Chapter 13
Social Interaction with a Conversational Agent: An Exploratory Study

Yun-Ke Chang
Nanyang Technological University, Singapore

Miguel A. Morales-Arroyo
Nanyang Technological University, Singapore

Mark Chavez
Nanyang Technological University, Singapore

Jaime Jimenez-Guzman
National University of Mexico, Mexico

ABSTRACT

Conversational agents that display many human qualities have become a valuable method business uses to communicate with online users to supply services or products, to help in online order process or to search the Web. The gaming industry and education may benefit from this type of interface. In this type of chats, users could have different alternatives: text display, photo of a real person, or a cartoon drawing and others. This is an exploratory study that reviews five randomly chosen conversations that an animated chatbot has with Web users. The character simulates human gestures, but they are stylized to reproduce animation standards. The goal of this exploratory study is to provide feedback that will help designers to improve the functionality of the conversational agent, identify user’s needs, define future research, and learn from previous errors. The methodology used was qualitative content analysis.
INTRODUCTION

For today’s online business whether selling a service or a product, the main goal of Web sites is to keep its users at the site as long as possible. As an interface, a conversational agent has to offer some features to maintain audience interest. Concerns about agents’ body design and personal sociability have become obvious. Users may favor an interface that suits their own personality. They also may be more predisposed to an animated exchange with an agent if the character’s voice matches content tone with gesture that complements the context.

Animation synthesis procedure allows the creation of dynamic Web-based agents through numerous randomly interconnected cycles. Nadia (http://CLONE3D.net), a conversational chatbot, was developed by the third author, and it is a human like agent able to perform dialogues with users by “comprehending,” generating phonemes with automatic lip-sync, and expressing body language, including body movements, hand actions, and facial gestures. The lighting of the virtual agent is practically naturalistic and uses conventional illumination techniques (see Figure 1).

The design of conversational agents has to face a set of challenges: promoting trusting relationships with their audience (Cassell & Bickmore, 2003), body language, matching ability to communicate in different languages, and adapting to different cultural contexts (Cassell & Bickmore, 2000). An intelligent real-time 3D artificial agent unlocks additional opportunities for computer mediated communication. The facial expressions in the agent are critical in a dialog and could be used with hearing-impairment audiences (Massaro, Cohen, Beskow, Daniel, & Cole, 2001). The goal of this exploratory study is to provide feedback that will help designers to improve the functionality of the conversational agent, identify user’s needs, define future research, and learn from previous errors.

RELATED STUDIES

Constantly, there are new applications for conversational agents. One example is a virtual announcer who can read RSS feeds (Anonymous, 2005). Although, their comprehension of natural language is rather restricted, chatbots usually could respond to simple questions (Anonymous, 2007). Some companions assist the deprived sectors of the population, such as the elderly, by interacting on the Internet on their behalf (Wilks, 2005). Other companies have been utilizing Chatbots to offer customer support online via typed interactions. Conversational agents also have been developed to be counselors for helping to eliminate smoking habit (Mourik, 2006).

Many embodied conversational agents have specific areas of knowledge such as real estate (Cassell, 2000). One Chatbot has been developed to identify pedophiles in chat rooms (Graham-Rowe, 2004). Many cell phone applications are available: concierge services like news, horoscopes, weather, the nearest restaurant, and sports, and virtual teacher (Schwartz, 2005). Moreover, there have been several educational applications: helping develop competencies in inquiry, analysis and synthesis (Graesser, McNamara, & VanLehn, 2005); language tutoring for children with hearing loss (Massaro et al., 2001); and teaching to write and read (Ryokai, Vaucelle, & Cassell, 2003).

Figure 1. Nadia - A virtual character
Related Content

Inertial Measurement Units in Gait and Sport Motion Analysis
www.igi-global.com/chapter/inertial-measurement-units-in-gait-and-sport-motion-analysis/113157?camid=4v1a

Researching IT Capabilities and Resources: An Integrative Theory of Dynamic Capabilities and Institutional Commitments
www.igi-global.com/chapter/researching-capabilities-resources/35840?camid=4v1a

A Particle Swarm Optimization Approach to Fuzzy Case-based Reasoning in the Framework of Collaborative Filtering
www.igi-global.com/article/a-particle-swarm-optimization-approach-to-fuzzy-case-based-reasoning-in-the-framework-of-collaborative-filtering/111312?camid=4v1a

Look into the Different Knowledge Sources in a Conference
www.igi-global.com/chapter/look-into-the-different-knowledge-sources-in-a-conference/112904?camid=4v1a