"Kanju": Integrating HCI to tell better stories in immersive environments

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Figure 1: *Graphic transparency from "Kanju"*

Abstract

The narrative storyline for "Kanju" required audiences to follow an immersive live action experience that spanned three separate African countries and included four distinct storylines in a 360 environment. "Kanju" was released on a head-mounted display (HMD) device to audiences, many of whom had never experienced virtual reality, immersive environments, or HMDs. To create a clear and compelling narrative experience for audiences in the immersive environment, key human-computer interaction (HCI) principles were combined with traditional storytelling techniques to create human-centered storytelling.

Keywords: Human-Computer Interaction, User Interface, Immersive Environments, Virtual Reality

Concepts: • **Human Computer Interaction**

1 Background

With the advent of consumer-viable HMD technology, immersive environments are beginning to be explored by mainstream audiences unaccustomed to 360 degrees of audio/visual information. Frequently this results in notable usability challenges including established viewing habits (looking in one direction rather than turning around to see the full environment), sensations of being overwhelmed, lost, or "missing out" on content, and a limited ability to absorb information in a new, unfamiliar medium.

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2 Human-Centered Storytelling

In traditional narratives such as theatre, movies, or television, the creator drives the storytelling in a confined frame, be it a proscenium stage or rectangular screen. In immersive entertainment, the audience drives the experience from within the environment. Expanding the storytelling lexicon for immersive environments to utilize principles of HCI alongside traditional narrative techniques creates Human-Centered Storytelling.

2.1 HCI principles implemented in "Kanju"

The "Kanju" experience started by giving the audience a single object to look at that fit entirely within their starting field of view (visibility principle). That selection of that object was guided by use of a dual narrative-interaction metaphor. To encourage audiences to move their head within the environment, that one object was then animated to move out of the field of view to the left and then to the right (constraint principle). The narrative was written to support and coincide with the movements. The narrative-interaction metaphor applied to the narrative story was "if one looks at Africa as a continent, they are not seeing the whole picture". This was implemented by using a graphic transparency of the continent. Within the transparency, the majority of the narrative information such as location and subject background was delivered while not in an immersive environment (cognitive load and working memory principle). Once the context was established, the transparency was widened to allow for full visual of the 360 immersive environment. When the story moved on to subsequent plotlines, the interaction metaphor was repeated with each different storyline (consistency principle).

2.2 Audience Response

While observing audience members in the headset, advanced users would look around initially but once they realized that no other information was available, they easily returned to the graphic. Audiences spoken to after the experience expressed the ease with which they followed the storyline across multiple locations, they felt they "understood the story" and they "enjoyed traveling around Africa". No audience members polled expressed

confusion or the sensation of being overwhelmed or "missing out" on content. Many noted the consistent use of the transparency graphic as and "easy way" to know both when to return to forward for context and when to explore the immersive environment.

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