The Importance of Similarity in Empathic Interaction

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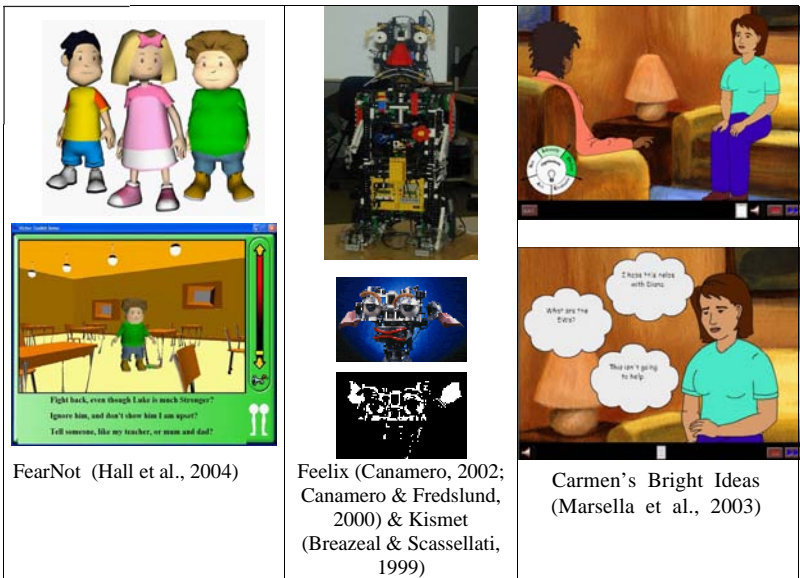*University of Hertfordshire, UK*

INTRODUCTION

Empathy has been defined as, "An observer reacting emotionally because he perceives that another is experiencing or about to experience an emotion" (Stotland, Mathews, Sherman, Hannson, & Richardson, 1978). Synthetic characters (computer generated semi-autonomous agents corporeally embodied using multimedia and/or robotics, see Figure 1) are becoming increasingly widespread as a way to establish empathic interaction between users and computers. For example, Feelix, a simple humanoid LEGO robot, is able to display different emotions through facial expressions in response to physical contact. Similarly, Kismet was designed to be a sociable robot able to engage and interact with humans using different emotions and facial expres-sions. Carmen's Bright Ideas is an interactive multimedia computer program to teach a problem-solving methodology and uses the notion of empathic interactions. Research suggests that synthetic characters have particular relevance to domains with flexible and emergent tasks where empathy is crucial to the goals of the system (Marsella, Johnson, & LaBore, 2003).

Using empathic interaction maintains and builds user emotional involvement to create a coherent cognitive and emotional experience. This results in the development of empathic relations between the user and the synthetic character, meaning that the user perceives and models the emotion of the agent experiencing an appropriate emotion as a consequence.

Figure 1. Synthetic characters

FearNot (Hall et al., 2004)

Feelix (Canamero, 2002; Canamero & Fredslund, 2000) & Kismet (Breazeal & Scassellati, 1999)

Carmen's Bright Ideas (Marsella et al., 2003)

BACKGROUND

A number of synthetic characters have been developed where empathy and the development of empathic relations have played a significant role, including theatre (Bates, 1994), storytelling (Machado, Paiva, & Prada, 2001) and personal, social, and health education (Silverman, Holmes, Kimmel, Ivins, & Weaver, 2002). Applications such as FearNot (Hall et al., 2004b) and Carmen's Bright Ideas (Marsella et al., 2003) highlight the potential of synthetic characters for exploring complex social and personal issues, through evoking empathic reactions in users.

In a similar vein, robotics research has started to explore both the physical and behavioural architecture necessary to create meaningful empathic interactions with humans. This has included examining robot personality traits and models necessary for empathic relations (Fong, Nourbakhsh, & Dautenhahn, 2003) and the design of robotic facial expressions eliciting basic emotions to create empathic interactions (e.g., Canamero, 2002). Empirical evaluations have shown that humans do express empathy towards robots and have the tendency to treat robots as living entities (e.g., Sparky, a social robot; Scheeff, Pinto, Rahardja, Snibbe, & Tow, 2002).

The results from research into empathic interaction with synthetic characters suggest that it is possible to evoke empathic reactions from users and that this can result in stimulating novel interactions. Further, research identifies that in empathising with characters a deeper exploration and understanding of sensitive social and personal issues is possible (Dautenhahn, Bond, Canamero, & Edmonds, 2002). This can lead to real-life impacts such as the development of constructive solutions, that is, Carmen's Bright Ideas (Marsella et al., 2003).

However, it remains unclear as to how empathy can be evoked by interaction and here, we focus on the impact of similarity on evoking empathy in child users. This article reports findings obtained in the VICTEC (Virtual ICT with Empathic Characters) project (Aylett, Paiva, Woods, Hall, & Zoll, 2005) that applied synthetic characters and emergent narrative to Personal and Health Social Education (PHSE) for children aged 8-12, in the UK, Portugal, and Germany, through using 3D self-animating characters to create improvised dramas. In this project,

empathic interaction was supported using FearNot (Fun with Empathic Agents to Reach Novel Outcomes in Teaching). This prototype allowed children to explore physical and relational bullying issues, and coping strategies in a virtual school populated by synthetic characters. The main issue this article addresses is whether the level of similarity perceived by a child with a character has an impact on the degree of empathy that the child feels for the character.

WHY SIMILARITY MATTERS

Similarity is the core concept of identification (Lazowick, 1955) and a major factor in the development and maintenance of social relationships (Hogg & Abrams, 1988). The perception of similarity has significant implications for forming friendships, with studies identifying that where children perceive themselves as similar to another child, that they are more likely to choose them as friends (Aboud & Mendelson, 1998). The opposite has also been shown to be true, with children disliking those who are dissimilar to them in terms of social status and behavioural style (Nangle, Erdley, & Gold, 1996). This dislike of dissimilarity is especially evident for boys.

Perceived similarity as a basis for liking and empathising with someone is also seen in reactions to fictional characters, where the perception of a character as similar to oneself and identifying with them will typically result in liking that character, and empathising with their situation and actions. This can be frequently seen with characters portrayed in cinema and television (Hoffner & Cantor, 1991; Tannenbaum & Gaer, 1965). Further, people are more likely to feel sorry for someone (real or a character) if they perceive that person as similar to themselves (von Feilitzen & Linne, 1975).

To investigate the impact of similarity on children's empathic reactions to the synthetic characters in FearNot, we performed a large scale study, further discussed in Aylett et al. (2005). Liking someone is strongly influenced by perceived similarity and research suggests that if a child likes a character they are more likely to empathise with them. Thus, in considering the impact of similarity on the evocation of empathy we looked at perceived similarity of appearance and behaviour and their impact on the

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