

Design Democratization with Communities: Drawing Toward Locally Meaningful Design

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ABSTRACT

The authors present community drawing as meaningful representations to inform locally valid technology design. They investigate recognition within and across cultural borders, thereby exposing variances of localities. The study contributes to the still scarce body of empirical work on culturally meaningful development of visual representations and recognition, as part of a longitudinal research project in which we co-design a 3D visualization for a specific Namibian pilot site.

Keywords: Community Design, Cross-Cultural, Drawing, Perception, Visualization

1. INTRODUCTION

Visual representations and metaphors have shown to be highly contextual; with great variances of interpretations across cultures. The ‘translation’ of metaphors across cultures has presented localization with a great challenge (Evers, 1998; Fay et al., 2004; Shen et al., 2006). While an icon easily arises from a graphical representation due to perceptual similarity but a symbol requires interpretation

and understanding of the relation between a sign and the object it’s representing (Garrod et al., 2007). Thus, when designing at a local level for a different culture, it is important that designers explore and understand the contextual history, belief systems, geography, aesthetics and languages of the culture (Chavan et al., 2009). However, designers from ‘somewhere else’ need to acknowledge that they only have their own partial perspective on the world and can therefore only represent what is known to them (Suchman, 2002). This bias is further enforced through the use of conventional tech-

DOI: 10.4018/jskd.2012100103

nology where the information architecture not only depicts particular politics of knowledge but also directly implements it (Christie, 2004). It becomes even more apparent in attempts of digitizing indigenous knowledge systems which often overlook the mismatch of representations and processes with the very systems that indigenous people use in daily life to organize and make sense of the world. Thus, the entanglement of knowledge, worldviews, representation and recognition directly affects technology design in general and more specifically cross-cultural design and localization endeavors (Winschiers-Theophilus et al., 2012).

In this paper we present a focused study which forms part of a longitudinal research project in which we co-design a 3D visualization tablet application of a specific Namibian pilot site with the involvement of rural community members. Over generations rural communities in Namibia have acquired, re-adapted and shared knowledge pertaining to their lives, activities and environment. This indigenous knowledge, transferred orally by talking, storytelling and rituals, has facilitated communities to foster and sustain their local resources. However, due to changes such as temporary urbanization, mandatory formal education and increased mobility the transmission of knowledge in its traditional way is interrupted, leaving behind a new generation unequipped to sustainably maintain their rural life once they return. The 3D visualization itself serves as a virtual context for a number of videos, containing narratives and performances of local practices. The overall aim is to enable local rural dwellers to construct their own digital representation of their knowledge system as a new medium of communication, bridging the gap to the migrated youth. However, past 3D prototype evaluations by community members have demonstrated major deviations from expectations in regard to recognition and acceptance due to misperceptions and misrepresentations (Rodil et al., 2011). In order to co-design suitable, recognizable and local community accepted visualizations we have launched into a number

of focused studies exploring local perspectives, representations and recognition.

In the following we study community drawing, a social activity aiming at meaningful representations and their recognition to inform locally valid design of visual interfaces for mobile technologies. We further investigate recognition within and across cultural borders, which reflects large variations in interpretations due to differences in contextual knowledge. Lastly, we discuss the efficacy of the adopted drawing technique as a means to negotiate shared meaningful representations within cross-cultural, graphical and interactive visualization technology development.

2. CREATING MEANING OF VISUAL REPRESENTATIONS

Object recognition requires an integration of visual input, processing and semantic information and therefore conceptual knowledge is a constantly interacting aspect of object processing (Clarke et al., 2011; Rahman & Sommer, 2008). Theories describe the process of object recognition occurring in two ways; either bottom-up or top-down processing, although it is now commonly believed that both play a role in object recognition (Epshtein et al., 2008). Knowledge is an important aspect of top-down processing, shaping early perception and allowing for the recognition of visually demanding and blurred images limited to once own prior knowledge (Rahman & Sommer, 2008).

Within the context of our research, there have been numerous discussions on the representation of the world and how it was depicted in the first visual prototype, which lead to the deduction that the perspectives of the community members varied from the designers (Winschiers-Theophilus et al., 2012). Misrepresentations of scenarios, such as inherently 'wrong' body postures, gestures, gait and trajectory of people and cattle, were pointed out by the community members (Rodil et al., 2011).

It has been established that contextual information enhances the speed, accuracy, and effectiveness at which objects are recognized

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