

User Engagement in Physically Embodied Narrative Experiences

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ABSTRACT

Physically embodied narrative experiences, or stories expressed in media such as Augmented Reality (AR), not only envelop the user perceptually, they attempt to involve the user as an active character in the story. While the ultimate goal for many VR/AR technologists is to induce a sense of *presence* so that users feel as if they are “there” in the medium [Heeter 1992] or to create the “illusion of non-mediation” [Lombard et al. 1997], this aim fails to recognize the notion of actually *engaging* the user.

I believe there are at least two different complex psychological states at play: *presence* and *engagement*, where *engagement* speaks to a user’s involvement or interest in the content independent of the medium. Many authors have pointed out that engagement does not require presence: someone can be engaged in a book, for example, without being perceptually immersed. However, this raises the complementary question of whether perceptual immersion necessarily leads to deeper engagement. My earlier work suggests users can feel a sense of *presence*, but actually feel more engaged within a non-immersive interface [1]. So what is the relationship between presence and engagement? What makes a VR or AR narrative experience engaging? In my dissertation I will investigate specific design features in fully-realized narrative experiences to uncover factors that influence engagement. My collaborations with designers and technologists at Georgia Tech led to three physically embodied narratives:

- *Voices of Oakland*, an audio tour in an historic site
- *Four Angry Men*, an AR narrative with video actors
- *Augmented Reality Façade*, an AR interactive drama

Each of these experiences places the user/viewer/player in a real physical environment, be it an outdoor historical site or an artificial set. In each case, the user interacts with a rich narrative with story plots and characters, acted out by professional actors. I will be creating modifications of these experiences (specifically, by altering features such as perceptual immersion, agency, and narrative point of view) and assessing how it impacts engagement both positively and negatively. Just as important, I will be looking for elements of meta-play and play styles that are supported or not supported by each modification of the experience.

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To get traction into the concept of engagement, or more explicitly *narrative engagement*, I will use a mixed-method approach. Since there are no established measures of user engagement I have gleaned the most germane metrics from prior research on attention, enjoyment, presence and flow. I submit the following as possible, unconfirmed indicators of narrative engagement in physically embodied media:

- Physically acting out within the context of the story (such as taking a swing at a character)
- Ability to recall story plots and specific dialogue from the narrative (speaks to implications for learning)
- Emotional reactions (such as laughing, smirking, etc.)
- High user ratings of enjoyment, captivation, and interest in the outcome of the story
- Underestimating the amount of time that passed
- Limited reactions to distractions outside of the narrative experience
- Physiological responses, such as increased heart rate and raised galvanic skin response

In essence, I am exploring the multi-dimensional concept of narrative engagement by placing people in physically embodied narrative situations and observing them. One expected outcome of my work is a set of design guidelines for future physically embodied narrative experiences.

BIOGRAPHICAL SKETCH

As a PhD student in Human-Centered Computing at the Georgia Institute of Technology, Steven Dow’s research focuses on HCI, novel media experiences, user engagement, and design tools for supporting creativity. With his advisor Dr. Blair MacIntyre, Steven helped develop the Designer’s Augmented Reality Toolkit, an enhancement to Macromedia Director to support video, high-precision tracking, GPS, and other sensors.

Steven led the production efforts for several physically embodied narrative experiences, including the “Voices of Oakland” audio tour in an historic cemetery in Atlanta and “AR Façade” [1], an AR version of the critically acclaimed interactive drama created in 2005 by Mateas and Stern. He received his MS in Human-Computer Interaction from the Georgia Institute of Technology in 2004 and his BS in Industrial Engineering at the University of Iowa in 1999.

REFERENCES

1. Dow, S., Mehta, M., Harmon, E., MacIntyre, B., & Mateas, M. (2007) Presence and Engagement in an Interactive Drama. In ACM Conf. on Computer-Human Interaction (CHI’07).