Checklist for Universally Designed Assessments

- ☐ Ensure the intended constructs are measured by the items written.
- ☐ Minimize the knowledge and skills that are required to respond to the items beyond what is intended to be assessed.
- ☐ Respect for the diversity of the assessment population is evident (Sensitivity to age, gender, ethnicity, etc. and avoids content that might unfairly advantage or disadvantage any subgroup(s)).
- ☐ Text for the items is concise and readable.
- ☐ Minimum use of unnecessary words.
- ☐ Vocabulary and sentence complexity are grade-level appropriate.
- ☐ The test has a clear and understandable format.
- ☐ The question to be answered is clearly identifiable.
- ☐ Visual used to support and enhance the content are clear and relevant.
- ☐ Changes can be made to the format of the test items without changing the meaning of the item, the construct being measured, and/or the difficulty of the item.

Johnstone, C., Altman, J., Thurlow, M., & Moore, M. (2006). Universal design online manual. Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Thompson, S. J., Johnstone, C. J., Anderson, M. E., & Miller, N. A. (2005). Considerations for the development and review of universally designed assessments (Technical Report 42). Minneapolis, MN: University of Minnesota. National Center on Educational Outcomes.

Get Involved with RME!

RME is always looking for qualified mathematicians, math teachers, and math coaches to partner with us in many ways. Two opportunities that are always on-going are item writing and item reviewing.

Item Writing

Item writing (writing test questions) is an important component of work that is done at RME. These items range all grades from pre-kindergarten to 8th grade, and are written to align with multiple mathematics content standards. RME provides training and writing can be done on-site or off campus.

Item Reviewers

Item reviewing takes place after an item has been written. We review an item for language, visual representation, and mathematical content including vocabulary and concepts. In addition, reviewers examine each item for potential bias and to evaluate the effectiveness of the distractors.

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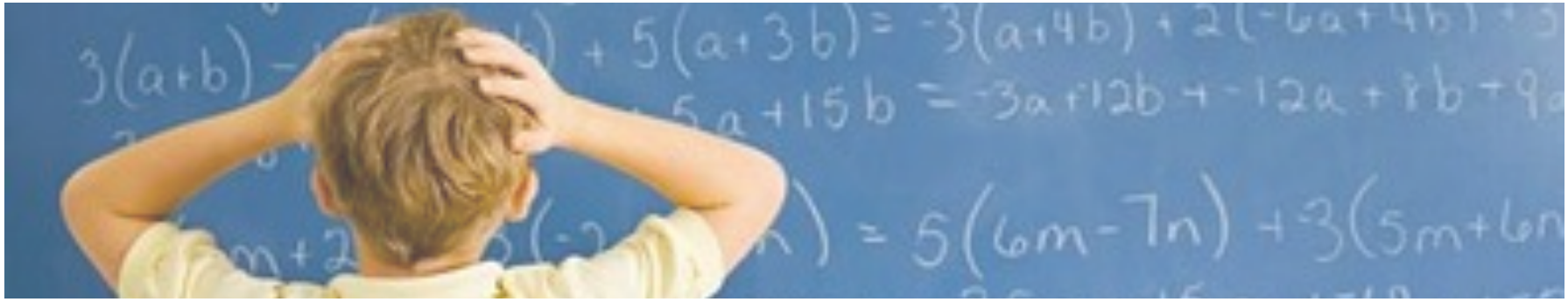
Assessing Beyond the Algorithm

Texas Middle School Association Conference 2013

SMU Research in Mathematics Education

Savannah Hill, Dawn Woods, Cassandra Hatfield, Deni Basaraba, And Erica Simon

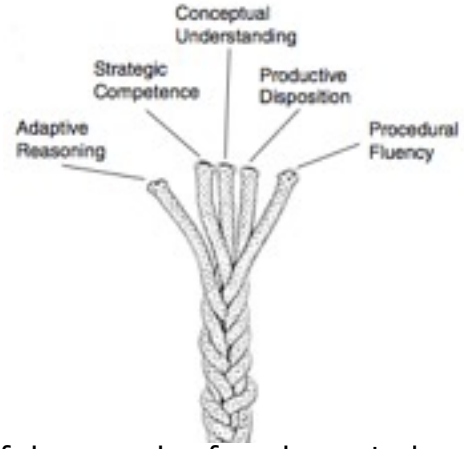
SMU Annette Caldwell Simmons School of Education & Human Development



Assessing Mathematical Proficiency

What is Cognitive Engagement?

According to Kilpatrick, Swafford, and Findell (2001), expertise, competence, knowledge and facility in mathematics is necessary to learn mathematics successfully. Cognitive engagement attempts to synthesize these components and refers to the level of cognitive processing through which students are expected to engage with the content.



All of the strands of mathematical proficiency are interwoven and interdependent. Students' ability to be proficient in mathematics is dependent on each of these strands. However, if one of these strands is weak, it weaken the entire rope.

Conceptual understanding: comprehension of mathematical concepts, operations, and relations

Procedural fluency: skill in carrying out procedures flexibly, accurately, efficiently, and appropriately

Strategic competence: ability to formulate, represent, and solve mathematical problems

Adaptive reasoning: capacity for logical thought, reflection, explanation, and justification

Productive disposition: habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy.

National Research Council. (2001). Adding it up: Helping children learn mathematics. J. Kilpatrick, J. Swafford, and B. Findell (Eds.). Mathematics Learning Study Committee, Center for Education, Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Using Distractors Effectively

Distractors are an important but often under-utilized component of multiple-choice questions. By considering the rationale for distractors and crafting them to target students' underlying misconceptions about the content being assessed you can obtain information beyond a simple understanding of whether a student responded correctly or incorrectly.

Example:
Sarah is baking a cake and needs 1/2 cup of flour and 1/3 cup of sugar. How much flour and sugar does she need?

A. $\frac{2}{5}$ cup

B. $\frac{5}{6}$ cup

C. $\frac{5}{12}$ cup

D. $\frac{2}{3}$ cup