

Theories of Action for Innovative Assessment Systems: Considerations for Development, Refinement, and Evaluation

Jennifer Kobrin & Amy Clark
Accessible Teaching, Learning and Assessment
Systems (ATLAS)
University of Kansas

Background & Context



Instructionally Embedded Assessment: Theory of Action for an Innovative System

Amy K. Clark and Meagan Karvonen*

Accessible Teaching, Learning, and Assessment Systems, University of Kansas, Lawrence, KS, United States

Background & Context

Assessments Intended for Action

- Summative assessments alone may not provide instructionally relevant information
- Field is moving towards assessments that are flexible, ongoing, and embedded in instruction
 - Not solely an indicator of student achievement
 - Designed to lead directly to action on the part of the teacher and student

Dynamic Learning Maps (DLM) Alternate Assessment

- Administered to students with the most significant cognitive disabilities in grades 3-8 and high school
- Based on a research-based learning map model of interconnected skills
- Currently used by > 20 states for state accountability purposes
 - Year-end
 - Instructionally embedded

DLM Instructionally Embedded Assessment

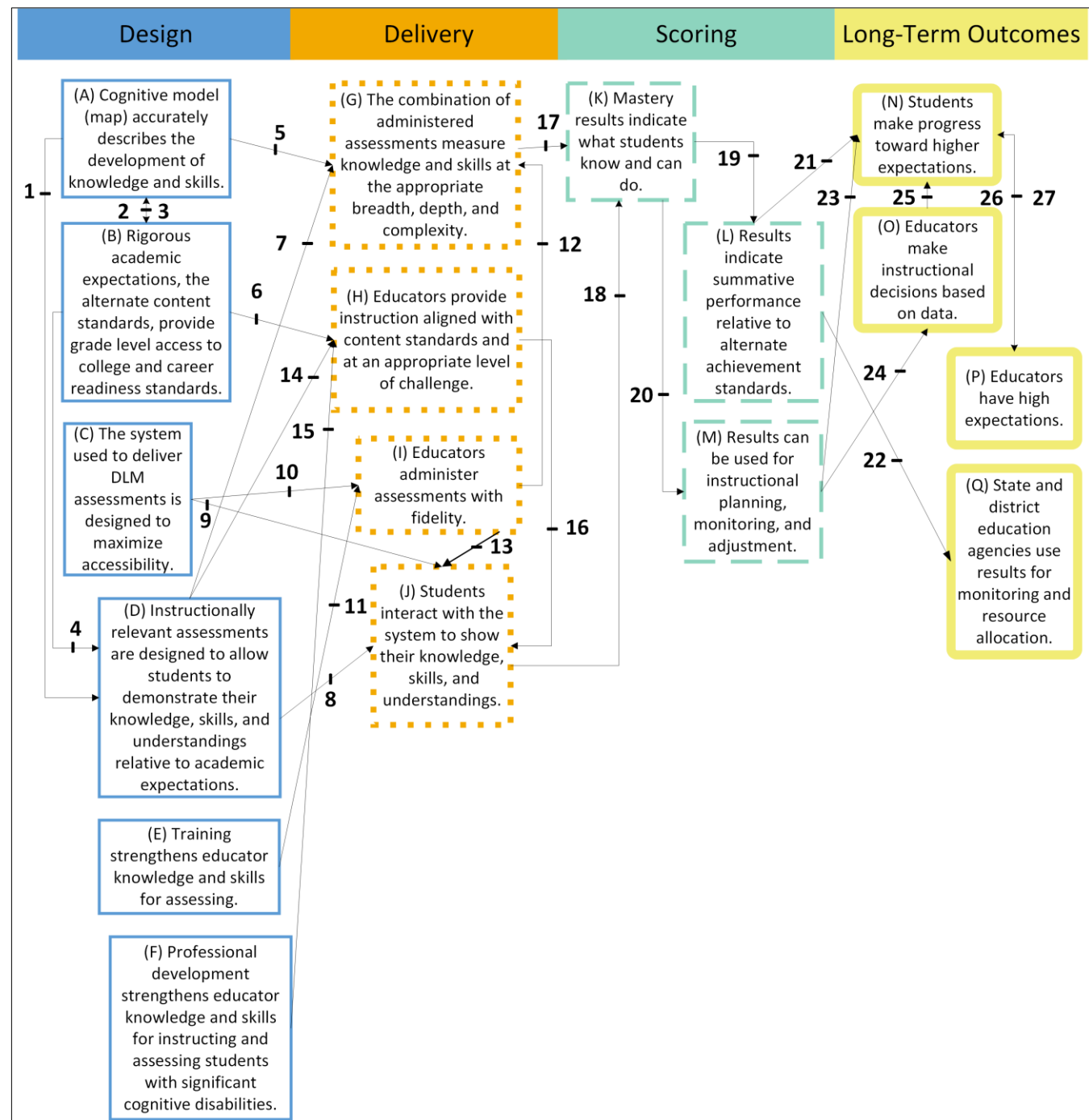
Six states use instructionally embedded assessment model.

- Two 15-week testing windows
- Embraces teacher choice
 - When and how often to test within the window, relative to instruction
 - Which standards to assess, from a set of constraints (e.g., choose 3 of 6)
 - Level(s) of assessment (system provides recommendation)
- Cyclical approach to instruction and assessment is recommended
 - Select standards/levels, instruct, assess, evaluate

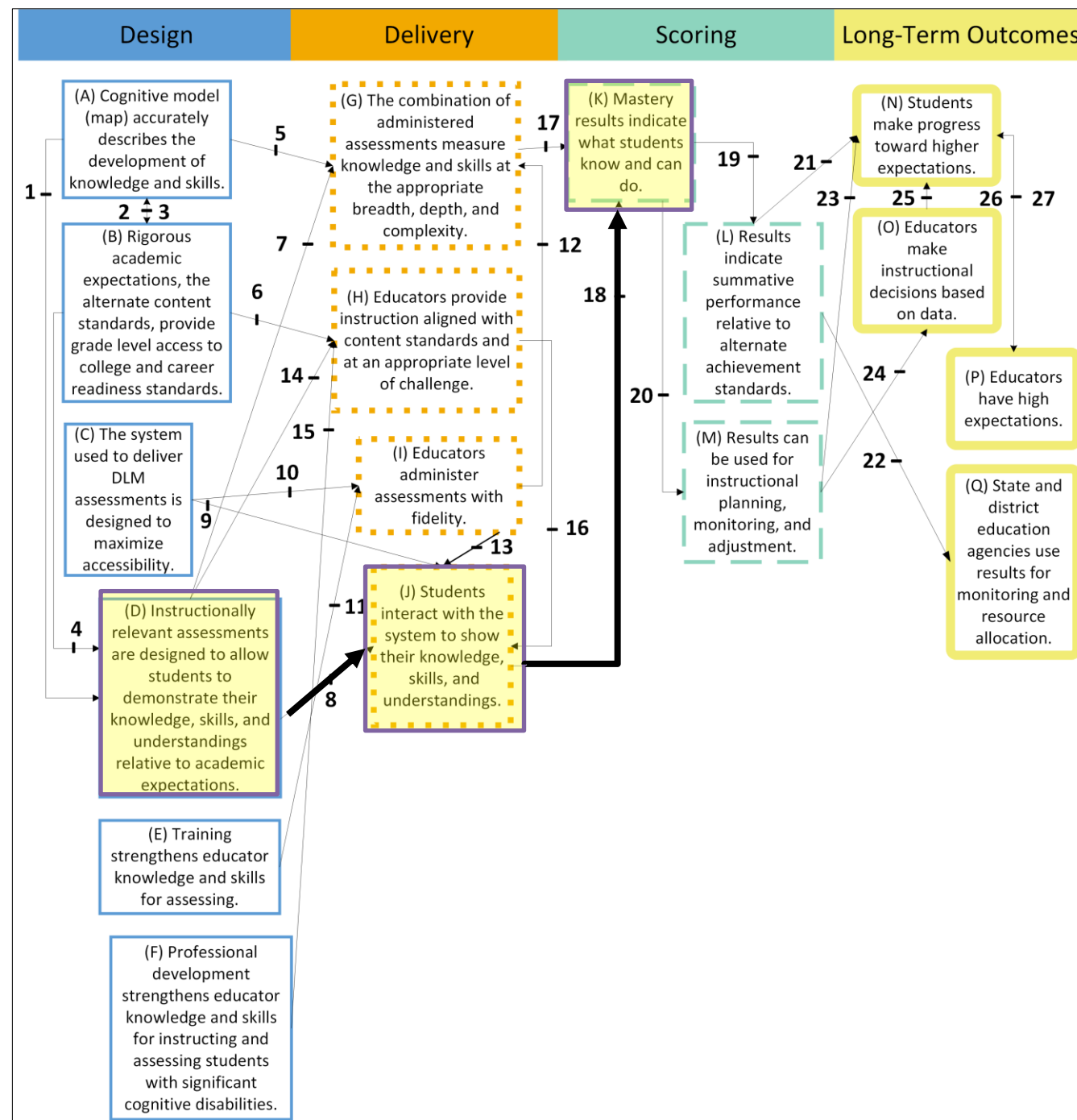
DLM Theory of Action

- Outlines how the DLM instructionally embedded system will function in order to elicit the desired outcomes
- The ToA includes:
 - Assessment's intended effects (long-term outcomes)
 - Claims related to design, delivery and scoring
 - Action mechanisms (connections between claims)

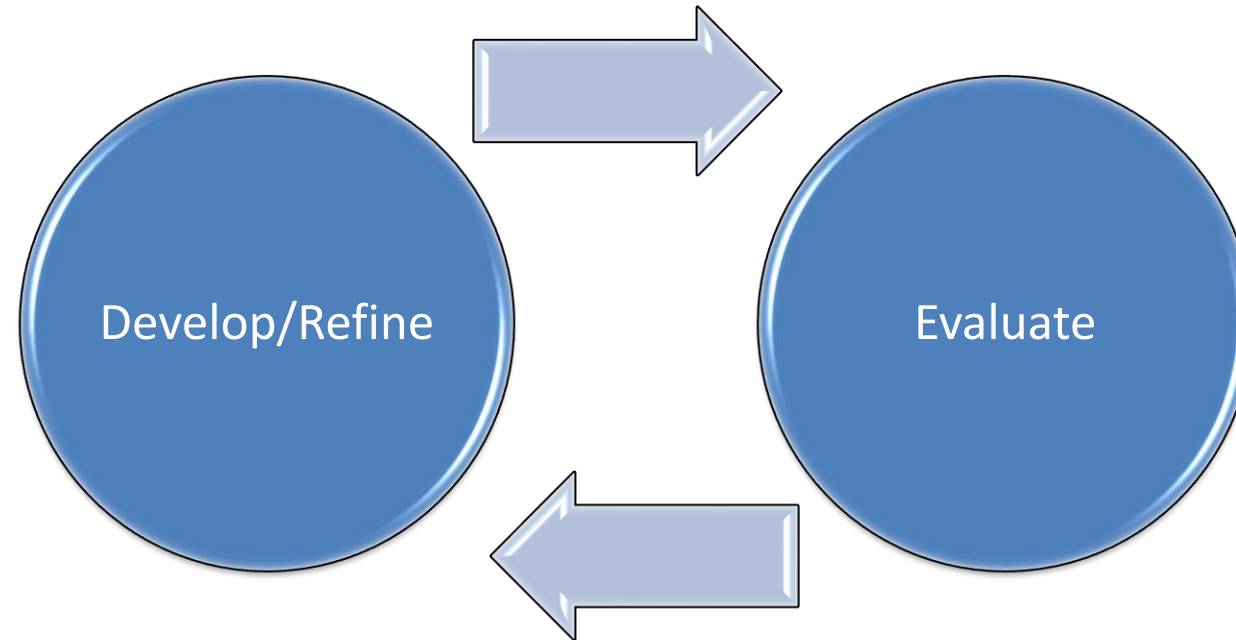
DLM Theory of Action



DLM Theory of Action

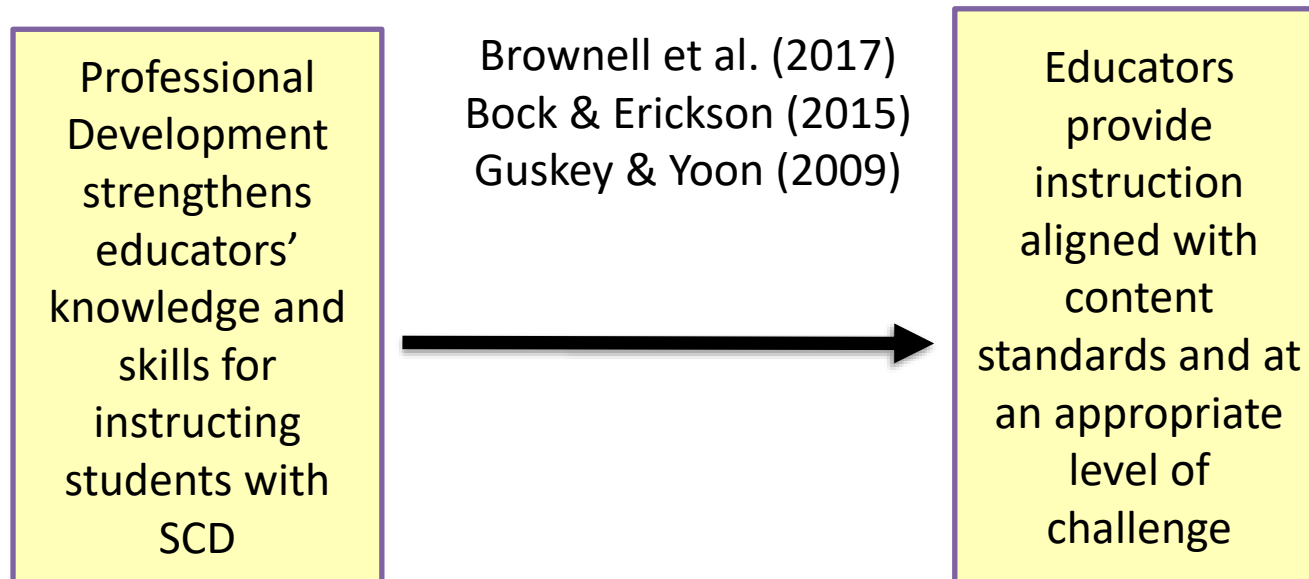


Theory of Action Development Cycle



Considerations for Development

- Strong theoretical rationale for claims and relationships in the model
 - Evidence from supporting research



Considerations for Development

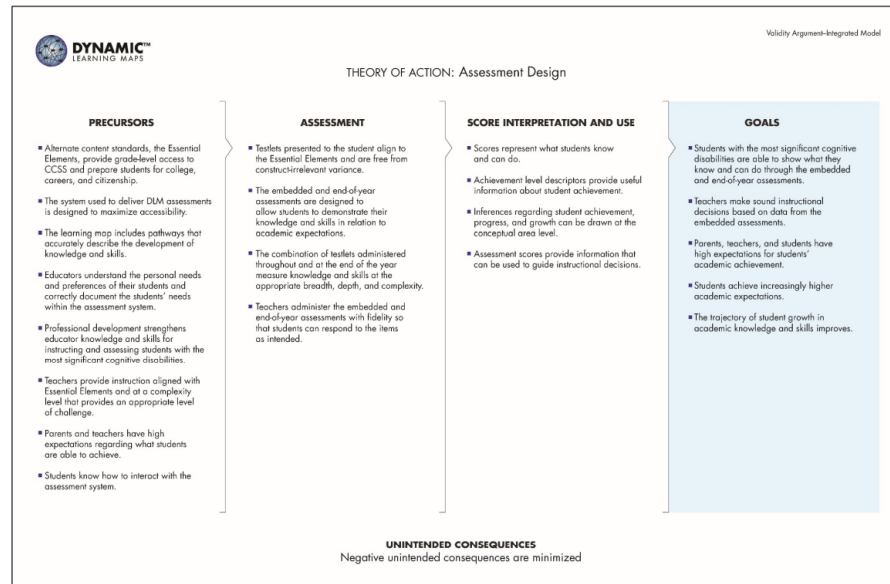
- Context specific
 - DLM ToA is based on consortium priorities and collective beliefs about academic learning for the DLM population
 - Reflects an extremely heterogeneous population and individualized nature of instruction and assessment
 - Other assessment programs might articulate beliefs and assumptions related to a homogeneous population

Considerations for Development

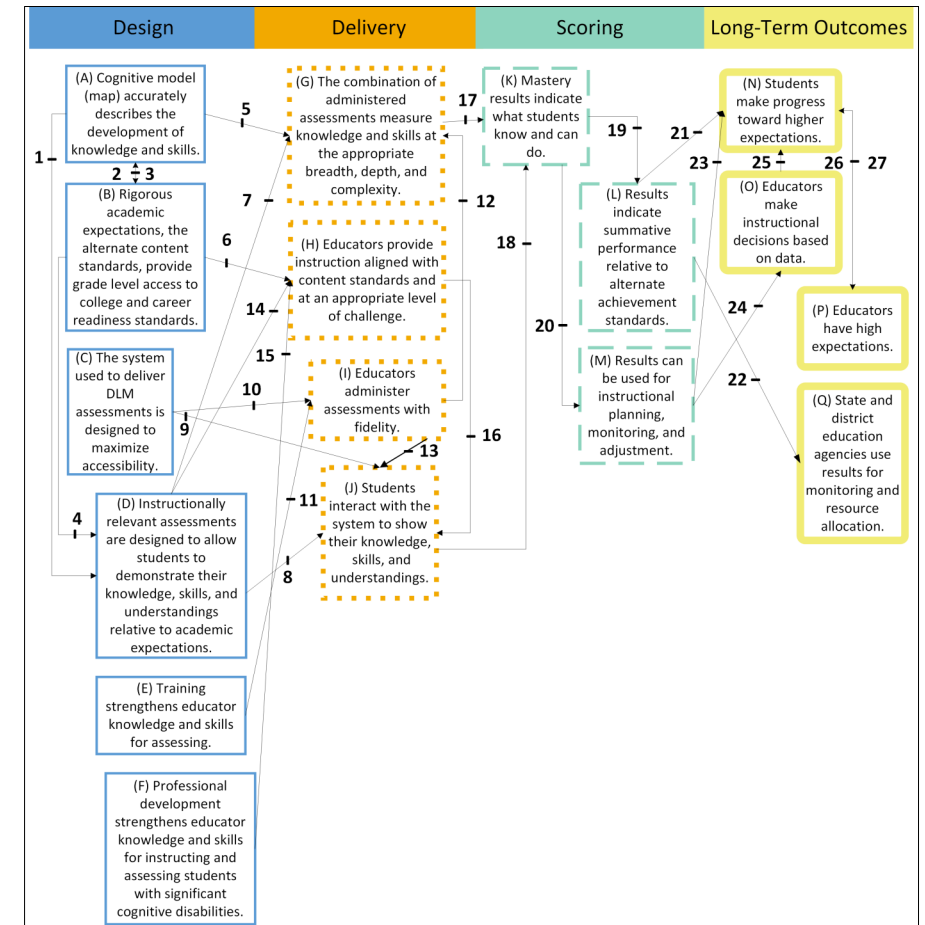
- Collaborative - our state partners helped identify:
 - Intended score uses and long-term outcomes
 - Whether claims are realistic
 - Whether evidence to support claims is feasible to collect

Considerations for Development

- Iterative Process



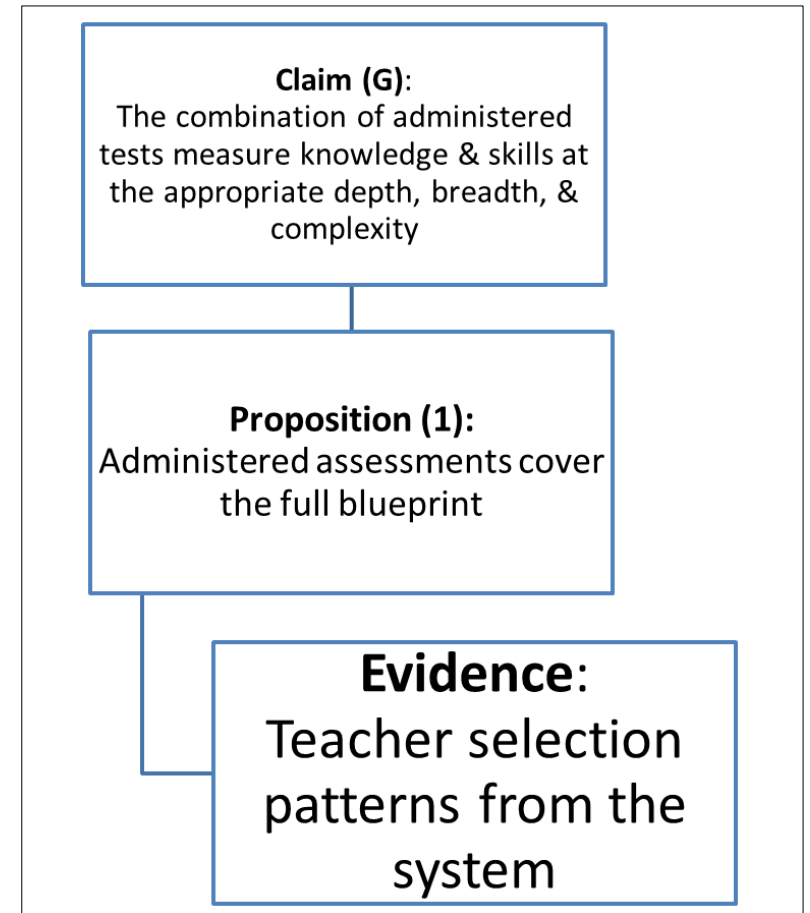
Original (2013)



Revised (2019)

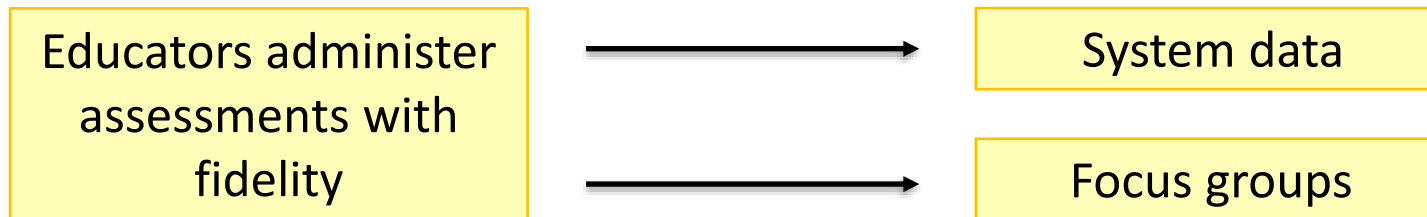
Considerations for Evaluation

- A strong theory of action supports validation, which is critical for peer review
- Argument-based approach to assessment validation
- Theory of action used to organize the interpretive argument
 - Chain of reasoning between claims, propositions, and evidence



Considerations for Evaluation

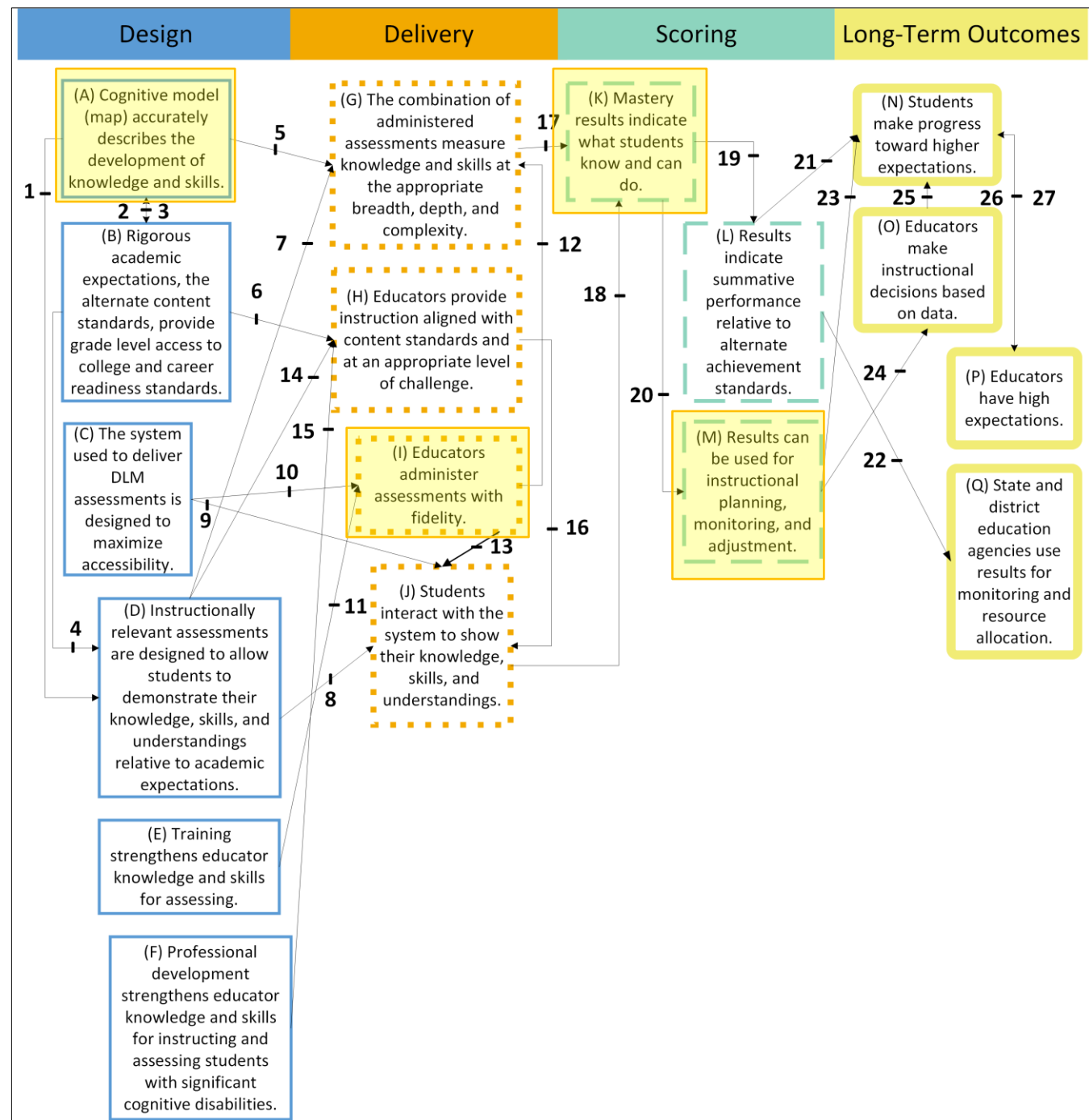
- Theory of action helps prioritize validity studies each year based on gaps and most critical claims
- Mix of procedural and empirical evidence
 - Include multiple types of evidence whenever possible



Considerations for Evaluation

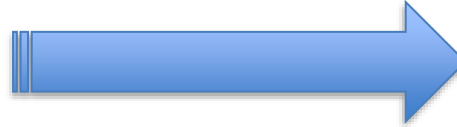
- Theory of action can be used as communication tool with stakeholders to encourage collaboration in collecting evidence
 - DLM state partners routinely help with recruitment for studies

Some Claims with Unique Evidence



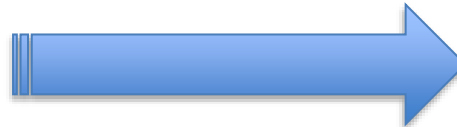
Some Claims with Unique Evidence

Cognitive model (map)
accurately describes the
development of
knowledge and skills



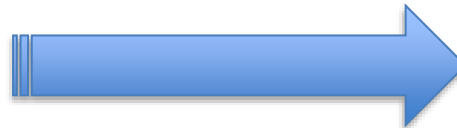
Learning map model
external review

Educators administer
assessments with
fidelity



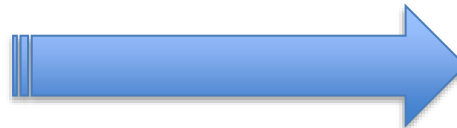
System data and focus groups
on teachers' implementation

Mastery results indicate
what students know and
can do



Diagnostic classification
modeling, model fit, reliability

Results can be used for
instructional planning,
monitoring and
adjustment



Design of mastery-based
score reports; interpretation
and use of mastery results

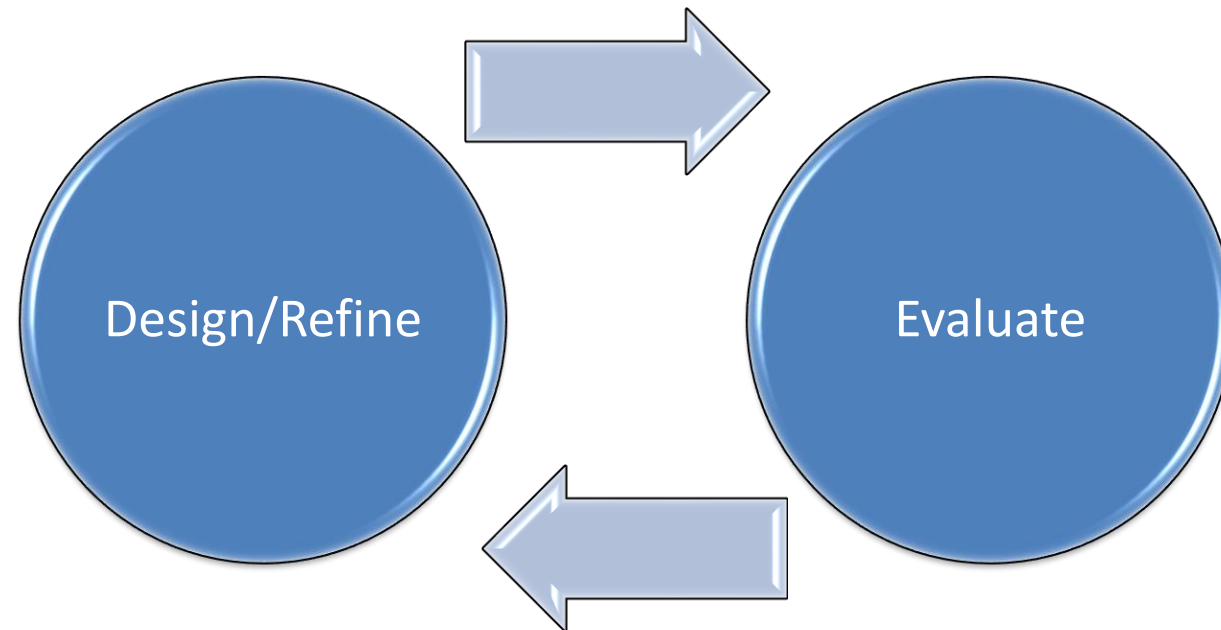
Considerations for Evaluation

Future Work

- Collecting evidence not only on individual claims, but the connections between them (action mechanisms) and long-term outcomes
- Evaluating and weighing strength of evidence
- Considering context and variability in implementation

Considerations for Refinement

- Validity evidence, assessment system maturation, changes and improvements inform refinements to the theory of action



Questions for Consideration

- How can we better promote adoption and use of theories of action for assessment systems?
- How can we better support collaboration in development, evaluation and refinement of theories of action?

THANK YOU!

Contact me at jennifer.Kobrin@ku.edu