

Immersive Learning Narratives

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GARAGE EXPERIENCE PROPOSAL

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ABSTRACT

Textbooks are an antiquated way to educate. Even with an interpreter like a teacher, textbook-based learning doesn't appeal to all kinds of learners, multiple intelligences, depth of processing, and long-term application. Learning can be an inaccessible, convoluted process for many, especially for convoluted subjects.

At the same time, digital culture is connecting people through a ubiquitously social, text-based, and interface-based language. Digital worlds utilize community, habitual use, and choices that make them successful immersive platforms for learning and converging. Humor, cultural antics, and mutual understanding is being taught through technology for young and old.

I'm a designer and technologist interested in the future of education. As a child, I played ToonTown and Neopets, which forged worlds of mnemonic devices and taught me tangible concepts in math along with decision-making strategies. Today, I want to understand how learning exists digitally, and how to rethink education altogether. What I learn will educate a potential product or curriculum to implement computer-based learning (CBL) with universal design for learning (UDL) to make learning more accessible.

INTRODUCTION

Through my adventures as a tutor, teacher, designer, writer, and user experience researcher, I've observed the factors for successful—and unsuccessful—learning in a variety of contexts. What ties all my interests together is my passion for imparting some sort of knowledge. Achieving this passion is difficult, because everyone learns differently. However, I've observed some common values that tie successful learning experiences together. Especially in my recent work with Adobe

through D&M, explaining coding concepts as TA for Professor Dent, and mentoring others in design tools in Spark SC, I've discovered the importance of community, direction, context immersion, consistent exposure, and affordance as values in learning and motivating learning¹:

Value	Impact on Learning	Examples
Community <u>In psychology:</u> social learning theory, motivation, social constructivism	Positive peer pressure and encouragement directly impacts motivation. Also, important because most knowledge is learned to be exercised in a group dynamic.	Any group essay, project, presentation, competition, etc.
Direction <u>In psychology:</u> engagement, Theory of Activity ² , affordance	Original reason for engaging. Relates to how much control the learner has on their education. Some learners have an ulterior goal, some are directed by the system.	Ulterior goal: assignment prompt, individual research, hobby, practical use. In-system direction: compelling narrative of curriculum or immersive experience.
Context Immersion <u>In psychology:</u> elaboration, engagement and Theory of Activity ² , explicit vs. implicit learning	Learners extract meaning when the context immerses them to make new decisions based on prior knowledge. Learner can learn from contextual feedback and error-handling.	Applying learned math concept to constructing a physical product; learning history of a society and then role-playing a new society.
Consistent Exposure <u>In psychology:</u> encoding specificity, encoding variability	Learning occurs through practice that evolves over time, location, or approach/perspective.	Learning and understanding new software, vocabulary words, philosophies, etc.
Affordance <u>In psychology:</u> enactment effect, generation effect.	Interfaces that afford learners the opportunities to make choices and/or take ownership yield better understanding.	"Choose-your-own-adventure" games; picking a topic of interest for a required project.

¹ I'm aware of overlap in some of these values. As I iterate, I will more specifically curate a list of values, relate them to existing psychology, and give examples in a proposed immersive learning experience.

² Proposed by Leont'ev in 1981, the Theory of Activity specifies that human engagements come as three activities: play, formal education/instruction, and work. Learners, when engaging with a teaching system, have a goal in mind, whether it's as shallow as getting an assignment done, or preparing for real-life application. Such motivations for activity determine how meaning manifests to the learner.

In essence, classroom education today relies on a guide and interpreter. These usually take form as a textbook and a teacher. Many textbooks are tutorials that follow “distance-teaching,” where the author controls the definite trajectory by which a learner learns, without alternatives. Other disjointed texts lack narrative altogether and give the learner too much freedom, like encyclopedias or reference manuals. In both cases, a teacher—the interpreter—needs to be actively involved to either supplement learning and provide alternative explanations for concepts, or to extract a cohesive learning strategy themselves.

The learning values I’ve determined need to be *designed* into the way learners learn, not supplemented by an interpreter or suggested as an afterthought. The narrative of a learner can only exist and be documented if these values do. The sky-high vision is to immerse learners into best frameworks and metaphors for them to learn, measure how their learning compares to the learning of others, and let them socialize in an ecosystem of many learning narratives.



ToonTown (2003)



Neopets (1999)

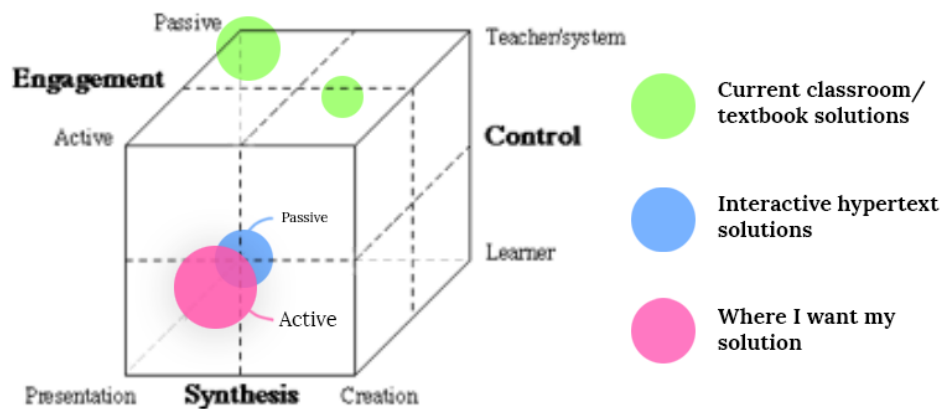
The idea of children’s MMOs inspires my idea. I have specific memories of learning how to do mental math while fighting robots in ToonTown. I had to calculate which weapon decision was most effective in conjunction with the weapons my teammates chose. I was pressured by time, had a few choices, served a team I couldn’t let down, wanted to finish my ToonTask, and had a streak I wanted to sustain. Similarly, Neopets allowed me to traverse a fictional universe to learn basic economics to participate in the market so I had resources to manage a family of pets. I built my home, portfolio of collectibles, and uncovered local fantasies. I never once embarked specifically to learn math or trading principles. These MMO systems equipped me with the tools to learn, and the values baked into their design motivated me to use what was available to learn implicitly.

Education in context is how education should be.

PROBLEM

Textbook solutions and the current state of “digital education” is limited to the lo-fi videos and the test-like interfaces of Khan Academy that appeal to a specific kind of learner. These only consider some of the values of learning I described, and are not comprehensive or universal. The whole paradigm of a guide and interpreter fails to provide opportunities for different learning narratives. Students of all ages struggle with comprehending basic conceptual knowledge to complex procedural knowledge. There is room for a platform to facilitate this learning digitally.

Even hypertext systems (interactive, modular texts—think test prep software or Khan Academy GUIs) are interfaces that have limitations in presentation structure, range of representation (only text and graphics), and don’t give users a balance of control. There’s a disconnect from the designer and the learner:



Framework by Nick Hammond in [Learning with Hypertext](#). I added the circles based on my own research and interpretations of where education technology exists now.

There is a large gap in CBL where the interface can be actively engaging (not just browsing), the learner has a majority of control over the decisions and outcomes, and the ability to learn comes from synthesis of ideas, not fully complex authoring which can be too free-form. These relate to my values that I notice foster motivation to learn.

More and more people are learning from familiar interfaces that accomplish these values. Social media browsing, news apps, online gaming all incorporate these values to some extent. I’d like to experiments with interface, navigation, and feedback structure design to enable a variety of learning narratives for all learners.

ACADEMY-NESS

I'm a visual designer with a specific focus on digital interfaces and UX. My skills in writing, interviewing, and observing users help me explore insights in how people interact with technology. I'm fond of how user journeys communicate how a user comprehends an interface. As a Narrative Structure minor, I understand these user journeys as stories about the users themselves. Education direly needs well-informed, well-designed digital products.

POSSIBLE FORMS

1. Immersive reality, first-person experience. Real-world environment simulated through videogrammetry (e.g. a riverbed in Yosemite) can have regions that are interactive. If a user hovers over a river, a module may pop up prompting them to find out the speed of the river, guiding them through a series of exercises that teach slope and calculation of speed. User can earn "knowledge points" based on success of exercise and how much time was spent. User can move on to neighboring rivers to compare, pocket new vocabulary words that compare rivers (e.g. one river is "leisurely" while the other is "rapid"), or explore another module where they learn the history of Yosemite, the water cycle, etc.
2. Website application, simulation, or MMO game, with click-through interactivity that allows a user to explore worlds. Learning occurs socially as users have overlapping "missions."
3. I'm open to exploring multimedia tools, or solutions that involve the physical, too.

RESEARCH

I follow human computer interface design research of Katharina Reineck from University of Washington HCI, social psychologist Geert Hofstede, and Dianne Cyr, a professor at Simon Fraser University. I've explored their frameworks and other frameworks in HCI and interface design principles, and looked at specific use cases in education. I've read the book [Hypertext: A Psychological Perspective](#), which has informed many of the ideas I discuss in this proposal.

This summer, I'll write a research paper that examines how educational psychology concepts exist in children MMO games, social media interfaces, and current forms of education. Based on this research, I'll better understand the strengths and weaknesses of these formats and know better where to position a solution.