An Assistive Device for Shy Users in Face-to-Face Communication

Nanda Khaorapapong, Matthew Purver
Interaction, Media and Communication research group, Queen Mary University of London, UK
n.khaorapapong@eecs.qmul.ac.uk, m.purver@qmul.ac.uk

Abstract

Social situations can be difficult for shy people. Computer-mediated communication (CMC) technologies have been reported as helpful to shy users, but can also encourage withdrawal from face-to-face activities. The current research investigates the benefits of ubiquitous computing and slow technology by designing wearable computing devices which can be integrated into face-to-face activities and help increase comfort for shy users. Initial proof-of-concept prototypes have shown potential; testing with self-reported socially anxious subjects in a speed-dating environment resulted in 73% identifying the shirts as helpful to their meeting with strangers.

1. Introduction

People have the need to belong and be socially accepted but those who suffer from shyness have an additional barrier to achieving this. Their lack of interpersonal skills (e.g. lack of conversational abilities) and intrapersonal (e.g. excessive self-conscious) are constructed around a negative mental state – thinking and displaying oneself as socially incompetent when faced with situations requiring interaction with others. Therefore, they often leave a negative impression on others causing them to withdraw efforts in social interaction. This process forms the anxiety-inhibition cycle, which influences negative anticipation – fear of being rejected by others and being embarrassed by his/her own actions. [1]

1.1. Relevant works

Various forms of online CMC have been reported facilitating social relationships and as being more attractive to shy users due to their asynchronicity and reduced social cues. [2] However, this also allows for identity distortion, unrealistic expectations for relationship development, and withdrawal from face-to-face activities, making sociability in the real world harder for shy users. [3-4]

Context-aware, ubiquitous and wearable computing have been used to enhance user interaction with both the environment and other users. Previous research such as [5-8] have been intended to facilitate face-to-face communication using some forms of wearable sensor network (WSN); however, none so far have combined context-aware systems and wearable social computing so as to support socially anxious and low interpersonal skilled users.

2. Approach

Social situations are dynamic and cognitive overloading in shy individuals is common due to excessive consciousness of being judged when coming into contact with others. The current research investigates ways of integrating some of the benefits of CMC into real-world social interaction while attempting to reduce this overloading, via the development of subtle and unobtrusive interfaces based on two design principles. One is calm technology: a design that engages user’s attention at either central or the peripheral areas (the places where the human mind moves back and forth), at a time [9], thus may reduce information overwhelming in users’ mental processes. Another is slow technology design that values reflective experience and promotes users’ mental rest in rapid changes of environment. [10] In this, it shares similarities with Chalmers et al. [11]; in that both seek to understand problems relating to social anxiety in shy individuals using the advances of ubiquitous computing. However, the current research is set without demanding a conscious effort from users and aimed at reducing cognitive load and giving the user more background access to information. Specifically, the proposal here is to use a context-aware system together with a WSN environment, promising characteristics of ubiquitous computing that enable pervasive access to information. These may provide a useful technique to identify users’ position and their ‘contexts’ e.g. alone or close to others in the network; and thus allow the system to transmit specific information to assist their conversation with other and reduce perhaps cognitive load according to the change in the ‘context’.

3. Method

As a preliminary part of a research programme into techniques for adaptation of social behaviour in individuals
who self-report as socially anxious and consider themselves to have low social skills, four prototype T-shirts have been developed with unobtrusive interfaces (i.e. handshaking – a natural switch for controlling data exchange – and soft-circuit information display) and tested with socially anxious subjects.

Using CMC together with the essence of ubiquitous computing and wearable design – that naturally place technology in the user environment prior to the reflective experience of the user – we examine to what extent unobtrusive interface and unconventional use of technologies can enhance the effort of the user to improve social skills when faced with situations requiring interaction with others, and perhaps lead to more meaningful relationships in the real world.

3.1. Prototype

By leveraging online social network information (e.g. Facebook and LinkedIn) on clothing, the first version of prototype Icebreaker T-shirt is designed to be worn in real-world social events and make social contact easier. Radio frequency identification (RFID) technology is used as a control system for exchanging wearer’s identity. When both shake hands, each shirt indicates their social relationships via a textile-based display (conductive thread and heat-sensitive paints), increasing a sense of familiarity and helping select new acquaintances (i.e. potential friends, partners, colleagues, participants) while maintaining the naturalness of the social interaction, as well as the comforting property of clothing.

3.2. First test

Using empirical method to compare user’s behaviours we asked each of 11 testers (recruited with a customised questionnaire extracted from The Henderson/Zimbardo Shyness Questionnaire1) to participate in two speed-dating sessions: with and without the shirt. Both sessions were video recorded and used to evaluate the shirt’s capability to increase comfort and generate topics for conversation. These results were used together with feedback given by the testers via a post-experiment questionnaire. 73% of testers reported that the shirt was helpful to meeting with strangers. One said: “It gave a sense of having something in common to begin the conversation, something we both were interested in. Whereas when we didn’t have the shirt, I felt we were only trying to make small talk.”

4. Conclusion

Although the sample tested was small, and the technical justification process less sophisticated than that of the literatures reviewed, our first experiment underlines some problems and potentials of the chosen technologies for improving interpersonal skills of shy people. Taking the current approach a step further, a more sophisticated experiment with shy users is currently being developed. The experiment is based on the same hypothesis but uses a second version of the T-shirt – replacing the handshaking method for exchanging users data with proximate distance enabled by mobile adhoc WSN positioning method. Thus the number of participants in each test group can be extended from two to four or larger. This implies a more realistic and professional social situation, rather than a speed-dating environment simulated in the previous experiment. Qualitative and quantitative considerations of test subjects’ body language and conversation content, together with time spent before starting and during a conversation will inform the efficiency of the technology and technique. The outcome will be used with feedback given by subjects via questionnaire and compared with the data collected from the test of first version prototypes.

5. References


1 An index to resources for shyness, http://shyness.com/qa2.html