

Alignment of Standards, Large-scale Assessments, and Curriculum: A Review of the Methodological and Empirical Literature

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Alignment Issues

- The educational community sometimes assumes that instructional systems are driven by content standards, which are translated into assessment, curriculum materials, instruction, and professional development.
- True?

NCLB Regulations

- ...states' assessment systems “*address the depth and breadth of the State's academic content standards*; are valid, reliable, and of high technical quality; and express results in terms of the State's academic achievement standards” (55 Fed. Reg. 45038, emphasis added)
- NCLB peer review guidance

Peer Review Guidance

- The *Guidance* further recommends that states consider the following points about their assessments:
 - Cover the full range of content specified in the State’s academic content standards, meaning that all of the standards are represented legitimately in the assessments; and
 - Measure both the content (what students know) and the process (what students can do) aspects of the academic content standards; and

Peer Review Guidance (cont)

- Reflect the same degree and pattern of emphasis apparent in the academic content standards (e.g., if the academic content standards place a lot of emphasis on operations then so should the assessments); *and*
- Reflect the full range of cognitive complexity and level of difficulty of the concepts and processes described, and depth represented, in the State’s academic content standards, meaning that the assessments are as demanding as the standards; *and*
- Yield results that represent all achievement levels specified in the State’s academic achievement standards. (U.S. Department of Education, 2004, p. 41)

What is Alignment?

- ...the degree of agreement, overlap, or intersection between standards, instruction, and assessments.

Importance of Alignment

- Accurate inferences about student achievement and growth over time can only be made when there is alignment between the standards (expectations) and assessments.
- From this perspective, alignment has both content and consequential validity implications (Bhola, Impara, & Buckendahl, 2003; LaMarca, Redfield, Winter, Bailey, & Despriet, 2000).

Alignment

- The AERA position statement on high-stakes testing calls for alignment of assessments and curriculum on the basis of both content and cognitive processes (AERA, 2000).
- Bhola et al. (2003) emphasized the need to use more complex methods for examining alignment that go beyond content and cognitive process at the item level.

Complex Alignment Methods

- La Marca et al. (2000) reviewed and synthesized conceptualizations of alignment and methods for analyzing the alignment between standards and assessment.

(Based on the work of Norman Webb)

Alignment—5 Dimensions

- **Content match**, or the correspondence of topics and ideas in the standards and the assessment,
- **Depth match**, or level of cognitive complexity required to demonstrate knowledge and transfer it to different contexts,
- **Relative emphasis** on certain types of knowledge tasks in the standards and the assessment system,
- Match between the assessment and standards in terms of **performance expectations**, and
- **Accessibility** of the assessment and standards, so both are challenging for all students yet also fair to students at all achievement levels.

Purpose of this Study

- Exhaustive review of literature on...
 - What methodologies are used to empirically investigate alignment?
 - Educational components being aligned
 - content standards, assessments, curriculum taught

Method

- Literature search
 - 28 terms used (e.g., alignment, sequential development)
 - Electronic and print sources (reference list)
 - Prominent authors (e.g., Porter, Webb, Rothman, Smithson, and many others)
 - Model names (e.g., Surveys of Enacted Curriculum, Achieve, Webb, and others)

Review of Findings of Search

- First round -- applied the inclusion criteria liberally
- Initial coding
 - 1. educational components being aligned
 - 2. type of document (journal, report, etc.)
 - 3. purpose or focus of document (six groups)
- Interrater reliability
 - Two reviewers coded 80 documents (41%)
 - Between 88% to 100%.

Secondary Coding

- Content area (e.g., math, English, science)
- Grade level
- Types of standards, assessment, & instructional indicators
- Alignment methodology used

Results

- 195 resources
 - Reports (47%)
 - Journal articles (21%)
 - Presentations (14%)
 - Others (e.g., books) (18%)
- Publication Dates
 - 2001-2005 (76%)
 - Earliest publication – 1984-1990 (4%)

Type of Resources

- Empirical findings (33%)
- Conceptual (14%)
- Methodological (9%)
- Policy emphasis (5%)

Alignment Models

- Levels of complexity (Bhola et al., 2003)
 - Low complexity (match between standards and items)
 - Moderate and high complexity model (statistical)
 - Achieve (Resnick, Rothman, Slattery, & Vranek, 2003)
 - Surveys of Enacted Curriculum (SEC) (Porter, 2002)
 - Webb (1997, 1999)

Achieve (18%)

- Alignment between standards & assessment
 - Content centrality (quality of match)
 - Performance centrality (quality of match)
 - Source of challenge (fairness)
 - Balance & range

Surveys of Enacted Curriculum (7%)

- Alignment of standards, assessments, and instruction
 - Produce two-dimensional matrices (content X cognitive demand) for educational components
 - Compare matrices to examine similarities and differences

Webb (31%)

- Alignment of standards and assessment items
 - Categorical concurrence
 - Depth of knowledge
 - Range-of-knowledge
 - Balance of representation
 - Source of challenge

Alignment of Empirical Literature

- Majority of alignment studies focused on the alignment of standards and assessment items (72%)
- Only 12% aligned standards, assessment items and instruction

Alignment by Content

- Math (75%)
- English (63%)
- Science (19%)
- Social Studies (9%)

*Note: Some reports contained more than one content area.

Discussion

- Focus on alignment between standards & assessments
- Lack of focus on instruction
- Alignment at stages of assessment's maturity

Recommendations

- Alignment of nontraditional assessments (e.g., performance, portfolios, etc.)
- Aggregating alignment data (changing standards)
- Validation of criteria
- Evidence of impact on student learning