Supporting Practice, Integrating Research in Immersive Technologies into Educational Designs (SPIRITED): Technology to Support Co-located Collaborative Learning

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questions we are exploring

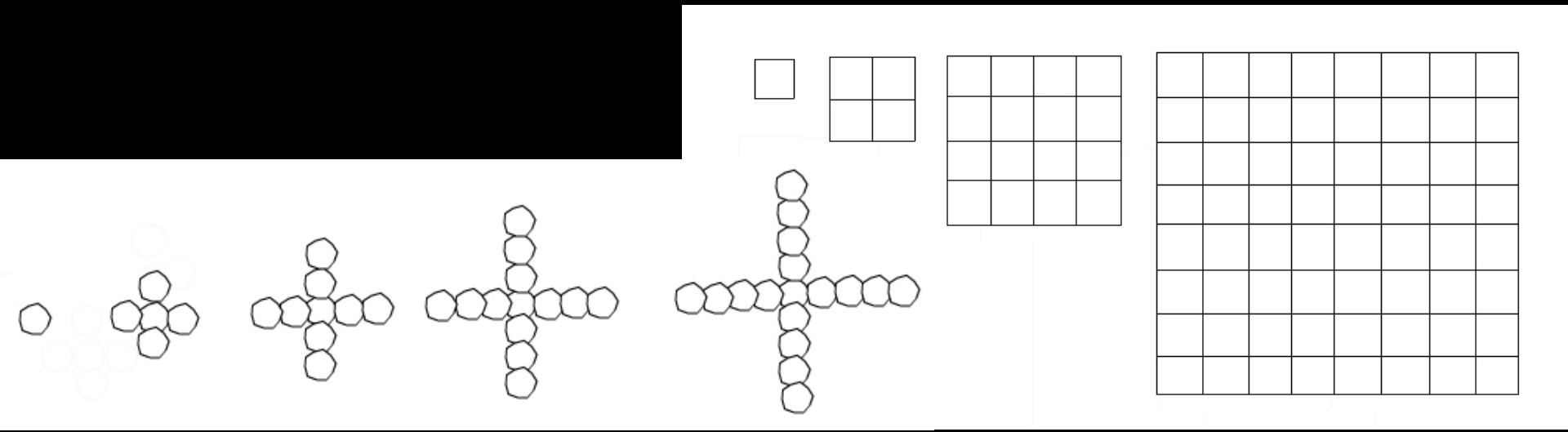
- How might we support teachers to design and implement inquiry in which context is provided and scientific activity structures are provoked using immersive, interactive technology?
- In what ways might an immersive experience reconfigure inquiry learning, before, during, and after the experience?

Pilot studies

- mathematics for elementary teachers
  - topic selected has had low success rate in past
  - n=9
- greenhouse effect
  - in development
  - exploring feasibility of turning a netlogo simulation into a 3D model
- nature of science, with pre-service secondary science teachers

arithmetic and geometric sequences with domestroids

- context: cancer researcher proposes new weapon design to destroy asteroids, based on ideas of sequences
- number of asteroids
- size of asteroids



Methods

- interdisciplinary design team
- video records
  - low light conditions in dome
  - interaction analysis
- artifacts
  - grounded coding
- pre/post comparisons
- interviews

ways forward

- low-cost immersive, interactive projection kits for use in classrooms
- exploring how our designs might fit into classrooms to reconfigure learning, transforming corners of classrooms into interactive rings of Saturn or carbon nanotubes.

feedback desired

- what are the affordances of this immersive, interactive environment?
- how do they differ from other similar environments?
- how are we (not) taking advantage of them?
- what are we not asking, that we should be asking?

thanks

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Design Dimension	*Components*
Design occurs under constraints.	Cost Regulations
Design involves form and function. A customer may select a design based on form, even if function is inferior.	Materials Style Ambiguity
Designs address diverse customer or client needs, some of which may be implicit.	**Roles** **Needs** **Implicit/False**
Design is an iterative process that requires evaluation and optimization across tradeoffs.	Tradeoffs Improvement Coevolution

interdisciplinary project-based learning course, in-service teachers (n=9)

design tools: VOC, ideation, evaluation, prototyping

data: reflections, artifacts, pre/post tests