University of Southern California
Los Angeles, CA United States

atasse@gmail.com

Abstract

MIRAWORLD models an interdisciplinary design methodology centered on poetic science as exploratory research prompt. Wonder is a reawakening of spirit within the sense faculties. It can emerge as a bi-product of science unlocking the world around us. MIRAWORLD explores poetic science as a methodological design framework for evoking a sense of wonder across three cinematic media arts projects centered on the poetics of the life-cycle of the immortal jellyfish.

Keywords

Wonder, Poetic Science, Methodology, Interactive Design, Transmedia, Worldbuilding, Evocative Visualization, Marine Science, Interdisciplinary Science, Life-cycle, Immortality,

Introduction

MIRAWORLD is a media arts world and accompanying design methodology that emerged out of a multi-faceted exploration of a naturally occurring biological process: the lifecycle of Turritopsis *dohrnii*, the immortal jellyfish.

The biological structure acts as a contextual framing, research prompt, and unifying theme that generates multiple interdisciplinary arts and science media explorations. It foregrounds knowledge and outcomes associated with arts and design practice experimentation within the realm of interdisciplinary arts science research. It asserts the unique potential arts practice engagement contributes to interdisciplinary learning.

This abstract briefly describes each mode of exploration, contextualizes it within a larger poetic science methodology, and considers this methodology's contribution to a new understanding of interdisciplinary arts science research centered around transmedia design principles.

Miralab

Miralab is a 3D PC downloadable video game about exploring an underwater eco-system as an immortal jellyfish while solving eco-system and survival puzzles to progress further in the world. As the jellyfish morphs through its lifecycle, the game's graphics shift to represent the corresponding change in perspective associated with that stage of life-cycle.

As an adult, (fig.1), the world is bright, complex, and fully formed. As a primitive embryo, the world appears larger, and as a series of simple lines (fig.2).

Miralab was developed as part of a year long Advanced Games Project course within the USC Games curriculum. Amanda led a team of 40 students through the challenging task of developing game characters based on existing biological eco-systems and processes. We approached Miralab with a sense of appreciation for both the science upon which the game is based, and respect for the unique interactive design,
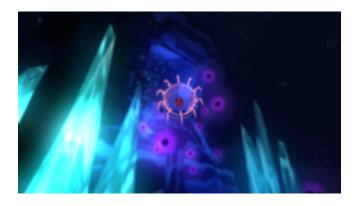

Figure 1. Miralab Screenshot 1- adult. ©Amanda Tasse

visual, and auditory interpretations student creators chose to embody. In this way, Miralab became a method for tuning the balance between respect for the knowledge and practice of both disciplines. As part of the design process, students met with experts at local aquariums to learn and see jellyfish life-cycles in process, and shared our game with the scientists as it progressed.

The Miralab game is the most literal of the projects in that you play as an actual immortal jellyfish surviving within an underwater eco-system. However, rather than
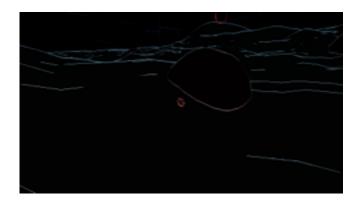

Figure 2. Miralab Screenshot 2 - embryo phase. ©Amanda Tasse

pure scientific visualization, it generates poesis through playful aesthetic immersion within a space of wonder, a creative dream laboratory of imagining a fascinating life-cycle and otherworldly world as it emerges from the interdisciplinary wild lands overlapping art and science.

Through allowing student designers, engineers, and artists to follow where their own wonder is sparked and re-interpreted within their own disciplines, we hoped that the game might transmit this curiosity to players, such that if they so desire, they might seek out deeper discipline-centric knowledge of the game's themes, rather than have it forced upon them.

Mira

Mira is a short Sloan Science Awarded film about a marine biologist who studies the life-cycle of the immortal jelly-fish while risking everything to conceal a medical condition that threatens her ability to do the work she loves. Mira's characters - a scientific illustrator and a scientist - study the lifecycle of the immortal jellyfish through their respective lenses.

As a linear live-action narrative storytelling mode, Mira allows for multiple layers of subtextual meaning as interpreted by the audience through the characters. Mira relies on metaphorical connection between the protagonist's struggle with temporal lobe epilepsy and its associated short-term memory loss and the transformational journey of the jellyfish on both a micro and macro scale. The greater narrative goes through a cyclical arc as the main character cycles through her own micro arcs.

MiraViz

MiraViz is a series of interactive data visualization projects that emerged stylistically from MIRAWORLD. Each project visualizes the life-cycle and habitat of the immortal jellyfish on a literal pictorial level through employing avatars and characters from its natural eco-system. The life-cycle process is visualized through considering the life-cycle of data. Over time, data visualized as pictorial elements within the ecosystem deteriorates and then clones and regenerates itself.

The MiraViz touchscreen project (Fig.3) is inspired by Amanda's interest in using real-world activity to drive a multi-user shared responsive landscape. It reflects activities, moods, and the health and wellness temperature of a building's inhabitants. Though it rests upon complex indoor location tracking technology, its primary goal is to use this information to 1) visualize collective data-based landscapes and 2) to provide a new model for systemic location-based play.

Figure 3. MiraViz. ©Amanda Tasse

MiraFlux (Fig.4), a collaboration between Jen Stein of the USC Mobile & Environmental Media Lab, Amanda Tasse, and Anton Hand of Rust Ltd., is a visualization of energy usage within USC's 2013 Solar Decathlon house. The technology and visualization are driven by Solar Decathlon power. The system is especially unique in that it demonstrates how a robust entertainment experience can easily be powered by green energy.

Figure 4. MiraFlux. ©Amanda Tasse

Conclusion

MIRAWORLD is a multi-part media arts world consisting of three main modes - linear narrative film, data visualization, and a video game - that explored a theme from science as its motif and unifying structure for a laboratory of poetic science exploration. Each mode interpreted the lifecycle through unique practices associated with it natively. Through reinterpreting a biological process through this multi-modal lens, a new frontier of interdisciplinary arts and science knowledge was created and transmitted.