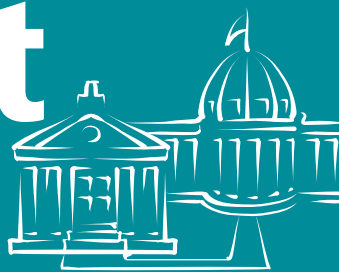


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Theoretical Matrix of Culturally Relevant Assessment

Karen Singer-Freeman, Harriet Hobbs, and Christine Robinson

A GOAL IN HIGHER EDUCATION IS THAT EVERY STUDENT HAS AN EQUAL opportunity to succeed regardless of ethnicity, gender, socioeconomic status, disability, or family educational history. To achieve educational equity, we must examine the equity of assessments. Culturally inclusive assessments decrease the marginalization of students from historically underrepresented groups (Montenegro and Jankowski 2017). Providing students with differentiated ways to demonstrate competence is one route to increase equity (Montenegro and Jankowski 2017). However, it is not always practical to provide differentiated assessment. Therefore, we must examine ways in which specific features of assignments might produce false evidence of achievement gaps (differences in grades reflecting differences in performance and not competence). We analyze features of assessment methods and present a theoretical matrix of culturally relevant assessment.

Inclusive Assignment Features

- **Alignment.** Poor alignment between assessments and competencies can reveal false achievement gaps if differences in grades reflect differences in prior preparation or confidence rather than current mastery. In response to a poorly aligned assignment, academically confident students may be more likely than less confident students to seek out clarification. Multiple-choice test questions, which frequently have complicated sentence structure and vocabulary, are frequently poorly aligned with content (Singer-Freeman and Bastone 2016). Students who understand the content being assessed may answer multiple-choice questions incorrectly because they misunderstand the language or lack sufficient time to read all of the questions and response choices. When students are forced to select a single correct answer from an array of choices, there is no opportunity for elaboration during which learning can be demonstrated. In contrast, open-ended test questions, projects, homework, and writing assignments are frequently better aligned with teaching and student learning outcomes (Gay 2010).
- **Clarity.** When instructions are unclear, students with strong academic preparation can use previous experiences to infer the correct approach, while those with less experience may approach the task incorrectly. Additionally, students from privileged groups may feel more comfortable asking for clarification than students from histor-

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ically underrepresented groups. The use of well-constructed rubrics increases both assignment clarity and grading equity (Montenegro and Jankowski 2017). Rubrics focus evaluators' attention on specific concepts and reduce bias that may occur when evaluators assess nonessential elements of student work.

- **Scaffolding.** Later assignments should build on competencies that are practiced in early assignments (Gay 2010). Early assignments should include detailed rubrics, prompts, and instructions that support student success. When similar rubrics are used across assignments, it allows students to improve their ability to self-assess and scaffolds a higher level of performance. Scaffolded assignments minimize effects of differential preparation. The successful completion of early, relatively simple, assignments builds trust and prepares students to persist when assignments become more difficult (Ladson-Billings 1995).
- **Assessment environment.** Tests that are given in a group setting with time constraints can evoke stereotype threat (Steele and Aronson 1995). Stereotype threat describes the feelings individuals have when they believe they are at risk of confirming negative stereotypes about their group. When the assessment environment evokes stereotype

Alignment, clarity, and scaffolding should be present in all assignment types, and it is always essential to create an inclusive assessment environment.



threat, this can affect students' ability to demonstrate competence. Any situation that highlights race, ethnicity, gender, or privilege can evoke stereotype threat. This includes writing demographic information at the top of a test but can also include being tested as a part of a group in which the student is a visible minority. In general, assignments such as papers and projects that students complete independently and that do not reveal group membership are less likely to evoke stereotype threat than tests that are completed as part of a group.

- **Inclusive content.** When students demonstrate learning by applying content to an example, it is critical that the example be equally familiar to all students (Ladson-Billings 1995). The presence of unfamiliar content interferes with students' ability to demonstrate competence by creating confusion or feelings of exclusion.

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Call for Contributions

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Theoretical Matrix of Culturally Relevant Assessment

(continued from page 2)

Providing students with opportunities to relate course content to their lives can be an effective way to ensure that assignment content is inclusive (Singer-Freeman and Bastone 2018). Assignments in which students select ways of demonstrating knowledge such as the use of genres or the analysis of materials from different cultural or social groups are also high in inclusive content because they allow students to select material or styles that are congruent with their experience. In contrast, formal essays, writing in the discipline, or other assignments requiring the summary of academic material are less likely to contain inclusive content.

- **High utility value.** Utility value describes the extent to which students perceive work to have worth beyond the context of grades. Increasing the utility value of assignments reduces achievement gaps (Harackiewicz, Canning, Tibbetts, Priniski and Hyde 2016). Tests, homework, formal papers, and even inclusive assignments may have low utility value because students perceive them as being completed primarily for purposes of a grade. In contrast, reflective writing, ePortfolio work, applied learning projects (such as research experiences), and

disciplinary writing are more likely to have high utility value because students believe the resulting products will have personal or professional worth.

Matrix of Culturally Relevant Assessment

Given the elements hypothesized to influence assessments, it is possible to make predictions about the risks of different assignment types. Alignment, clarity, and scaffolding should be present in all assignment types, and it is always essential to create an inclusive assessment environment. However, assignments often vary significantly along two dimensions: inclusive content and utility value. Testing appears to be the most problematic type of assessment due to problems with alignment, assessment environment, and utility value. Within testing, timed tests that use closed-ended questions and are completed in groups have the greatest potential to reveal false achievement gaps. As testing moves toward the use of open-ended questions with real-world applications, the utility value and/or inclusive content will increase and the risk of false achievement gaps should decrease.

The matrix of culturally relevant assessment shown in Figure 1 provides predictions across these dimensions. We predict that reflective writing and ePortfolio

practice will have the lowest risk of producing false achievement gaps, because students describe and apply content to their lived experiences and view assignments as useful and interesting. We predict minimal risk of false achievement gaps in inclusive assignments, which are high in inclusive content but often lack utility value. Similarly, we predict a minimal risk of false achievement gaps in writing in the discipline and applied learning, which are high in utility value but often lack inclusive content. Finally, we predict the highest risk of false achievement gaps in multiple-choice tests and formal descriptive essays, which are generally low in utility value and inclusive content.

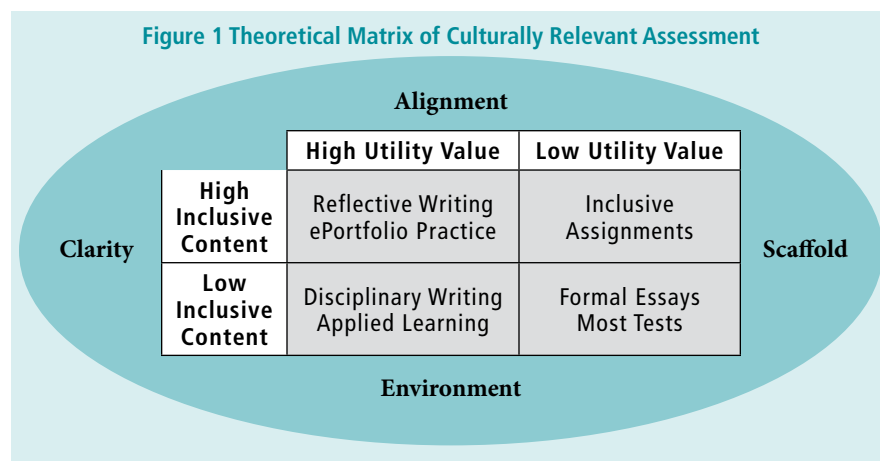
Testing the Matrix of Culturally Relevant Assessment

To explore our predictive model, we conducted repeated measures mixed analysis of variance on scores from the same students on different assignments disaggregated by underrepresented ethnic minority (URM) status. We obtained samples that were large enough to disaggregate by combining grades across three to five offerings of each class. We report results that were significant ($p < .05$) unless otherwise noted. In all comparisons, both assessment formats were designed to assess achievement of broad course-related student learning outcomes.

Theater Appreciation (64 students, 69% URM) is offered at an urban community college and assigns four inclusive writing assignments and a final multiple-choice exam. We found no evidence of an achievement gap in inclusive assignment grades (88% vs. 93%). However, URM students received lower grades than non-URM students on the multiple-choice exam (69% vs. 82%).

Child Development (110 students, 44% URM) is an introductory class offered at a public liberal arts college. We examined responses to assignments when the class was given in a traditional and an online format. Both classes assign 11 reflective

Figure 1 Theoretical Matrix of Culturally Relevant Assessment



(continued on next page)

writing assignments and weekly open-book multiple-choice quizzes. The reflective writing assignments have been completed as part of ePortfolio practice and as stand-alone assignments. We found no evidence of an achievement gap in reflective writing in any mode of delivery (online, traditional, stand-alone, or ePortfolio; 90% vs. 93%). However, URM students in the traditional class received significantly lower quiz grades (77%) than non-URM students (86%). Interestingly, there was no evidence of an achievement gap in quiz grades from the online class (84% vs. 88%).

Experimental Psychology (137 students, 30% URM) is an advanced class at a public liberal arts college. Students complete three exams with open-ended questions and three detailed lab reports written according to disciplinary standards. We found a marginal difference ($p = .07$) between URM students' grades on tests (72%) and writing in the discipline assignments (79%) but did not find a significant difference between non-URM students' grades on the assignments (76% on tests vs. 79% on writing in the discipline).

Our data provide support for the theoretical matrix of culturally responsive assessment (see Figure 2). Achievement gaps emerged in response to many forms of testing, including multiple-choice testing that took place in a group setting either as a final exam or as a low-stakes open-book quiz. Interestingly, the same

open-book quiz questions did not evoke an achievement gap when testing was completed online. We hypothesize online settings create a positive environment for students in which race and ethnicity are less salient, reducing activation of stereotype threat. Open-ended test questions appear somewhat less likely to evoke achievement gaps than other forms of testing. Although URM students received marginally higher grades on writing in the discipline assignments than open-ended test questions, there was no evidence of an achievement gap within open-ended testing when test scores were disaggregated by ethnicity. Importantly, we believe the achievement gaps revealed in test scores were false, because other assignments that were high in either utility value (reflective writing and writing in the discipline) or inclusive content (inclusive assignments) evoked equivalent evidence of competence from the same groups of students regardless of ethnicity.

Conclusions and Limitations

The work described above is a starting point for an investigation into the ways in which assessments might produce evidence of achievement gaps that do not reflect students' competence. In future work, it will be important to explore disaggregated data for other types of assignments and for other groups of students who have been historically underrepresented in higher education. ■

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Figure 2 Research Support for Theoretical Matrix of Culturally Relevant Assessment

