

Howard researchers study math alignment issues

RESearchers in the Classroom Assessment Project (CAP) at CRESPAR/Howard are looking at three different forms of curriculum to gauge how classroom practices align with state and federal standards.

Curriculum alignment, the relationship between what is taught and what is specified and tested (English & Steffy, 2001), is based on “the doctrine of no surprises,” that is, children are not surprised by any form of assessment because it is an integral part of the instructional program. It makes sense then, that the greater the similarity among the local curriculum, the assessments (traditional and performance-based), and actual classroom instruction, the greater the likelihood of higher student achievement.

Alignment is once again at center stage. The No Child Left Behind legislation, which includes systematic and periodic assessments based on clearly specified standards, promotes the need for such alignment.

In fourth-grade mathematics classes, the CAP researchers focused on alignment of three types of curricula that are essential to effective education: the intended curriculum (a district’s specified guides or frameworks), the taught curriculum (classroom instruction), and the assessed curriculum (content of standardized and other achievement measures). The project used mixed methods to examine the alignment of these curricula, and provided direct intervention with teachers through coaching.

The Howard researchers began assessing intended curriculum “on the ground level” during summer curriculum development sessions. They observed the process, and specifics, of developing instructional objectives and related activities, reviewed instructional and assessment materials, and observed professional development in the mathematics curriculum.

To examine the assessed curriculum, CAP mathematics curriculum experts

conducted a content analysis of a subset of the district’s standardized mathematics test. Each item on the fourth-grade test was coded on five “alignment” dimensions: content standards, process standards, reading load, cognitive demand, and sub-topics within the content standards that further identified specific concepts, such as percent or decimals within the content standard, “number and operations.”

This “coding” established a basis for determining the alignment among the “intended curriculum,” the “assessed curriculum” and the “taught curriculum.” Such comparisons will make it possible to calculate an “alignment index,” which has promise for predicting student achievement—often called the “learned curriculum.”

To study the taught curriculum, researchers surveyed and interviewed teachers and conducted classroom observations. For example, a sample of teachers from three inner-city elementary schools completed surveys evaluating their intended curricular content, their own mathematics instruction, and their assessment needs. Here are some preliminary findings:

- # About 40% of the 48 mathematics items analyzed for the five alignment dimensions addressed “number and operations.”
- # Problem solving, communications, and reasoning/proof made up almost 80% of the items analyzed.
- # Teachers expressed both need for, and interest in, professional development to help them fine-tune their own classroom assessments. This supports findings of previous CRESPAR research on teacher efficacy (Johnson, Wallace, & Thompson, 1999; Hughes, 1999).

The researchers intend to put their findings into practice by requiring more training in assessments for Howard’s education students, and by developing a practical manual on classroom assessment. G

