state-collaborative-advance-learning-outcomes-assessment

learning. And it provided us with a tool to start to build our Flex program in a way that would focus on the liberal education, metacognitive skills, and the ability to think differently than [students] do currently. Because again this is a very unique student population….These are students who are trying to think bigger."[15]

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[15] Interview Transcript. Interview conducted 2/11/16.