Teacher-Centric Design Process for a Dashboard to Support Formative Assessment

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Agenda

- Project Background
- Brief Introduction to Universal Design for Learning
- Teacher Dashboard Co-Design Methodology
- Design Findings
- Next Steps

But first … a (loaded) question

If a “formative” assessment is administered but its results aren’t used to inform subsequent instruction, is it formative?

Project Background

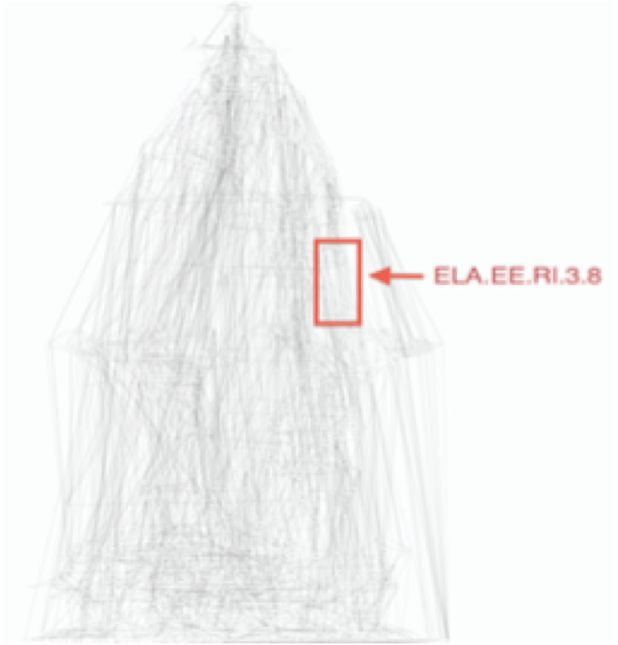
I-SMART Enhanced Assessment Grant

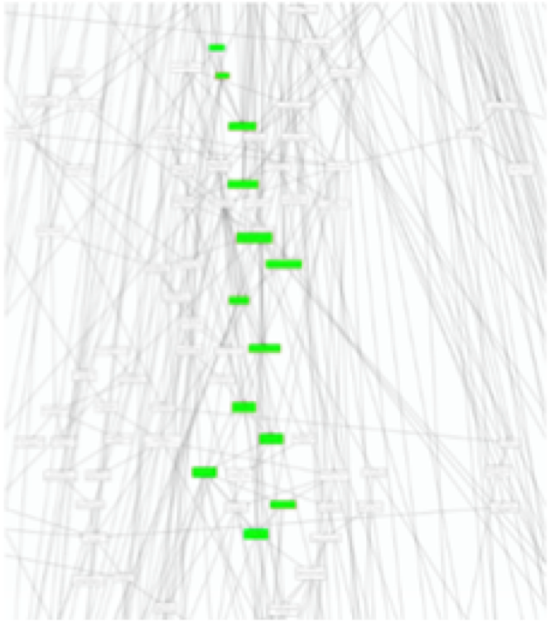
- Four year project 2017-2020
- MD (lead), MO, NJ, NY OK
- KU ATLAS + CAST + BYC
- Builds from previous dynamic learning map (DLM) efforts in ELA, math & science

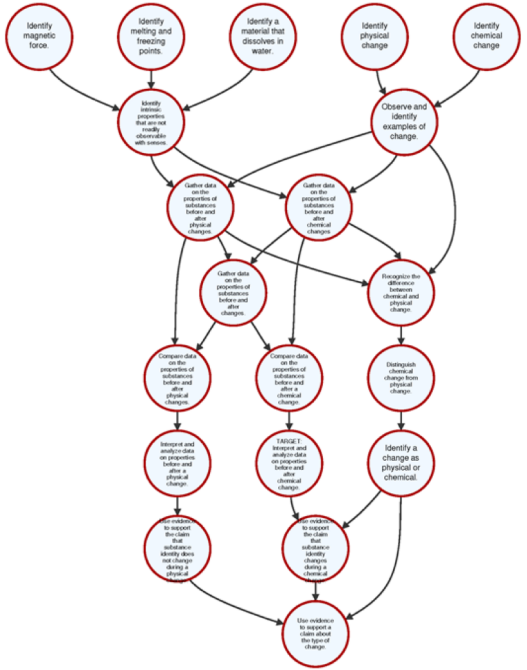
I-SMART Key Factors

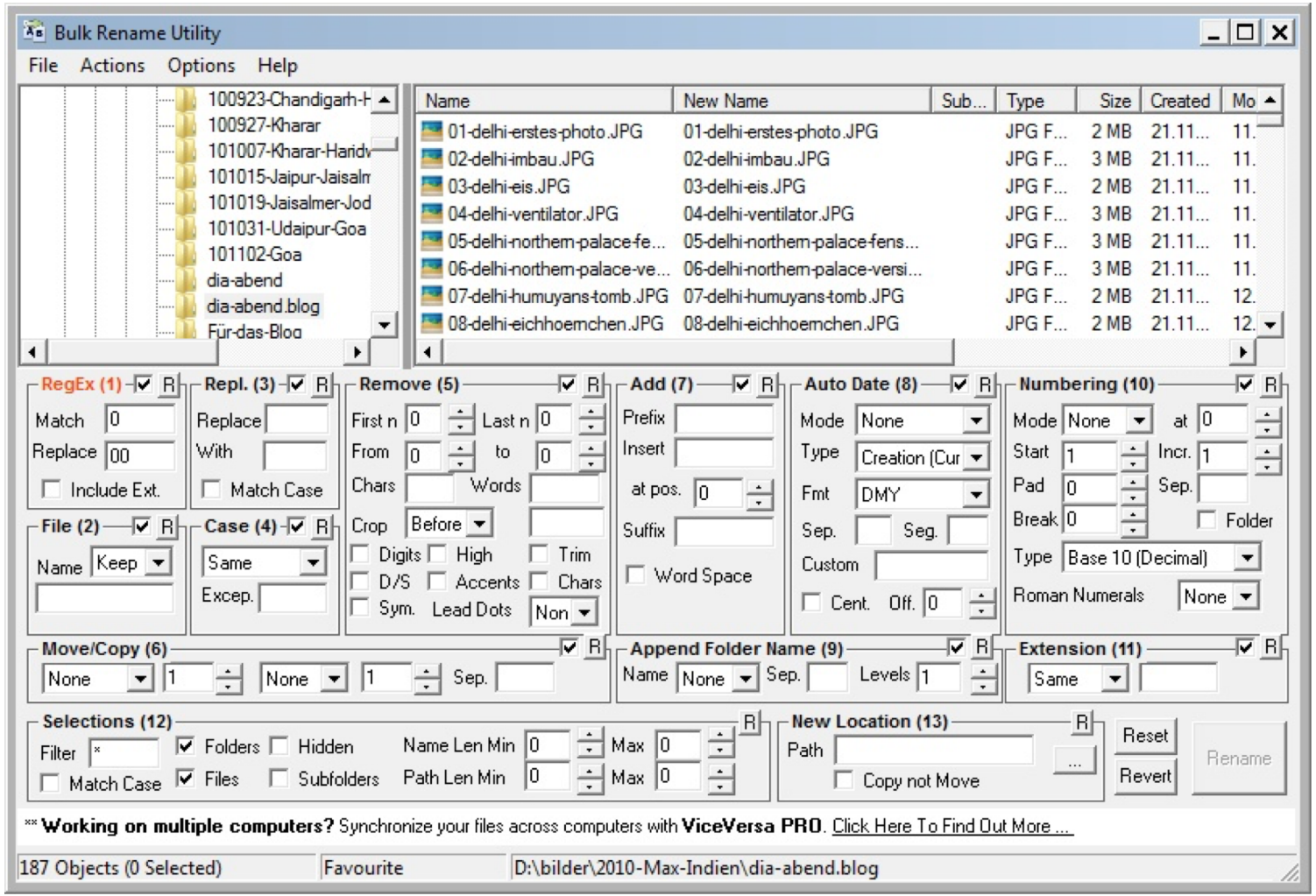
- Deeply integrates the **UDL guidelines** into the instructionally embedded test design and development process
- Supports students with significant cognitive disabilities **and students with and without disabilities** who are struggling to meet grade-level expectations in **science**
- Designed for **summative and formative** use
- Provides a new, actionable **dashboard** to support teacher use of test results to inform instructional decision making, co-designed with teachers through a UDL lens

Learning Map Models





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The problem

Teachers are swimming (drowning) in student data, too often presented in unusable & non-actionable ways.

How can we make data displays—and the way they are used—more empowering and effective for teachers?

The approach

Apply UDL to co-design with teachers an interface that supports their leveraging of learning map models in using student test results for instructional decision-making

Brief Introduction to Universal Design for Learning

Universal Design for Learning (UDL)

A **framework** for embedding options and supports into curricula and learning experiences to expand learning opportunities for *all* learners

Access

Build

Internalize

Dashboard Development

Teacher Co-Design Cadres

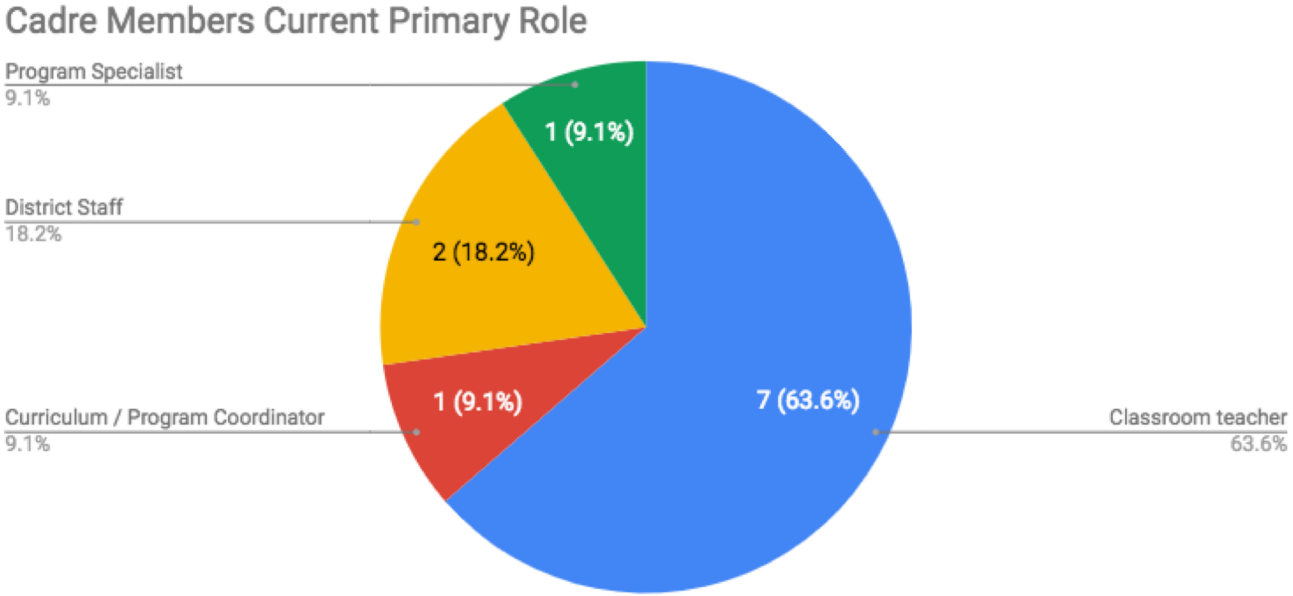
Main Cadre:

- 11 educators from four DLM partner states
- 4 sets of meetings
- Meetings of 1-5 cadre members, 2-4 I-SMART team members
- 90 minutes
- Video conferencing

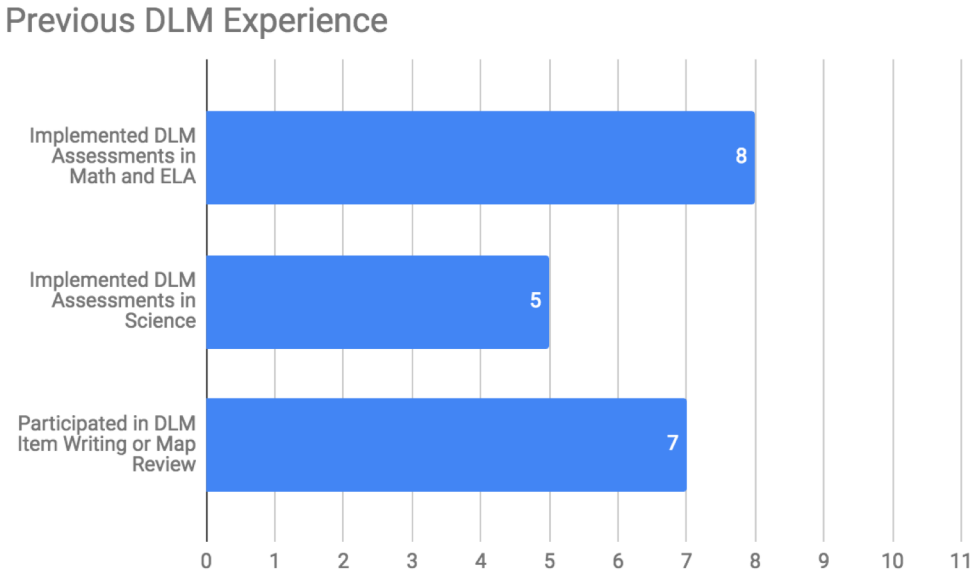
Gen Ed Focus Group:

- 1 meeting
- Same format as above
- 2 gen ed science teachers (grades 6 & 8) from a MA school

Cadre Participants



Cadre Participants



Iterative Discovery / Design Process:

Cadre Meetings 1-3

- Recap of the previous design's principal elements and features
- Walk-through of newly introduced screens and functions spotlighting design solutions resulting from teacher-generated feedback
- Facilitated discussion of prototype focusing on areas of clarity/confusion, features to change/add, most/least useful functions, and "Five Ws"

Cadre Meeting 4

- "Scavenger Hunt" usability testing session - teachers completed usability tasks to uncover any areas needing further refinement
- Cadre process reflection

June 26, 2017

Learning Map Model Neighborhood EE.MS.LS2-2: Use models of food chains/webs to identify producers and consumers in aquatic and terrestrial ecosystems.

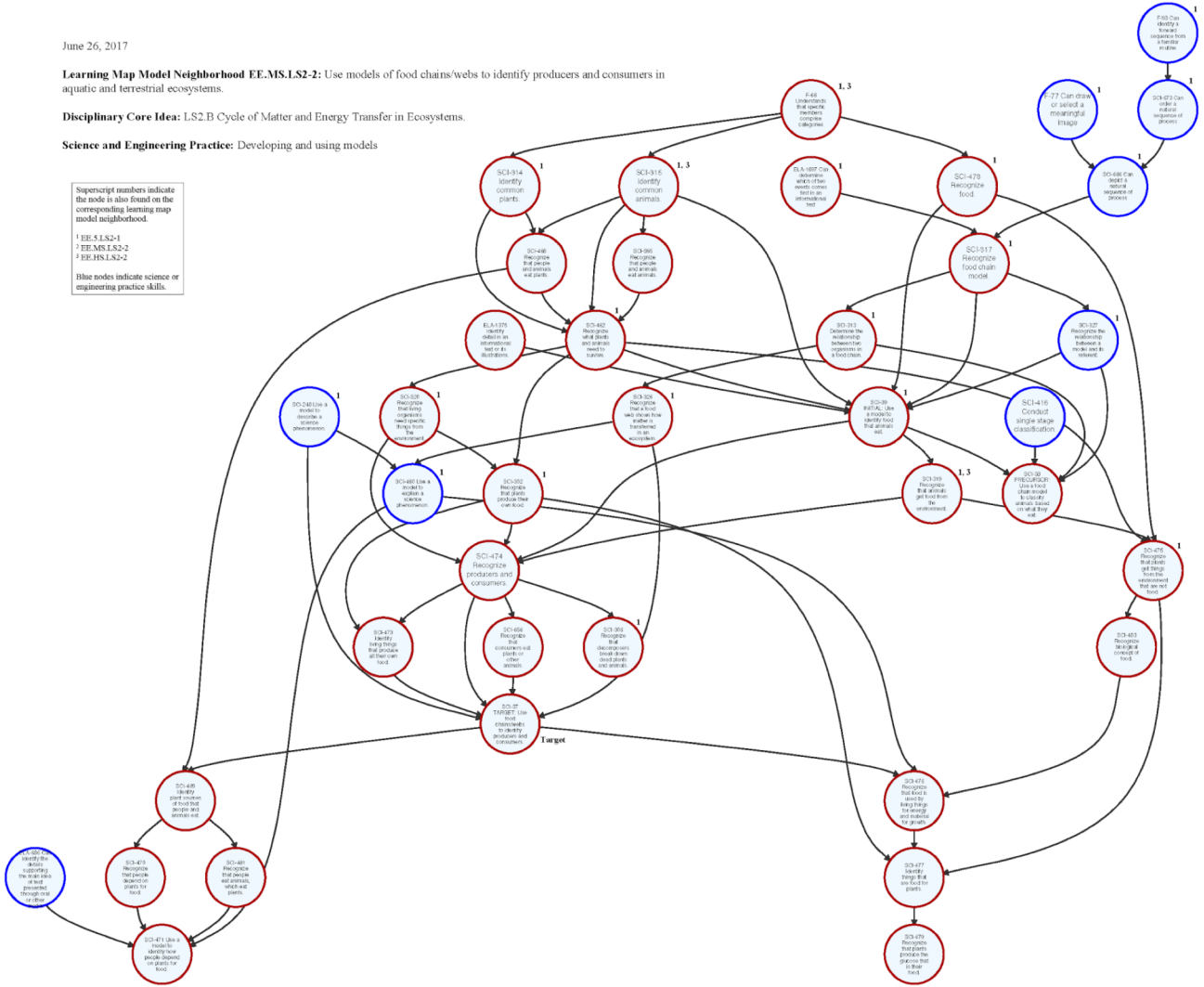
Disciplinary Core Idea: LS2.B Cycle of Matter and Energy Transfer in Ecosystems.

Science and Engineering Practice: Developing and using models

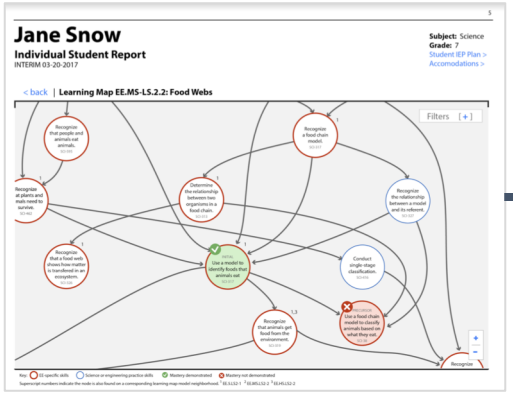
Superscript numbers indicate the node is also found on the corresponding learning map model neighborhood.

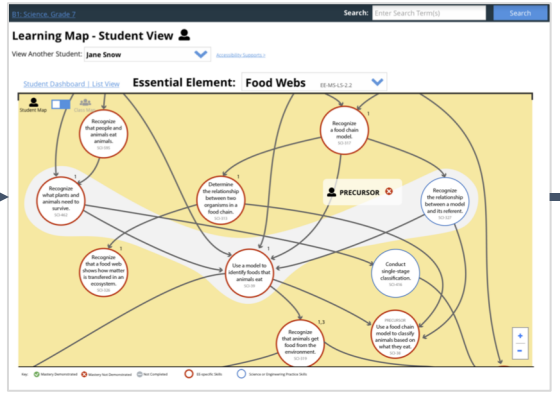
[1] EE.5.LS2-1
[2] EE.MS.LS2-2
[3] EE.HS.LS2-2

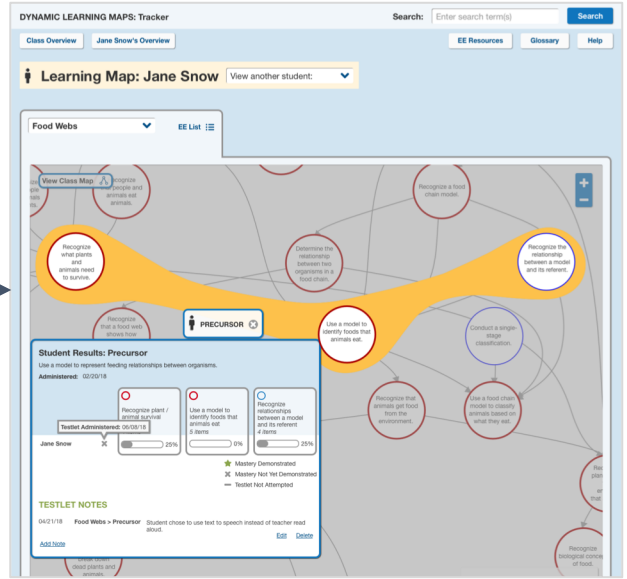
Blue nodes indicate science or engineering practice skills.



Iterative co-design cycles







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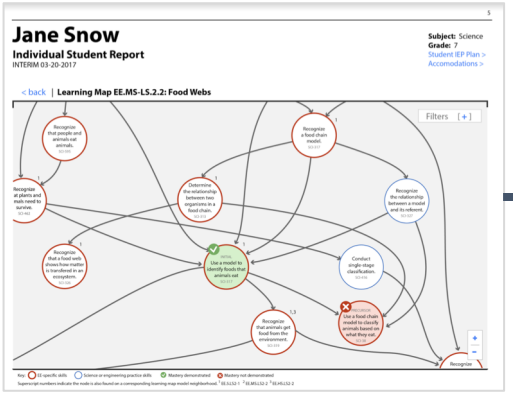
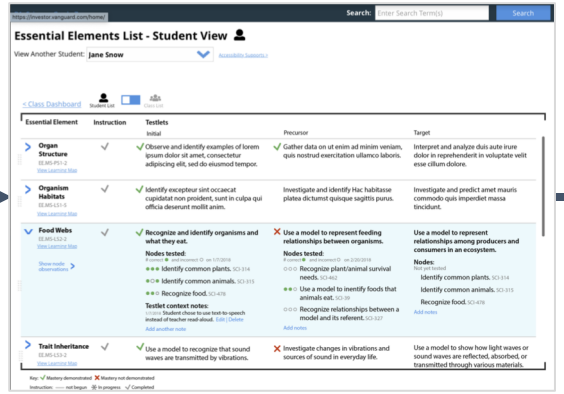
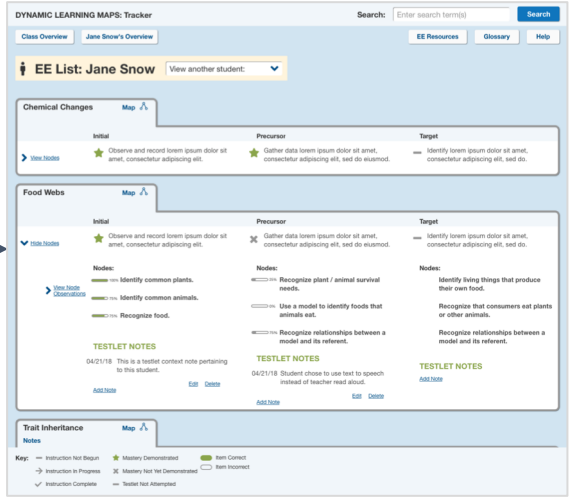
Innovations in Science Map, Assessment & Report Technologies

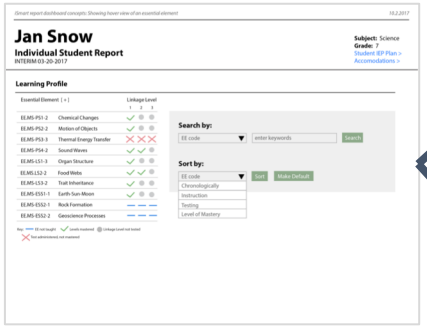
Iterative co-design cycles

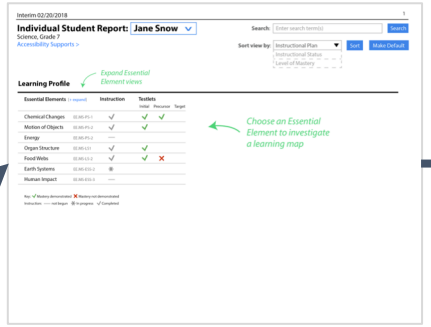


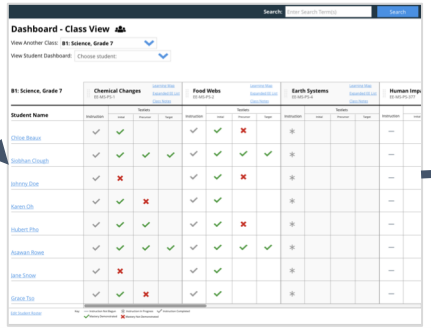


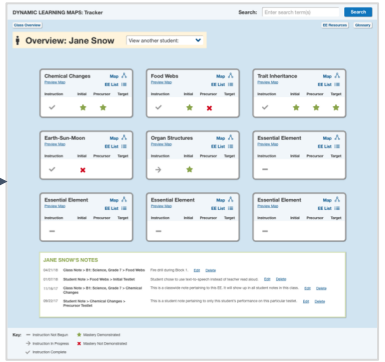


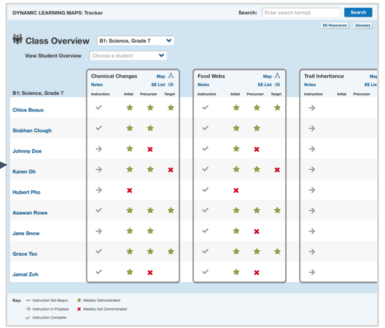
Iterative co-design cycles











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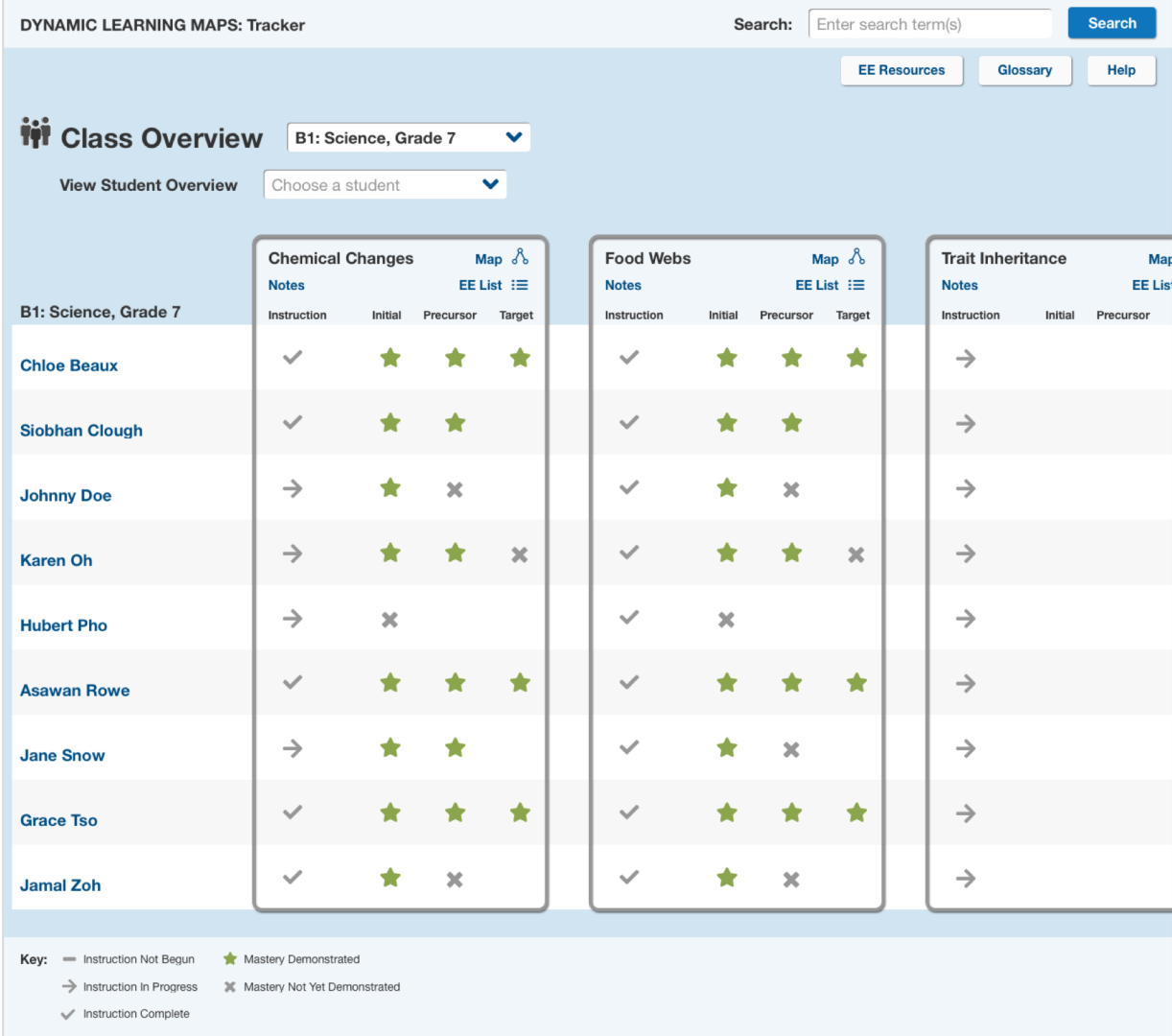
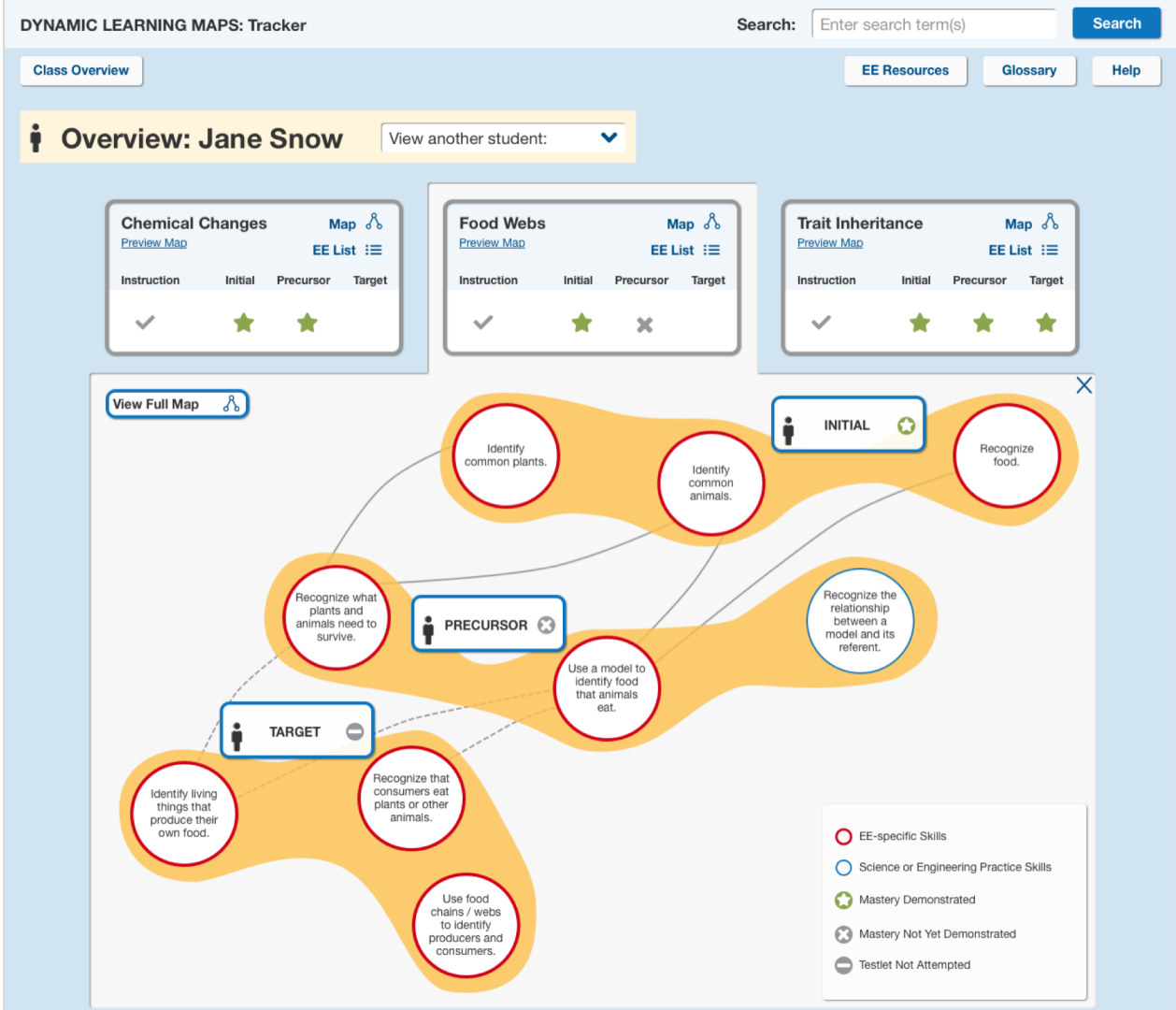
Innovations in Science Map, Assessment & Report Technologies

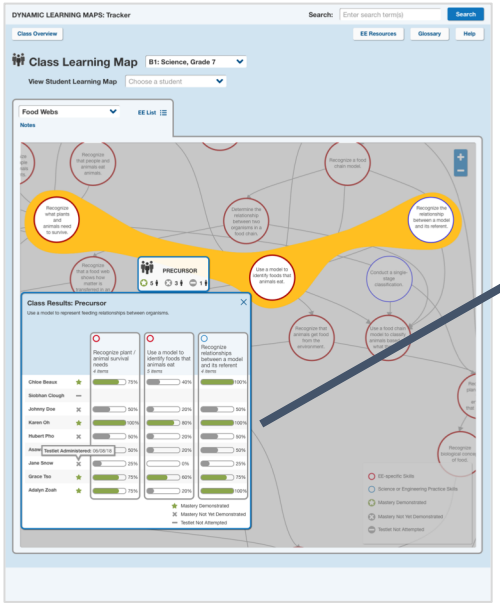
Test results: class overview



Test results: student overview



Test results: detail view by class



Summary of Design Findings

- Teachers found the learning maps valuable for understanding student progress and supporting instructional decisions
- However, scaffolding teacher's use of the map is necessary; there is a learning curve that can be supported through multiple representations of the same data
- Necessary to include aggregate view of class data to meet teachers' instructional needs

Final Cadre Findings

- In final usability/interpretability testing, cadre members were able to complete tasks effectively
- Feedback from cadre about final design was positive
- In final reflection, cadre members reported that they felt positive about the process, including that their ideas were used and that they developed professionally through participating

Next Steps

Upcoming Research Study

- Pilot study of science assessment system in 2020
    - Including evaluation of teacher dashboard through …
        - Interpretability and usability studies
        - Teacher interviews and focus groups

Thank you

For more information:

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