Evidence-Centered Design in Large Scale Science Assessment

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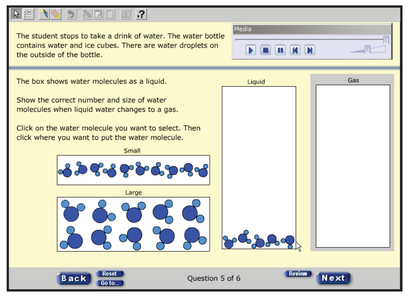
Goals

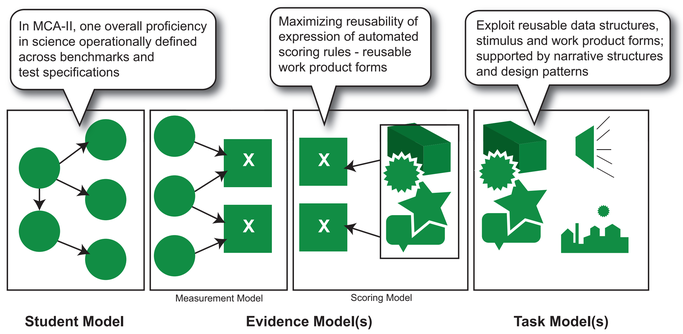
1. Using ECD, identify points for streamlining assessment design, development, and delivery processes.
2. Extend design components and tools developed in the PADI project to leverage identified efficiencies (generativity, reusability, interoperability), through a design layer that interacts with existing development infrastructure.
3. Capture validity argument in representations and tools (e.g., design patterns, narrative structures).
4. Implement the ECD methodology in the context of an operational large-scale, state-level, high-stakes accountability testing program.
5. Evaluate the effectiveness of the ECD strategies and tools over multiple operational assessment cycles.

Opportunities and Constraints

- Operational, high-stakes accountability assessment within Minnesota standards and test specifications
- Innovative MCA item types: scenario-based, figural response, multimedia
- Must maintain MCA item types and "look and feel"



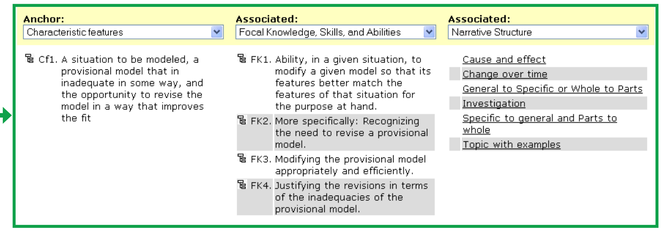
Student, Evidence, and Task Models

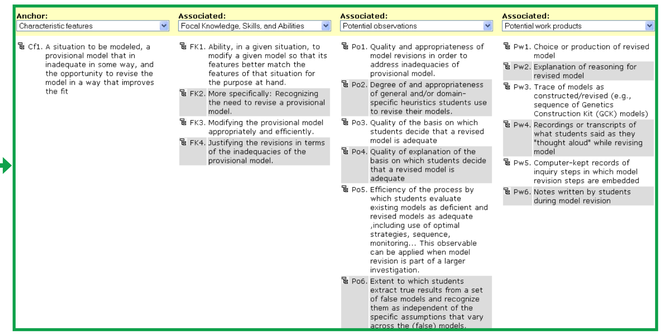


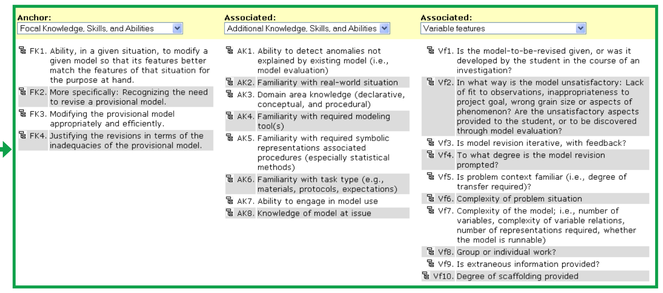
Storyboard Writer Training Workshop Activities

Activity & Time Allocated	Goal	Materials Provided to Writers	Activity Outcomes
I 45-60 min	Decide on storyboard topic and what will be assessed by examining standards, benchmarks, background information, DP overview, Focal KSAs, and Characteristic Features	• Standard and benchmarks • Vertical view of DP: Model-Based Reasoning • First pass of horizontal view • Partial list of topics and related background information, and model rationalization • Blank topic selection form(s)	• Select topic(s) and rationalize • Determine Focal KSAs required and draw implications for what will be assessed • Completed topic selection form(s)
II 30-45 min	Select Narrative Structure and examine Characteristic Features for implications for storyboard arc	• Table that links Focal KSAs and benchmark assignments, and implications for what will be assessed (project-produced) • Vertical view DP: Model-Based Reasoning • First pass of horizontal view DP (Focal KSAs, Characteristic Features, Narrative Structures) • Table with definitions of Narrative Structures • Selected topic (project-produced) • Blank Narrative Structures form	• Completed Narrative Structure form • Draw implications from the Characteristic Features about the storyboard structure
III 90 min	Drafting storyboard scenes and item ideas using Potential Observations and Work Products	• Forms completed in Activities I and II • Vertical view DP, Model-Based Reasoning • Second pass of horizontal view DP (Focal KSAs, Characteristic Features, Potential Observations, Potential Work Products) • Blank storyboard scenes and item ideas form	Draft storyboard scenes and item ideas form
IV 60 min	Fine-tune storyboard scenes and item ideas using Additional KSAs and Variable Features	• Project-produced materials from Activities I - III • Third pass horizontal view (Focal KSAs, Additional KSAs, Variable Features)	Final storyboard scenes and item ideas form

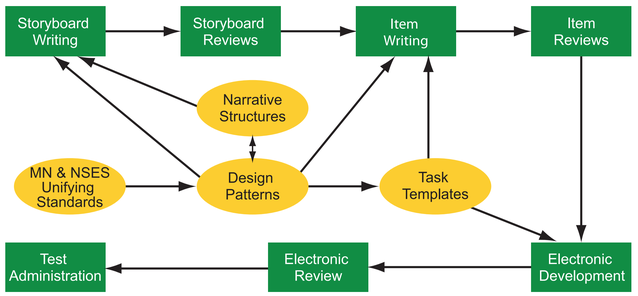
Customized Design Pattern Views







Leverage Points



Project Evaluation

Goal	Focus/Evidence
Efficiency/ Streamlining	Impact of ECD-based structures such as Design Patterns on development time and writing process
Validity	Use and impact of argument structure supports (i. e., Design Patterns)
Development of Human Capacity	Observations and surveys of storyboard and item writers and project team members
Dissemination	Presentations, reports, Web-based resources including Assessment Design Support Tools (e.g., Design Patterns)

Project site: http://ecd.sri.com/

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