Using Alignment Studies Proactively

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Many reasons for explosion in number of alignment studies …

- Methodologies becoming more systematic, sophisticated, and talked about (like early stages of standard setting)
- Greater (commercial) capacity to do alignment studies
- Realization that normal test development often does not yield tight alignment with content/performance specs
- Calls to know how NRTs, off-the-shelf CRTs, and custom tests fit with standards and other state assessment targets
- Need to make or counter assertions about quality of standards, assessments, and their relationships
- Requirements of federal legislation (NCLBA)

"Front-end" use of alignment studies…

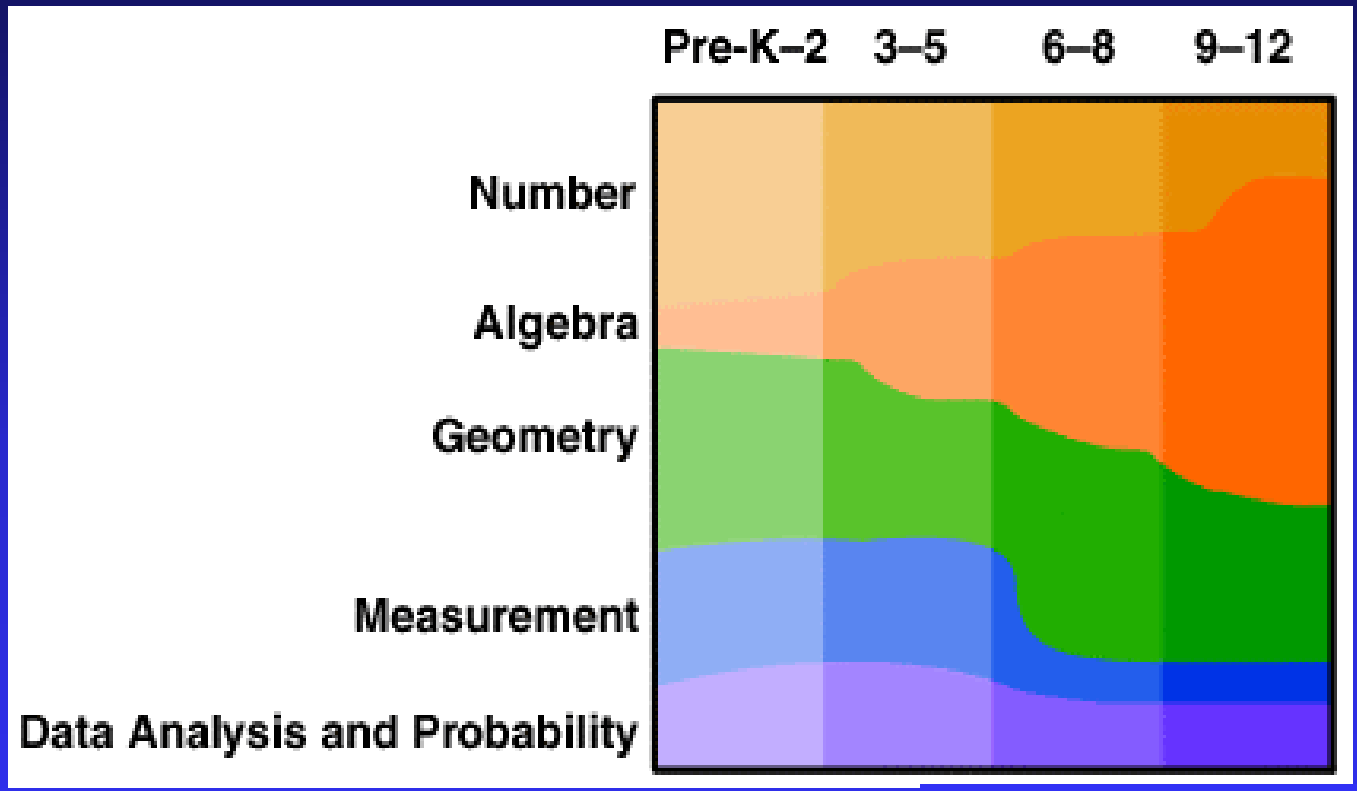
- Views alignment analyses as a tool to achieve goals
- Is a data-informed, interactive process with assessment development (and perhaps standards revision)
- Requires thorough understanding of the use of the assessment information
- Treats assessment uses or accountability decisions as the unit to which assessments must be aligned
- Must be supplemented with an assessment blueprint
- Is possible, through hard work

Assessment development can be directed using alignment criteria

Marge Petit of The Center and others have been working on a large, innovative mathematics assessment project

- Many tasks have been developed and piloted
  - meet targets set for Categorical Concurrence, Range of Knowledge, Balance of Representation, Depth of Knowledge (following N. Webb definitions)
  - over a form and across forms, and across grade spans
- Used development teams and fast analysis and feedback cycles to monitor and direct development
- Alignment is documented
- Developers learning how to do carefully aligned development, and what factors affect alignment

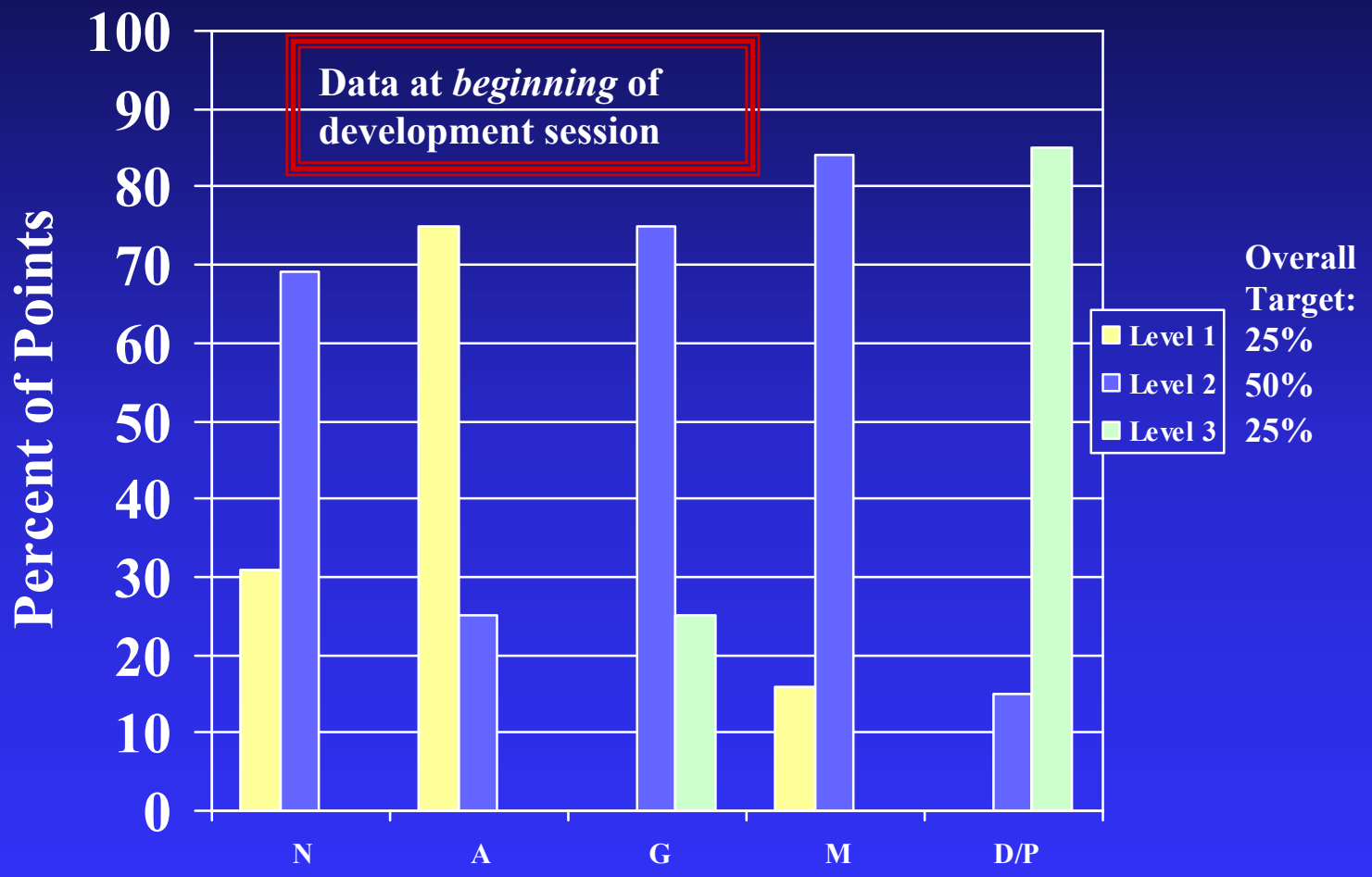
Balance of Representation Target Map (Example)



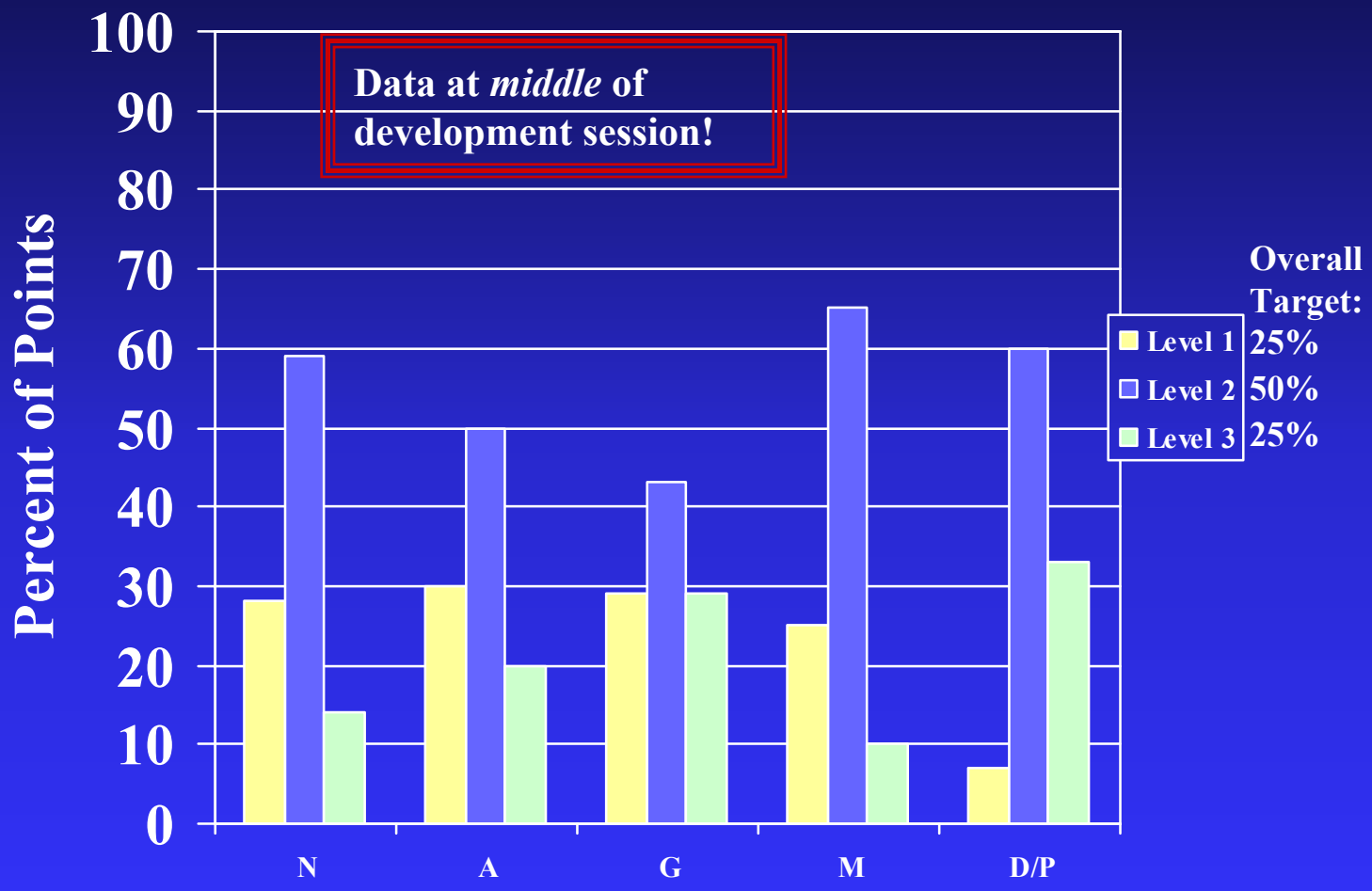
Principles and Standards for School Mathematics, NCTM, April 2000.

Reported by content strands

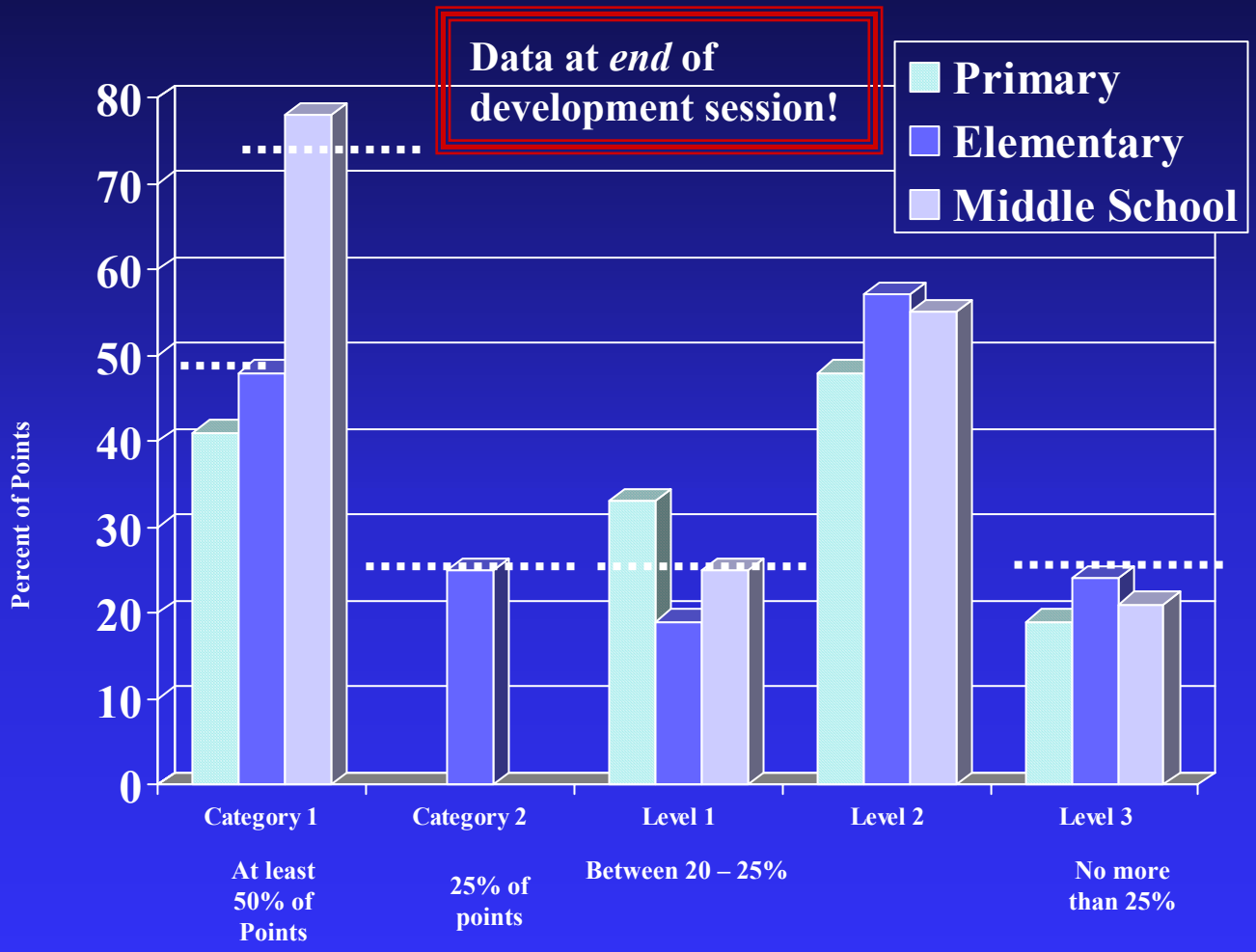
Depth of Knowledge by Content Strand Beginning of Work Session



Depth of Knowledge by Content Strand Middle of Work Session



Alignment Targets (including DoK) by Grade Span – *End* of Work Session



Some Issues to Consider with Alignment

- Accountability Inference
- Aggregation
- Standards
- Blueprint
- What is good enough
- Application to specific situations

Examples for us to think about

- When is it OK, and when is it a threat to validity
  - To have Balance of Representation, Depth of Knowledge differ from form to form, year to year?
  - To have a number of items on the assessment with lower DoK than the standard?
  - To have it possible for a student to get zero items correct within a subdomain and still pass?
- Is it practical – how can it be done?

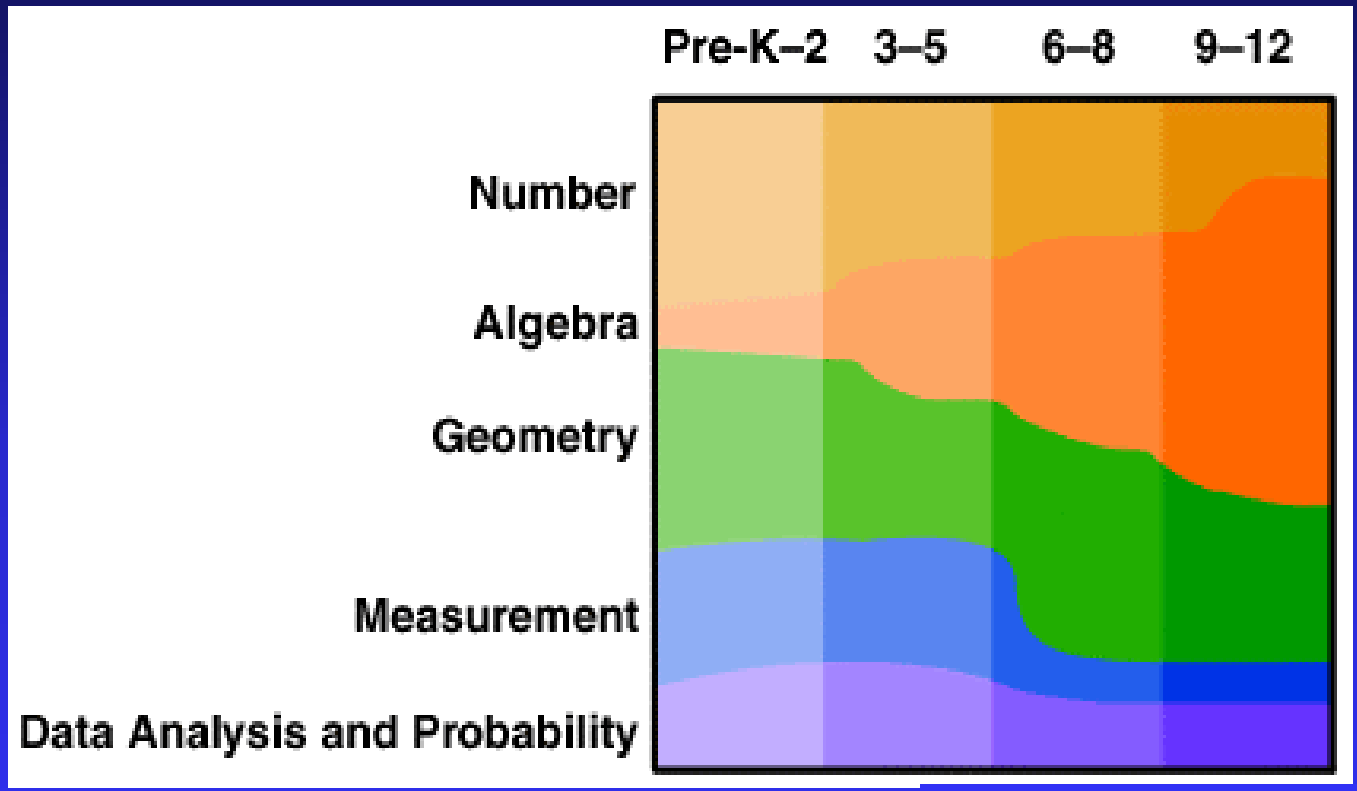
Issues to consider: Inference

- Do you want the standards and/or "alignment targets" (e.g., Balance of Representation, Depth of Knowledge) to specify assessments for:
  - A curricular/instructional target
  - A student performance specification

Inference: Curricular target

- A curricular/instructional target
  - "This is what we'd like students to learn by Grade 8: quite a bit of Algebra, Geometry, more advanced Number and Operations, some Measurement, and some Data Analysis & Probability"

Balance of Representation Target Map (Example)



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Inference: Student performance specification

- **An interpretation of student performance**
  - **The student has been able to show proficiency on Algebra, Geometry, etc.**
  - **We have devoted (BoR) proportion of the available items to making that determination.**

Inference: Assessment specification

- **An assessment specification to check whether students have learned the domain could sample from the domain, and might not be strictly proportional to BoR each form or year, etc.**
- **An assessment specification to support an inference or judgment about each part should strictly follow the BoR.**

Issues to consider: Aggregation

- Alignment study must be designed to reflect the aggregation that corresponds to the assessment/accountability decision
  - Example: assessment decision is at the standards level, but alignment study is at the benchmark level
  - Example: accountability decision is compensatory across benchmarks but conjunctive across standards

Issues to consider: Standards

- Distinguish between curriculum standards and assessment targets
  - Example: Most assessments should have items with similar content but a range of cognitive demand, not just what corresponds to the performance standard ("ceiling" vs. "target")
- Most standards were not written to meet alignment criteria for operational assessments (e.g., need coherent structure of content area; focus)

Issues to consider: Blueprint

- Interpretation of alignment study must consider assessment blueprint specifications
  - Example: Coverage interacts with specification of multiple forms, multiple opportunities to retake, rotation over years; item matrixed forms, item type distributions, portfolios, or local assessment choices

Issues to consider: What is good enough

- What is a good level? (e.g., minimum of 6 items/standard [reliability? coverage?]; CC at least 50% of standards with at least 1 item; BoR index of 70%; 50% of items at or above DoK level)
- How much deviance from alignment targets is too much?
- How much effect will it have? How will we know?
  - Curricular effects
  - Assessment and accountability validity and reliability effects

Some specific situations of interest – Alignment studies' application to:

- Differences between assessment items and collections of items; assessment vs. accountability vs. reporting
- Treatment of conversion to grade-specific standards from grade-span
- Graduation requirements (validity in end-of-course vs. end-of-year-survey vs. best-work-body-of-evidence)
- Use in assessments where there is some "choice" of evidence, e.g., local assessment systems

Be thoughtful up front

- If you are doing an "alignment study" in conjunction with *No Child Left Behind*
  - Design the alignment study with the end in mind
  - Know the issues and options
  - Plan to do hard work in development
  - Be committed to making necessary changes; you will end up with better standards, a better assessment, and better policy

For more information

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Check website for information on 2002 RILS conference sponsored by the Center and WestEd

- What states are doing with *No Child Left Behind*
- Reliability and *NCLB*
- Alignment and *NCLB*