Next Generation Learner Interactions with Personal Assistants for Learning

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Avatar courtesy of LivingActor.com

Presentation outline

- What motivates our research?
- What is the Imaginarium?
- Virtual environment design and functionality
- Imaginarium scenario
- Research study
- Next steps
- Conclusion

WHAT MOTIVATES OUR RESEARCH?

WHAT IS THE IMAGINARIUM?

Motivation and research

Learning Environment

- Novel, multimodal human-system interactions
- Data sharing across applications
- Knowledge representation
- Machine understanding- driven search and retrieval
- Expert models

Learner

- Foster conceptual mastery and cognitive agility by combining…
  - Sound assessment methodologies
  - Learner modeling
  - Pedagogical modeling
  - Sound instructional design principles
  - Interactions with live and artificially intelligent peers and mentors

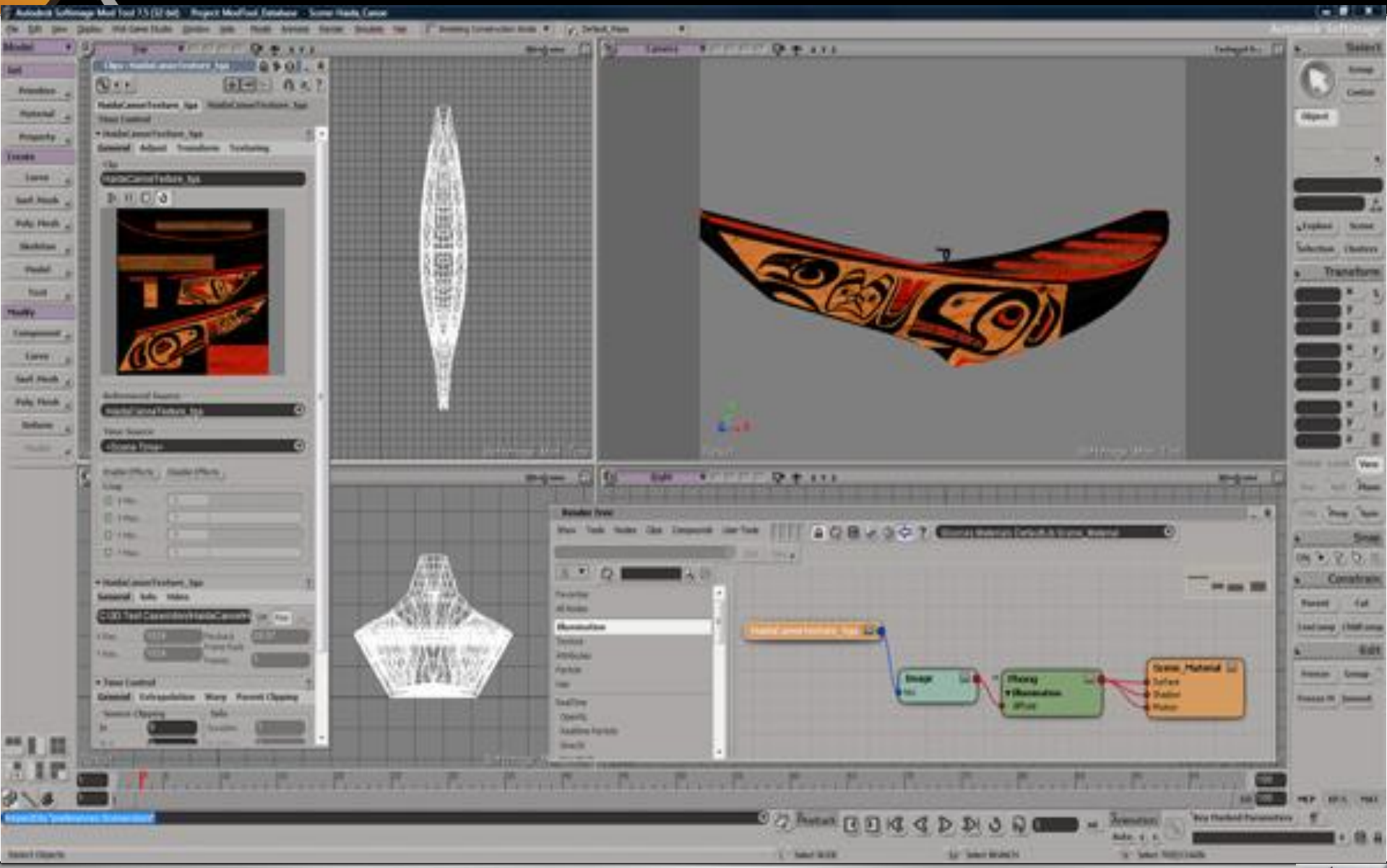
Unobtrusive Intelligent Ubiquitous

Anthropology of Future PAL

- Invisible interface = immersion
- Seamless interaction
- Guard against loss of humanity
- Guard against regression

VIRTUAL ENVIRONMENT DESIGN AND FUNCTIONALITY

3D Modeling



Functionality

IMAGINARIUM SCENARIO

Research Rangers

Use your PAL to problem-solve

Can you help?

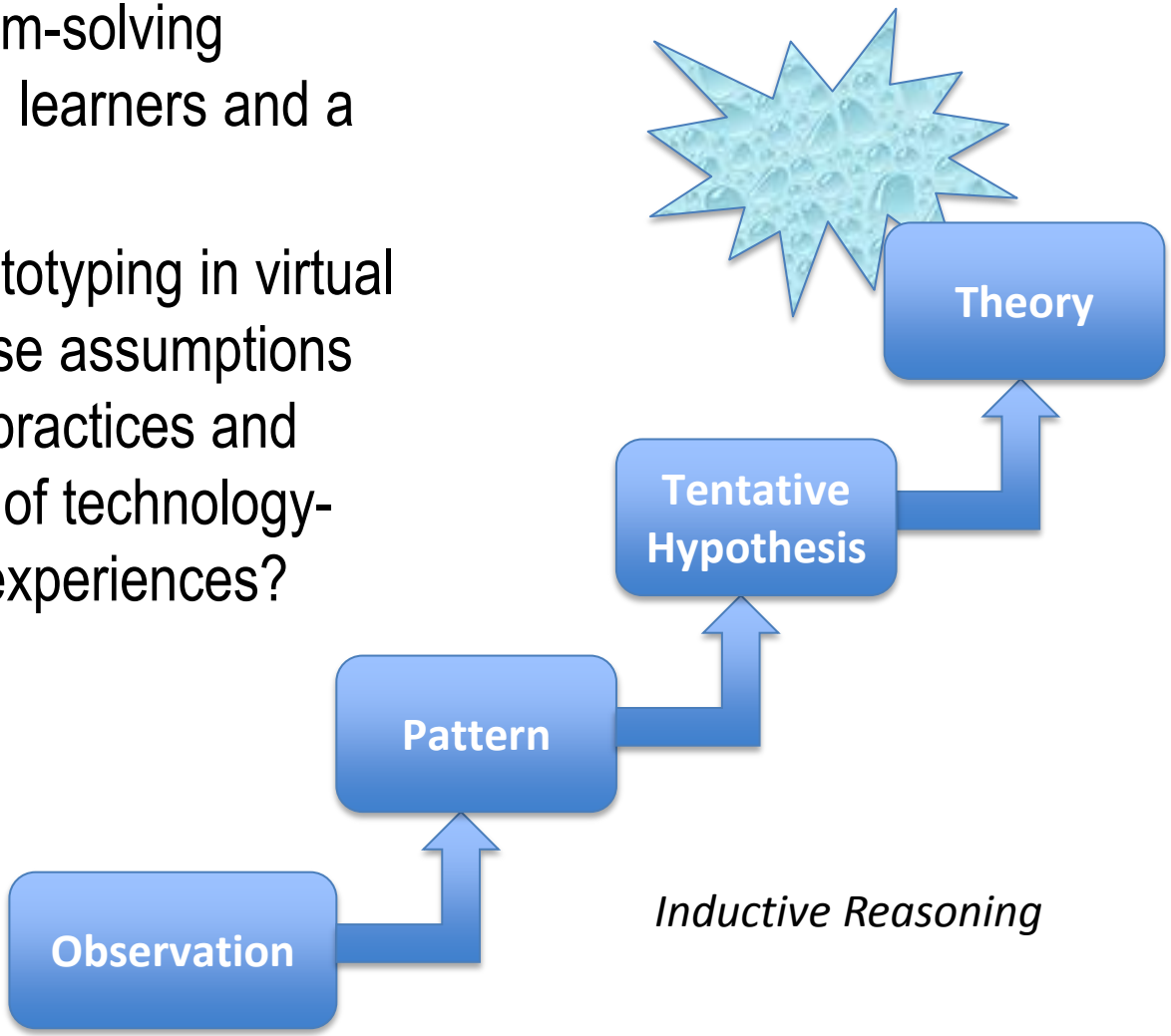
identify what the problem is

Identify why there is a problem and how to address it

RESEARCH STUDY AND NEXT STEPS

Research Questions

- RQ1: How is problem-solving negotiated between learners and a simulated PAL?
- RQ2: Can rapid prototyping in virtual environments expose assumptions about instructional practices and improve the design of technology-mediated learning experiences?



How is problem-solving negotiated between learners and a simulated PAL?

- Participants only asked for help when they needed it, as a last resort
- In competitive situations, participants wanted their communication with the PAL to be private
- More research is needed to understand the underpinnings of discovery in problem-solving

Participants' expectations of a digital PAL often changed after initial use

Can rapid prototyping in virtual environments expose assumptions about instructional practices and improve design?

- Participants only utilized the PAL to answer questions or provide feedback, not as an equal partner in learning
- Participants reported they would have acted differently if they had not thought the scenario was a “game”
- More research is needed to understand adaptive performance in the context of common good dilemmas

Natural language and cross domain expertise may be necessary but not sufficient for the PAL

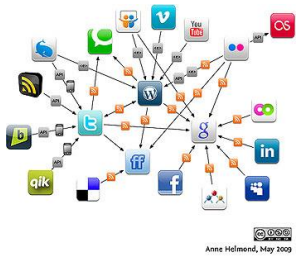
CONCLUSION

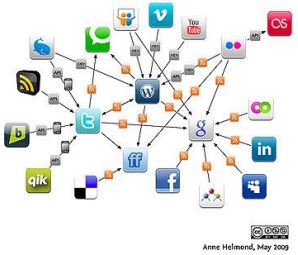
Transmedia learning system

ASSESSMENT

Expanded Character

GRAPHIC NOVEL





SENSORS IN WILD

SCIENCE CENTER

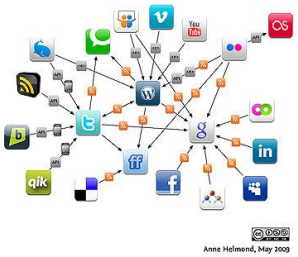
The Prequel

REAL WORLD

The Main Story

VIRTUAL WORLD

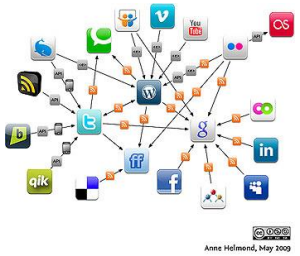
The Sequel



Expanded Moment in Time

GAME or APP

Website



ASSESSMENT

(Raybourn, 2013)

Slide adapted from Robert Pratten, tstoryteller.com

Share your story

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