

Emotion as a Mode of Interaction for Communication

A Reflection on Interaction Design

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Reflecting on the reading discussions throughout the duration of the seminar term, I came to understand *interaction* as a dialogue of continual action/reaction between objects, people, systems and environments, collectively known as what Kenneth Burke (1969, p.xv) refers to as agents. Social interaction between humans is driven by motivation, which derives meaning that is then interpreted individually for each person (Blumer, 1979). Each separate interpretation shapes one's behaviour and experience of subsequent interactions, whether social or otherwise.

Design, according to Richard Buchanan (1995), is the process of analyzing indeterminate problems and inventing and developing innovative solutions. In a broader sense, the function of design is aimed to fulfill biological, psychophysical and sociological requirements (Moholy-Nagy).

From these interpretations of the concepts of *interaction* and *design*, I consider *interaction design* as the discipline of creating and designing digital artifacts, services, and spaces that support human motivation and behaviour as well as meets people's everyday needs in such a way that creates a meaningful and satisfying experience.

It is also important to discuss interaction as a form of communication, in which meanings and messages must be transmitted, understood and interpreted in order to establish an

interactive dialogue between agents (Fiske, 1990). Not just limited to social encounters, an interaction between a user and a system, for example, requires the same process of perceiving, understanding, interpreting a message and responding accordingly. In interaction design, interfaces mediate this dialogue through which manipulation and transmission of input/output can be supported. Interfaces employ four dimensions of elements that are applied to both interaction design and communication: one-dimensional deals with words, poetry and prose, two-dimensional involves icons, typography and diagrams, three-dimensional integrates these into product form, and finally four-dimensional introduces the aspect of time, sound, and motion (Moggridge, 2007, p. xvii-xviii). By combining a rich language using a combination of these multi-dimensional elements, designers can create meaningful communication and interactions between humans, systems and environments.

Richard Lanham (1993) talks about a “digital metamorphosis” in the age of the digital revolution, in which traditional analog forms of the arts and communication are transformed through digitization. Media and information have turned into dynamic and boundless forms that invite democratization and participation from the audience. Interaction has also evolved into a constructive tool for enhancing sociability and strengthening social relationships between one another (Moggridge 2007, p.xiv).

Technology is so ingrained in our every day lives that it is ever more important to design interactions with digital artifacts beyond just the interfaces (Moggridge, 2007, p.xi). Furthermore, in our global society individuals are becoming increasingly nomadic –

whether commuting to work, studying and living abroad, or travelling – making them more dependent on these technological devices for communication. However, current digital forms of communication such as mobile phones, email, instant messaging, and SMS are simply impersonal task-oriented modes that do not construct meaningful emotional experience between individuals (Kikin-Gil, 2006).

Emotion is a fundamental aspect of what makes us human; it shapes our cognition, perception, memory, and learning and it colours our past, present, and future experiences (Blandford et. al., 2005; Axelrod et. al., 2005). Positive emotions are spurred by our daily social relationships with others, whether it be meeting new people, involving in face-to-face interactions or contacting loved-ones across long distances (Bradburn, 1969).

My research interest seeks to address the human need for social interactions and more specifically, explore unique and immersive ways in which people can communicate affectively via technological means, thereby strengthening social relationships and communities. Technological devices and interfaces can act as a facilitator of human-human interaction by employing emotive and non-verbal modes of communication and physical collaboration. In real-world interactions we socialize through verbal, non-verbal, and collaborative means but when constrained to technological modes, we lose the intimacy and personal expression that are fundamental to fulfilling social interactions (Bradburn, 1969). When left to textual exchanges like emailing and instant messaging, smiles and emoticons are insufficient in suitably conveying emotions. What kind of real-life social behaviours and communication modes can we model in the technological

realm? How can we employ emotion as an interaction mode to facilitate computer-aided human-human interaction?

The field of HCI approaches interaction design, information processing, functional activities and communication in the digital world from a cognitive and task-centric standpoint (Boelner, 2005). In the midst of innovative technological developments, researchers are realizing the importance of human psychological, social, and cultural aspects that play into our daily experiences and interactions (Brinkman, 2007). They are exploring more natural interaction paradigms like speech, touch, and motion, breaking away from the traditional screen, mouse and keyboard configurations.

New forms of interactive computing have emerged such as ubiquitous, embedded and tangible computing that address the physical form and environment as the new design space for digital interaction. These interaction modes create seamless interfaces between people, digital objects and physical spaces that enable intuitive and delightful everyday experiences. For example, Hiroshi Ishii's work with "Tangible Bits" explores the area of tangible computing that "give physical form to digital information, making bits directly manipulable and perceptible" (Moggridge, 2007, p.525). Rather than employing a screen interface, users can move and manipulate real objects to control sound, light, images and motion.

Taking this idea further, I am interested in exploring in structuring tactile and emotive interfaces and everyday objects around human behaviour by using emotions as the

interaction mode to facilitate communication and collaboration. This research area embodies interesting projects that activate artefacts such as hallway mirrors to create self-awareness in the home (Markopoulos et. al., 2006), pillows to adapt the surrounding environment to a user's cognitive state (Nack et. al., 2007), and wearable garments to visually express a user's emotions to the outer world (Stead et. al., 2004). Yours, Mine, and Ours (Lin, 2006) is an interactive environment created by a collaborative network of hanging ceiling bulbs that can be touched, squeezed or pulled to affect an end receiver's matching interface over geographical distance. This engages users in a playful dialogue of message transmission through light, colour, and touch within their own homes. The signals sent between devices would be interpreted by the users based on their shared vernacular and culture. This form of haptic and non-verbal communication can provide users a sense of togetherness while triggering positive emotions during the interaction, resulting in the potential for transforming the dynamics of long-distance relationships or empowering lonely hospital patients.

Research in affective computing is already underway to analyze and respond to a user's emotional or cognitive state (El Kaliouby et. al., 2006) but less so regarding aesthetic interfaces and everyday objects that extend emotional intimacy across space and time via non-verbal exchanges and physical collaboration. Addressing the human need for social and emotional relations will lead to interactive designs that are meaningful, challenge traditional ways of thinking, and revolutionize the way people think, play, and interact with one another.

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