Developing a Tutor to Teach Social Skills to Students with Cognitive Disabilities

Scott M. Robertson
Candidate, Master’s of HCI
Human Computer Interaction Institute
School of Computer Science
Carnegie Mellon University
5000 Forbes Avenue, Pittsburgh
Pennsylvania 15213 USA
Tel: (1)-973-464-6315
smrobert@cs.cmu.edu

1. The importance of social skills

Research studies have shown that good social skills are important for achieving success in life. Defined as cognitive and overt behaviors a person uses in interpersonal relations, social skills range from nonverbal cues, such as eye contact, to complex verbal exchanges involving compromise [11]. Social skills influence our everyday decision making, flexibility of behavior in diverse situations, and content of our conversations [10]. They are also critical in obtaining jobs that match an individual’s skills, desires, and workplace performance. Indeed, work-related social skills and habits are as important to many employers as the basic skills needed for any particular job [1].

Consequently, children who fail to learn appropriate social skills may struggle to succeed in activities they undertake in life. Despite having high intelligence, many students with cognitive disabilities, such as autism spectrum disorders, attention deficit (hyperactivity) disorder, and non-verbal learning disorder do not understand how to act in social situations. Without the right intervention, individuals with autism often have a limited ability to take part in reciprocal conversations and understand the unwritten rules of conversation and social conduct [2]. Students with non-verbal learning disabilities face similar challenges in using appropriate interpersonal skills required for joining in social activities with others [9]. Individuals with ADD/ADHD often miss important aspects of social interaction with their peers as a result of difficulties in concentrating and paying attention [4].

2. A social skills software tutor

Many programs aimed at remediating these difficulties in social interaction involve a method called social skills training (SST) that explicitly teaches behavior for appropriate social interaction. While prior research studies have shown traditional social skills training to be effective in the context in which social skills are learned in the short-term, these benefits are often short-lived and little transfer of learning into everyday experience usually occurs [12]. However, electronic tools for teaching social skills that accommodate an individual’s particular social strengths and weaknesses have largely not been examined by past research. A scan of the literature revealed few recent studies that have investigated using a computer environment to teach social skills. None of these studies have explored a tool to teach the full range of social interaction and its long-term effects.

My research work focuses on developing a software tutor to teach social skills to students with the above detailed cognitive disabilities, and examining the implications of such a tutor. My proposed social tutor, called SAM (Social Activity Modeler), will integrate a computer game-based edutainment platform together with a social interaction environment. The goal of using a computer game-based platform is to enhance the intrinsic motivation of the students, or their natural inclination to use SAM. Numerous prior studies have found that computer games are intrinsically motivating to youth (e.g. [3], [7], [8]). A growing body of research has also shown that children who are intrinsically motivated will put more effort into learning new material [5].

The Center for Spoken Language Research at the University of Colorado-Boulder has designed a suite of electronic tools called CU Animate for modeling face-to-face conversational interaction in animated agents [6]. SAM will implement conversation and other types of social interaction using characters based off of CU Animate. This will enable SAM to teach skills encompassing the full range of social communication, including those that involve principles of conversations, understanding and interpreting people’s mental states and intentions, emotional responses, facial expressions, body language, and gestures. To enhance their enjoyment, students using SAM will be able to create their own characters in the game and customize their characters’ traits and background profiles to fit their personalities and preferences.

3. References


