In My Shoes - A Computer Assisted Interview for Communicating with Children about Emotions

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***Abstract*—This paper describes a computer assisted interview for children and vulnerable adults. The system implements a "triadic interview" interaction since it is used as a focus point between the child and the clinician, whose dialogue is mediated by the tool. The tool helps children express their feelings and experiences, by making use of an "emotion palette" and a set of sub-tools developed on paper by children and transformed into computer based depictions. The tool has been extensively evaluated in clinical practice, providing a strong indication of its ability to improve the quality of the interaction with children.**

I. Introduction

Recent years have seen an ever-growing interest in delivering Internet or computerised psychological interventions [7], [18]. However, the impact of using such tools with children has been relatively under-explored [12], or has concentrated on specialised scenarios or conditions [11]. In particular, computers can be beneficial as an aid to assessment and therapy, as they are an effective help for children enabling them to better express their emotions, feelings [5] and describe experiences, for instance disclosing sexual topics [14]. The medium itself is appealing to children, and the sense of familiarity with the tool, as well as the feeling of being better than adults at using it, can be empowering for the child. Furthermore, the use of a computer to mediate sensitive discussions can release some pressure from the traditional one-to-one interview, by providing an external focus to the conversation. The child is also able to better control the pace and nature of the replies, while at the same time the controlled setting allows to systematically explore the areas in which some tension might arise. The more practical advantages of portability and automatic recording of the sessions in a structured format are obviously a bonus that a computerised tool offers by definition.

In this paper we describe *In My Shoes*, a computer assisted interview for children and vulnerable adults. It has been long recognised that computers are changing the way in which patient-clinician dynamics function, moving from what used to be a dyadic interaction, into a triadic one [13]. Computers used to be perceived as a "magic box" [1] helping doctors to support their position, but recently patients too are increasingly using computers to support their own points of view, thus making the interaction more balanced [10]. *In My Shoes* implements, however, a deeper notion of triadic interview, whereby the computer is effectively a third party in the conversation [15]. A dialogue between clinician and child is mediated through the use of the tool: in this interaction, the expectation is that children, who, research shows, seldom express negative emotions, and are more likely to support "cues" leading to their interpretation [16], would be encouraged and guided to either verbalise, or to graphically demonstrate, their feelings and experiences, without putting them under undue pressure or bias. The tool has been extensively evaluated in clinical practice and the triadic interview it enables has been found to improve on the quality of the interaction over face-to-face interviews/questioning that were previously the normal practice. In this paper we describe the main motivation behind some design choices for the tool, then we concentrate on elaborating on the way in which the children are able to express their emotions through the system, and we conclude with the results from our extensive evaluation studies. We are thus able to provide a full picture of a unique tool, its use, and successful deployment, which we believe show testament to the novel contribution it makes.

II. Tool's design principles

In My Shoes was initially conceived to aid in interviewing children where abuse was suspected, hence with the additional requirement that the system would be a valuable tool to share information provided by the child, with both therapeutic and forensic value. To this aim, it was necessary to be able to assess a broad range of a child's experiences and emotions in a variety of settings and with a number of significant people. As a result, the final system is highly flexible and adaptable, and has been used in a wide range of contexts.

The main principles used in the development of *In My Shoes* were that (1) the system should be fun to use, and engaging for children; (2) the system should be used by skilled practitioners, trained in assessment and therapeutic skills; (3) the interview should be a truly triadic process, hence the child was not to be interviewed *by* the computer but is a party in a triadic conversation; (4) there should be

a gradual and progressive transition from less emotive to potentially more emotive material; (5) the structure of the interview should be open ended, so that the child should have the opportunity for self-expression; (6) the system should provide a good degree of personalisation, both via the choice of icons and characters on screen, and by the choice of labels and textual material input from the child; (7) the structure of the interview should be flexible enough to allow the child to go back, revisit and change previous responses, move forward, and allow child and interviewer to agree on a specific route through the interview. Furthermore, the use of software as a prompt for the interview should allow a detailed electronic log of the interview to be recorded. This would support the clinicians' work by enabling them to subsequently review and evaluate an interview conducted with an individual person. Such a reflective analysis can then be used to guide future interviews with that particular individual.

The development of the interview has involved a number of different stages with modules being developed to assess different aspects of the child's experience, and field testing of the program by professionals working with children of different ages experiencing a range of difficulties. A full description can be found in [3].

The main idea behind the tool is that it should serve as a prompt that allows the interviewer to guide the conversation, yet it should be as un-confrontational as possible to encourage the child to express his or her feelings through the use of stylised icons in the tool that provide a representation of the world. As such, the tool provides a semi-structured dialogue that is facilitated by the use of defined expressive symbols, yet these remain flexible enough for the child to tailor to his or her own experiences, and the system also remains very easy for the child to learn and use. The focus of the interview is then shifted away from a two-way face-to-face conversation and instead becomes a triadic interview, i.e. side-by-side use of the software by child and interviewer. The traditional way of conducting computer-based interviews is via questionnaires or material for the child to work through directly himself. In such systems, the software plays no active role in guiding the conversation, in complete contrast to *In My Shoes*, which uses a pre-recorded spoken/visual guide to ask standard questions and provide prompts. The tool pioneered this specific notion of triadic interview, with evaluations showing its success, as discussed further below.

III. Expressing Emotions in the Tool

A methodology to guide the development of the tool was adopted as part of the work to ensure that the icons used to enable children to communicate their feelings and emotions were indeed representative in capturing their sentiments. As such, communicative drawings were elicited from children and developed into paper-based symbols. These were then transformed into icons for the computational setting. Evaluation of these icons was performed at a number of different points within the process, leading to revisions of the icons to ensure that there was a high degree of congruency and that they supported the intended communication in the best way possible. The icons represented people, places, thoughts, speech, sensations, and were adapted from drawings done by children. The icons developed for use in the tool are not intended to mirror precisely concepts from the real world, but rather they are intended to be archetypes open to interpretation by the children to facilitate them in communicating their experiences and emotions. That the children themselves contributed to the development of these icons is one of the aspects that the researchers believe has led to the success of the system in field trials. Through evaluating the symbols with the children, this led to the emergence of icons that enabled the representation of nuanced facets of the concepts being depicted that then made the children feel more comfortable in using the system. For example, the icons representing people covered a number of different ethnicities. In particular, icons were developed to create an *emotion palette* (Fig. 1), a much researched and piloted tool which enables the children to choose and attribute emotions to a character on screen. In certain modules of the program said character may be a representation of the child himself.

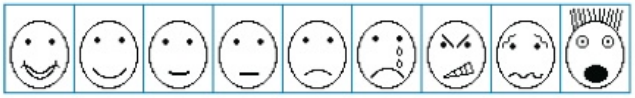

Figure 1. Emotion Palette

The software consists of a set of modules, designed to introduce to the interviewee a series of tools that they can use to describe emotions, people and places. Initial modules provide an assessment of emotional literacy and also facilitate rapport building with the interviewee – meaning that no initial standalone rapport building session is required - a potentially fraught aspect of traditional face-to-face interviewing. The next group of modules provide an opportunity to explore particular care settings and consist of identifying and labelling a place, putting selected named individuals into the place and then exploring emotions with those people in that place. The exploration can be in terms of what happened, or what may happen in a particular set of circumstances. One further module provides an opportunity to explore physical sensations such as pain or hurt and to locate them and their nature on an image of the body. A final module is designed to provide a facility for analysing a task or concept and attempting to locate and solve any difficulties that have been identified. In essence, the software provides a scaffold on which the trained interviewer can build her interview. A video or animated guide is used to

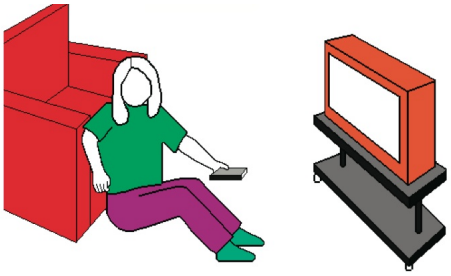

Figure 2. Emotion and Scenes

deliver prompts and ask questions. This can be tailored to the interviewee and can be delivered potentially in any language or communication system. This helps to make the interview more personalised for the interviewee.

In this section we will describe the main modules that are used in the interview to discuss with the child his feelings and emotions.

A. Introduction Module

The Introduction Module is used to get the interviewee to select an image to represent himself in the rest of the program. A large number of figures are represented using a tool called the "people-chooser". Images of individuals are displayed in sets that represent ethnic groups (though the interviewee is not told that). The sets are displayed one at a time and can be scrolled into view, keeping the number of on-screen representations to a workable number.

B. Emotions Module

The Emotions Module is very simple in appearance, but very powerful, as it helps the interviewer and the child to agree on the vocabulary of emotions they will use throughout the interaction. The Emotion Palette in Fig. 1 appears at the top of the screen: by clicking on the emotion palette, the interviewee is able to transfer that expression to a figure on the screen. Although initially not intended to represent the interviewee, the gender of the on-screen figure is the same as that of the figure selected by him at the very start of the program. The module can be used in a variety of ways depending on the emotional literacy of the interviewee. The interviewer generally asks the child to choose an emotion and give a name to it and the name can be typed in a box displayed below the chosen face. This allows the interviewer to understand how the interviewee verbally labels the faces and which, if any, are used idiosyncratically, bearing in mind that idiosyncratic use does not necessarily mean 'wrong' use. Although a few interviewees use some of the faces idiosyncratically, this can be both helpful and revealing. Some children (and some adults) find it difficult to use the full range of emotions. If this proves to be the case then the palette can be reduced in complexity by removing those faces whose use is problematic.

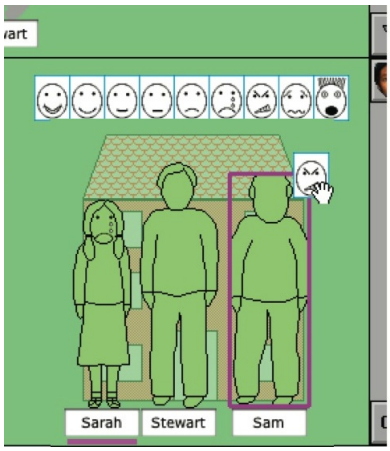

Figure 3. Emotion and People

C. Emotions and Scenes Module

This module consists of a series of scenes in each of which the interviewee can select an emotional expression for the key figure (Fig. 2). Although the figure is not necessarily meant to be the interviewee, the gender of the key figure is matched to that selected by him in the Introduction module. The module is intended to elicit the child's experience in that particular scenario. A set of "default" scenes are included in the system, but these can be tailored to depict anything the clinicians, or the child, chooses, for example, it would be possible to design scenes depicting medical settings and procedures. Sets of scenes could be chronologically sequential or could be arranged in a sequence relating to their emotional impact.

D. Places Module

This module presents an hierarchical choosing tool which enables the interviewee to select a simplified image of a building.

E. People Module

This module enables the interviewee to place selected individuals into the place chosen in the previous module and uses the people-chooser tool in order to do so.

F. Emotions and People Module

This module is a way of beginning to talk to the interviewee about particular emotions that he has experienced. The interviewee is encouraged to click to indicate that he has felt (or not felt) the emotions attributed to the expressions. The interviewer would ask the interviewee to remember the last time he felt like that, and a certain amount of information about the interviewee's experiences may be obtained at this point. Having selected yes or no, the process of moving through the emotions continues until the interviewee has been asked about all available faces. This allows the adult to

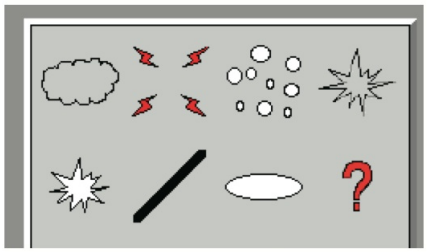

Figure 4. Pain Palette

revisit an emotion that may not have been fully considered during the traversal of the palette. If an emotion has not been labelled, or the interviewee wishes to change the name for it, it is possible to do so by clicking the box below the emotion. After this part is completed, the main part of the module begins and the screen changes to a version of a "people chooser". The interviewee will be asked to associate people with all the emotions in turn (Fig. 3). The set of people which is visible should be recognisable as a representation of those that occupy the current care setting ("where you live now", as defined in the introductory phase).

G. Somatic Experiences Module

This module enables interviewees to depict and describe physical sensations they have experienced, especially pain or discomfort, by referring to the pain location, "shape", size, periodicity (throbbing) and associated effect, for each pain episode. Guided by the same principles of the development of the Emotion Palette, a *Pain Palette* has been defined (Fig. 4), allowing the child to describe the pain sensation by using different shapes, sizes, and an indicator of "throb". The shapes are based on those found in a survey of the ways children represent pain in drawings and paintings. The child chooses a pain site and type of pain, and attaches it to the character on screen (Fig. 5, left). The child can also add a facial expression from the emotion palette, to show how he felt at the time, and write a description. Pain features can be used to detail the pain's size and throb (Fig. 5, right). Several "pages" of blank figures can be used to describe different occasions or experiences of pain or discomfort.

H. Experiences Module

This module enables the detailed exploration of any concept or area of concern. In order to do this, a phrase or sentence is placed in a box below an image with which it is associated. Up to twelve items which are facets of this can then be placed in boxes on the right hand side of the screen. Items can be suggested by the interviewer, interviewee, or a mixture of both. An emotion can be attached to each of the items by the interviewee. Once this is done the first part of this module is complete. In the second part of this module these items can then be graded according to three levels - by default 'good', 'ok' and 'bad'. This module has proven very useful to break down episodes and experiences, and analyse each in detail. For example a child might say that visiting the parent he does not live with is a bad experience, but by breaking it down in detail the interviewer might ascertain that only some parts of the experience are worrying or unpleasant, e.g. waiting for the taxi, worrying it might not come, or having to leave at the end (Fig. 6).

IV. Evaluation and Impact

The tool underwent a preliminary evaluation, in a number of pilot studies, during the initial stages, but beyond that, the system has now been deployed in practice by over 700 users, which is testament to the impact it has had. In this section, we touch briefly on the initial evaluation pilot studies, and then we concentrate on elaborating on the findings from a more recent census among the settings that currently use the system.

A. Pilot evaluations

As part of the very early research, the UK Department of Health selected 5 local authorities and the prototype was evaluated by these authorities. This pilot led the way for the widespread dissemination of *In My Shoes*. The tool has been evaluated in a number of pilot studies, one of which involved the system being deployed by trained users over a period of 12 months. The evaluation showed positive overall results, as documented in [3]. In particular, clinicians working in child therapy reported that more positive experiences were encountered using the tool, and the triadic interview that it enables, than had been found previously when using the existing dyadic approaches to communication between the clinician and child. It is suggested that these positive results are elicited by the child feeling empowered through using the tool and also the reduced pressure felt from interacting with a computer, rather than being engaged in a one-to-one personal interview. Similar positive results have been reported for a pilot study in a UK hospital where children

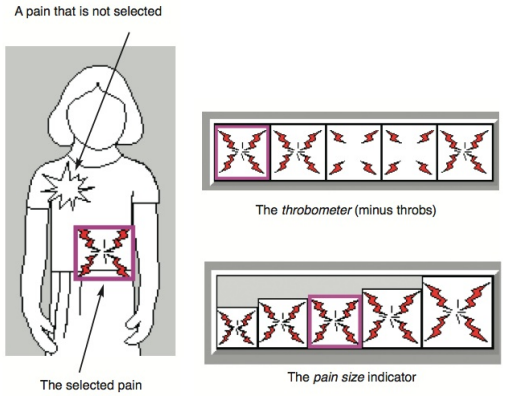

Figure 5. Localising and Describing a Pain

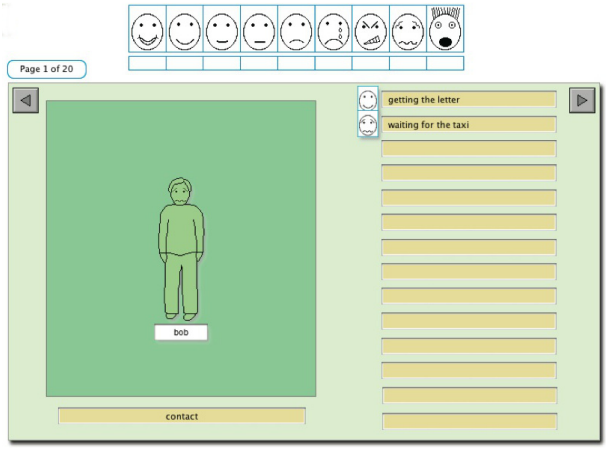

Figure 6. Experiences

used the tool to self-report pain [4], [17]. Furthermore, the evaluations showed that children with learning difficulties found the tool easy to use since the display of chosen materials acts as an external memory and choices made can be changed without difficulty.

B. Current Impact

As of January 2013, more than 700 people have been trained in the use of *In My Shoes*, and the tool is used in a wide variety of contexts. We will not discuss individual cases in detail due to confidentiality. Instead, we outline the areas in which *In My Shoes* has had greatest impact, and the locations in which it has been deployed and used, and give details of the results of the most recent survey of its users.

Professionals who now use *In My Shoes* include all of:

- Educational, Clinical and Forensic Psychologists,
- Teachers, Classroom Assistants, Special Educational Needs Coordinators and Speech&Language Therapists,
- Social workers, Family Support Workers and workers in Child and Family Court Advisory and Support Services.

The system is currently used in a variety of contexts:

- In **adoption and fostering cases**, *In My Shoes* is used by social workers to clarify the wishes and feelings of the children relating to their birth families and their carers.
- In **schools**, *In My Shoes* is used to understand behavioural issues, for example, to discover the scenarios that trigger adverse emotional responses in children.
- Child patients often display an inability to distinguish the type and magnitude of pain due to their limited command of language, and *In My Shoes* has been used in **hospitals** to help decide the right dose of medication for children.
- *In My Shoes* has been used by **forensic psychologists** to interview children who may have been abused, and who have been previously unsuccessfully interviewed by more traditional means. That happens in both criminal and civil proceedings, but mostly the latter. *In My Shoes* has also been used to provide evidence to a Coroner's court, in a case where a child was the only witness to a death. *In My Shoes* has proved capable of helping children to share information in ways that could not be achieved through conventional interview methods. The forensic value of the package has been demonstrated in that children have provided information that has added substantially to that which was already known, and has proved acceptable in Court.

Geographically, *In My Shoes* is used by workers from 15 local authorities in England, two in Scotland, two in Wales, and one in Northern Island. The tool is also used internationally in Belgium, Ireland, Norway, and Sweden. In Norway, training in *In My Shoes* has been delivered by a Family Counselling Service who have run 13 *In My Shoes* courses since 2008. They have trained more than 100 people so far. The trainers also use *In My Shoes* in their day-to-day work with children and families. A family therapist reported that it *"is a very valuable tool to talk to children. Especially in the start of a conversation to "break the ice" and get to know each other in a natural way. Not to sit and face each other helps a lot. And we get lots of information about both problems and resources that are very important both to get to know the children in their contexts and as a tool to start and go on in therapy sessions."*

In June 2012, we conducted a survey with 39 respondents covering 592 cases in which *In My Shoes* was used in practice since 2008. Of the settings surveyed:

- 28.9% reported that they used *In My Shoes* at least once for family placement,
- 42.1% for care proceedings and reviews,
- 47.4% in cases of child abuse and neglect and
- 63.2% to investigate the child's experience of education and school.

66% of responders indicated that *In My Shoes* was a significant help in their work. 4 responders even reported that they could not have done their work with out it.

In My Shoes has been used to interview children as young as 3, and is routinely used with school children of all ages. Professional users of *In My Shoes* report that it is very effective in situations where a child lacks trust. It removes the need for direct eye contact between child and interviewer, helps to break the ice, and fosters a collaborative atmosphere.

V. Conclusions

We have presented a mature tool for use in clinical settings to enable children to express their emotions and feelings better than is supported by traditional non computer-based interactions. The tool sits in the tradition of affective computing tools, for scope and purpose, though it differs from

many other approaches in the field. Systems that exploit emotions and affect to interact with children have been developed, a notable example is [2] which uses characters to teach children about emotions, but our context is not so much the education one, but the assessment one, we need children to be able to express what *they* feel, not recognising emotions in others. Also, systems that attempt to elicit children's emotions and feelings have been developed, one example is [8], which however concentrates on verbal clues, and is targeted to older children: we make extensive use of a graphic language, and we exploit the use of the computer as a party *in* the conversation. Systems more akin in the spirit to ours concentrate on specific conditions (e.g. [9] or [6]) and so their design is more specialised to address these children's needs.

The tool has now gone beyond use in pilot studies and we are able to report that it has been deployed in practice by over 700 users, which is testament to the impact it has had. As a unique tool with no other known rivals, it has been demonstrated that *In My Shoes* presents novel software enabling a technique, the triadic interview, to be used by clinical therapists to improve upon traditional interview methods to ultimately help the children involved in the scenarios it is used within. Current and future work is concentrated on developing a version of the tool for mobile devices.

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