Social Interaction with a Conversational Agent: An Exploratory Study

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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.

Keywords: agent interactive technology; animation; computer-based training; computers and society; facial animation; human computer system; interface; multimedia application; parameters; virtual reality

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

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**Figure 1. Nadia - A virtual character**

![Nadia - A virtual character](image-url)