Supporting empathetic interactions between doctors and patients

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Introduction and motivation

Empathy and empathetic communication skills are gaining in importance in medical community [9, 1, 4, 3], with various communication skills courses existing for students as well as practicing doctors. To quote Brown [2], the topic has recently raised from its status as a 'nice to know' subject to that of a 'need to know' skill set in modern medical education.

Still, empathy skills of medical students have been shown to decrease over the course of studies [7] and there is a need for interventions to counter this [8]. Similarly, there is interest in improved training courses for specialised groups of medical personnel such as those in cancer care or end-of-life care, where specific skills related to empathy and communication are even more important [11, 1, 12].

As such, this topic could pose many interesting challenges and opportunities for HCI research in the medical domain, especially as only very few of existing courses and interventions utilise any technology at all.

Technology

Our work explores if and how can systems based on physiological signals constitute a plausible approach for building technologies supporting empathy. In particular, we draw on research in psychotherapy and psychophysiology suggesting that **skin conductance**

synchrony can indicate aspects of empathy in real-time [6, 5].

To validate and extend these findings into contexts that are closer to deployment in medical settings and to expected users (e.g., medical students rather than trained psychotherapists and psychotherapy patients), we have recently run a study involving 20 pairs of friends discussing personal issues [10]. We have run the study in a public house during its normal opening hours as a way to test the robustness of the physiological measures in a busy, uncontrolled setting rather than a lab.

The initial quantitative results are very promising: For example, differences in physiological synchrony corresponded to differences in rapport as rated by independent, external raters. In particular, we have selected 30 seconds excerpts from the participants' interactions, with the selection based only on whether the physiological synchrony for that segment was very high or very low. Excerpts with high synchrony were then judged higher in rapport (which is a psychological concept often correlated with empathy) when compared to those with low synchrony. Moreover, this held both across pairs, i.e., when comparing high vs. low synchrony excerpts from different pairs; but also within the pairs as well i.e., when comparing highest vs. lowest excerpt from the 5 minute interaction of the pair. This suggests that physiological synchrony is sensitive enough to distinguish changes in interaction even within a short discussion. As such, it seems likely that it could support systems aiming to provide a real-time feedback on the interaction. We are currently analysing the data from the study through qualitative approaches to better understand what the changes in synchrony correspond to.

As a follow-up on this study, we have arranged to test the technology further with a university department training counselling students and a commercial company training coaches. We expect to have initial results for both before the workshop in April. We are also keen for further tests with medical students and/or doctors.

Training context

We are specifically interested in the contexts of empathy training courses and interventions. We argue that these could provide a valuable initial context in which to consider the design of new systems supporting empathy.

For example, the teaching sessions typically take place indoors, involving a mix of lectures and hands-on experiences, likely with an expert trainer/coach present. This leaves open opportunities for technologies that could not be applied in other real-world settings for various reasons. Moreover, the training experience has a particular quality of being real and not-so-real at the same time. For example, it often involves participants trying things out in a safe place (e.g., through role play), where potential failures are actually a valuable basis for reflection and learning. Participants might be also more prepared to accept novel technology in such setting than if it were to be deployed in real doctor-patient relationships. Additionally, there are design opportunities to support both the facilitator's expert role, as well as directly supporting the learner.

Focus on teaching contexts might also bring advantages in terms of prospective real-world deployment and appropriation. For example, as the goal of training contexts is to help create skills that will transfer also outside of the training, this means that the technology does not need to be deployed to every doctors office who would wish to benefit from it, but "only" training centers.

Short Bio

Petr Slovak is a researcher and PhD student at the HCI Group at Vienna University of Technology. Drawing on his background in both psychology and computer science, his research focuses on support for teaching of empathy in medical and therapeutic settings, with specific interest in the use of biosensors.

Paul Tennent is a researcher at the Mixed Reality Lab at the University of Nottingham. He has worked on a number of systems designed to support the transformation of complex system log data into accountable, queryable objects that can be used in qualitative analysis. More recently he has turned to the analysis and representation of biodata with a particular focus on television and the public understanding of science.

Geraldine Fitzpatrick is Professor at Vienna University of Technology in Austria and heads the Institute of Design and Assessment of Technology. She is interested in how we design pervasive, tangible and ubiquitous technologies to fit in with everyday contexts, with a particular interest in supporting social interaction and collaboration, and health and well being.

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