

Welcome.

A Search for Signal

Background.

TEIs

- Purpose
 - Measure certain standards deemed appropriate
 - Directly probe degree of understanding of specific content
 - Intended to facilitate assessment of higher-order thinking
 - Integrate several skills into a single task
 - Requires production of information

Prior Experiences

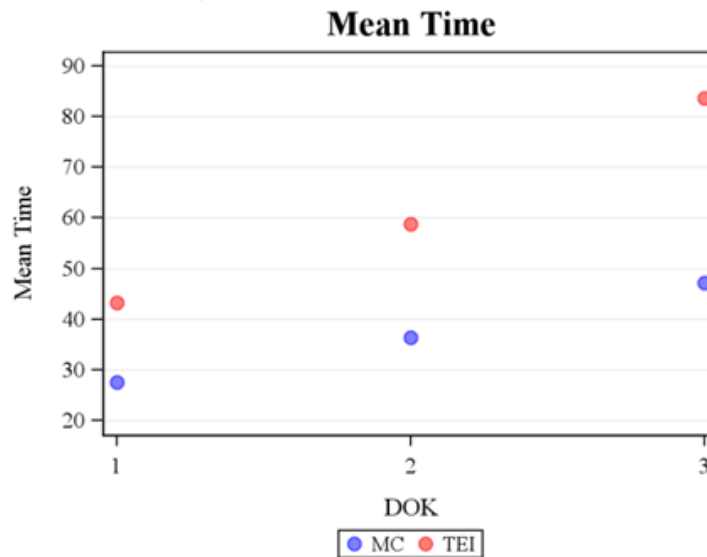
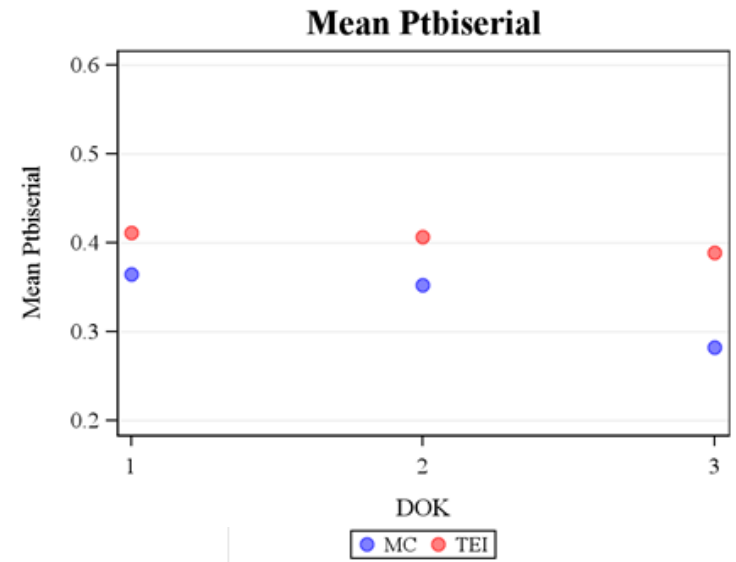
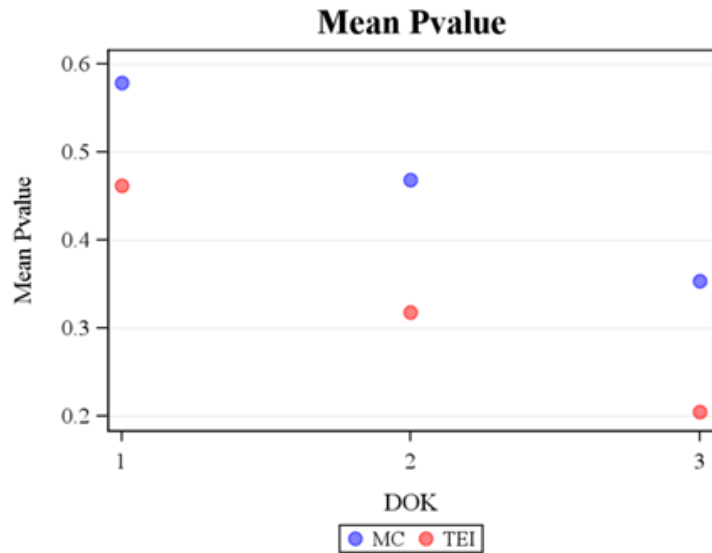
- Large Scale Programs
 - TAC Presentations & Meetings
 - Research Studies

- Conferences
 - NCSA
 - NCME
 - ATP

Recent NCME Presentation

- Rong, Murphy, & Sharairi (2017)
 - Item types:
 - Classification, Fill in the Blank, Graph, Matching, Matrix, Multiple Select, Number Line, Ordering, Shading
 - Key findings:
 - More difficult
 - More discriminating
 - More time consuming

Recent NCME Presentation



Okay, time for signal.

Data

- Response strings
 - Scored/ Unscored
- Distractor Analyses
 - Common Errors
- Scoring
 - Dichotomous/Partial Credit
- Cognitive Labs
 - Student think-aloud

Response Strings

association	[["3"],["5"],["6"]]	["3","4","5"]	imageclozeassociation	[["triangle"],["quadrilateral"],["quadrilateral"],["pentagon"],["hexagon"],["pentagon"]]	["hexagon","triangle","pentagon","quadrilateral","hexagon","triangle"]
		["3","4","6"]			["pentagon","quadrilateral","triangle","hexagon",null,null]
		["3","4","8"]			["quadrilateral","hexagon","hexagon","quadrilateral","triangle","pentagon"]
		["3","5","4"]			["quadrilateral","hexagon","triangle","pentagon","quadrilateral","hexagon"]
		["3","5","6"]			["quadrilateral","triangle","hexagon","pentagon","triangle","hexagon"]
		["3","5","8"]			["quadrilateral",null,null,null,null]
		["3","6","4"]			["triangle","hexagon","pentagon","pentagon","hexagon","quadrilateral"]
		["3","6","8"]			["triangle","hexagon","pentagon","quadrilateral","hexagon","triangle"]
		["3","8","5"]			["triangle","hexagon","quadrilateral","hexagon","hexagon","hexagon"]
		["3","8","6"]			["triangle","hexagon","quadrilateral","hexagon","pentagon","quadrilateral"]
		["4","3","6"]			["triangle","hexagon","quadrilateral","hexagon",null,"pentagon"]
		["4","5","6"]			["triangle","hexagon","quadrilateral","pentagon","hexagon","quadrilateral"]
		["4","6","3"]			["triangle","hexagon","quadrilateral","quadrilateral","pentagon","hexagon"]
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		["5","4","6"]			["triangle","hexagon","triangle","pentagon","hexagon","quadrilateral"]
		["5","6","8"]			["triangle","hexagon","triangle","quadrilateral","hexagon","pentagon"]
		["6","8","3"]			["triangle","hexagon","triangle","quadrilateral","quadrilateral","quadrilateral"]
		["6","8","4"]			["triangle","pentagon","hexagon","quadrilateral","hexagon","pentagon"]
		["6","8","5"]			["triangle","pentagon","pentagon","quadrilateral","hexagon","hexagon"]
		["8","3","5"]			["triangle","pentagon","pentagon","quadrilateral","hexagon","hexagon"]
		["8","6","4"]			["triangle","pentagon","pentagon","quadrilateral","hexagon","quadrilateral"]
		["8","6","5"]			["triangle","pentagon","quadrilateral","hexagon","hexagon","hexagon"]
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		[null,null,"4"]			["triangle","pentagon","quadrilateral","hexagon","hexagon","quadrilateral"]
		[null,null,null]			["triangle","pentagon","quadrilateral","hexagon","quadrilateral","pentagon"]
		no answer			["triangle","pentagon","quadrilateral","pentagon","hexagon","pentagon"]

Distractor Analyses

Question Type	Unique	CP75	MinN	Final*
Bar Graph	97	3	14	4
	358	9	21	4
Drag & Drop	90	3	16	5
	15	3	6	4
	84	11	34	4
	472	23	21	2
	92	28	57	3
	64	5	15	3
Fill In	482	52	40	3
	383	22	30	2
Hot Spot	5	2	5	2
	306	11	23	3
	12	3	12	3
Line Graph	62	11	32	3
	826	93	35	2
	999	49	23	4

Scoring

- Smart scoring
- Rubric development
- Modeling (dichotomous/partial credit)
 - Classical
 - IRT

Cognitive Labs

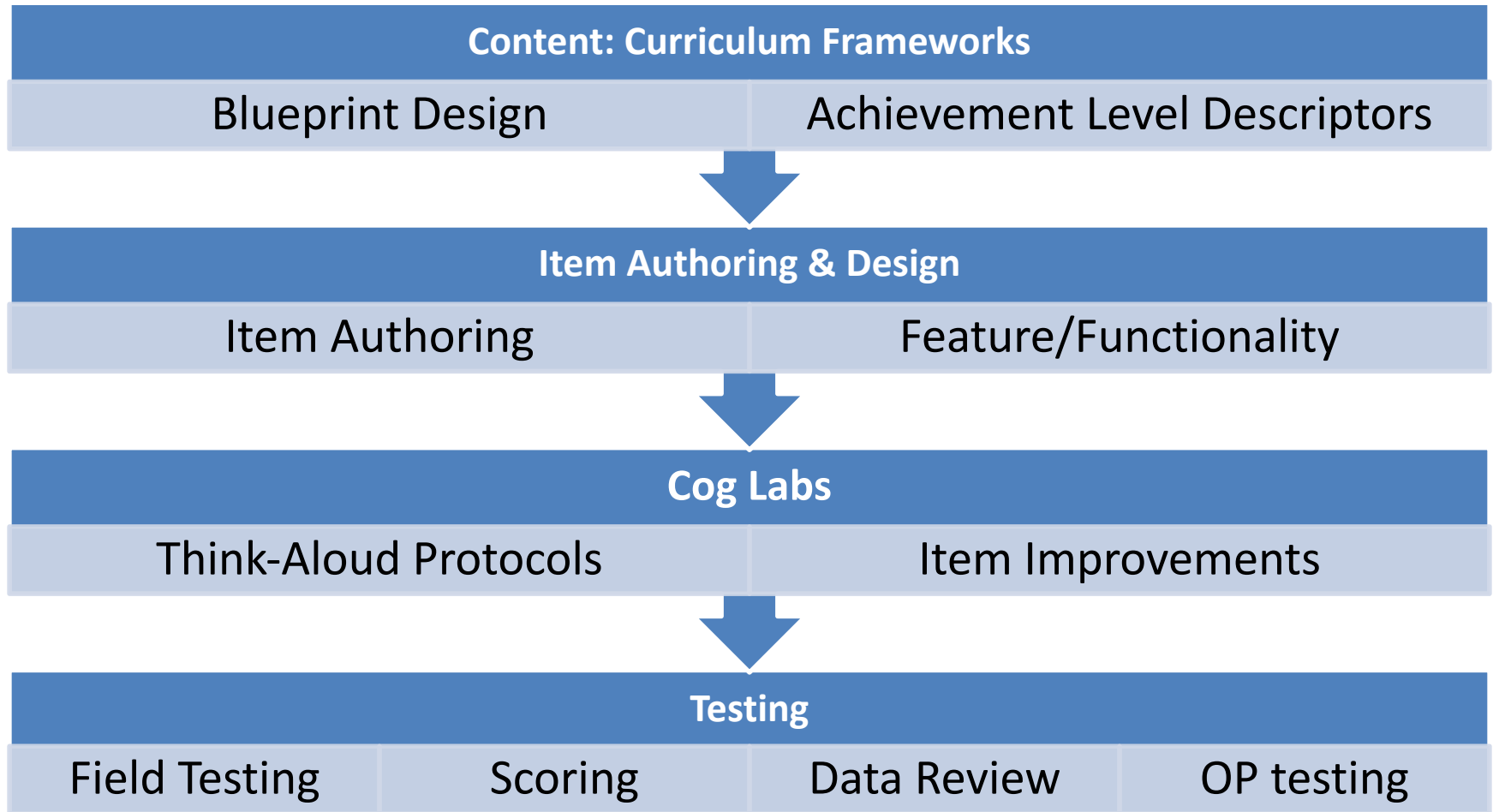
- Cog Lab 1
 - Reactions were positive (engaged/motivated)
 - Evidence that complex and unfamiliar functionality/tools impacted time and effort
- Cog Lab 2
 - Engaged and jumped into functionality
 - Evidence suggested improved item functionality and more intuitive, as could screen navigation

Conclusion and Next Steps.

Is the Signal Clear Yet?

- Maybe.
- Data capture and purpose for TEIs
- Interactions between item authoring, psychometric analyses, and student ability
- Facilitate more effective targeting and interpretation of student performance and understanding of what they know and are able to do

Purposeful Development



Thank you.

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For additional documents from this presentation, see the full session information:
<https://ccsso.confex.com/ccsso/2017/webprogram/Session4934.html>

It's all about
student learning.
Period.