Peer Interviews: An Adapted Methodology for Contextual Understanding in User-Centred Design

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ABSTRACT

In User-Centred Design (UCD) the needs and preferences of the end user are given primary consideration. In some cases, current methodologies such as interviewing may be difficult to conduct, for example when working with children, particularly those with Autism Spectrum Disorders (ASD). This paper outlines an approach to understanding the end-users, context and subject matter through the use of peer interviewing. This is proposed as a viable adaptation to User-Centred methodologies for inclusion of children and those with ASD.

Categories and Subject Descriptors

D.2.1 [**Software Engineering**]: Requirements/Specifications – *Elicitation methods.*
D.2.10 [**Software Engineering**]: Design – *Methodologies.*

General Terms: Design, Human Factors.

Keywords: User-Centred Design, Software Design, Design Methods, Children, Interview, Autism, Requirements

1. AUTISM SPECTRUM DISORDERS

Autism Spectrum Disorders (ASD), affecting at least 500,00 people in the UK [1], is a continuum of developmental disorders of varying severity. Within each condition, the severity of symptoms may differ between individuals across the spectrum.

The typical trajectory of development is compromised, resulting in a lack of appreciation of the thoughts, beliefs and feelings of others (Theory of Mind) [2], with established difficulties in social interaction, social communication and social imagination. These difficulties often manifest as social anxiety [2], with the individual becoming distressed when dealing with new people, ambiguous situations or in discursive situations where the outcomes may not be predictable.

2. USER-CENTRED DESIGN

User-Centred Design (UCD) is a multi-disciplinary design methodology where the needs and preferences of users are given primary consideration. Efforts are made to fully identify and understand the end user demographics, their understanding of the use and purpose of the system and the context and subject matter of the problem area [3] with the benefits of user-centred design are frequently acknowledged in the literature. For example, the system produced will be more "useful" (effective and efficient) for the end users as it will be what they need rather than what the developers think they need.

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The techniques and methodologies applied in a given development depend on the level of involvement of the user, as well as the users' individual capabilities. This means that it can be difficult for researchers to select an appropriate methodology for requirements analysis.

While it is not apparent what the best techniques in user participation are, there is an understanding in the field of technology development that early user involvement is crucial [6] and so the practice of user centred design continues to evolve. Despite this evolvement, children (particularly those with disabilities) are infrequently involved in the design and testing of computer systems [5].

3. INTERVIEWING

Interviewing is considered to be crucial in the implementation of user centred design. Through careful interviewing with varying levels of structure, researchers can gain a greater understanding of the user needs and concerns, their environment and, ultimately, their interaction with that environment in ways that can be meaningful for the development of research and design.

In some cases, traditional interviews may be difficult to conduct and lead to the researcher not fully understanding the problem space. In particular, there are a number of limitations that have been found when working with children. For example, children can be keen to give the "correct" answer and please adult researchers conducting the interviews [6]. In the case of requirements gathering, interviews are intended to be exploratory and, as such, there is no correct answer, and so the true opinions of the group being considered may not be reflected. This desire to please may result in anxiety. Good and Robertson [6] suggested that peer interviews could reduce this anxiety.

Furthermore, these limitations can be more pronounced in individuals with ASD. A lack of social imagination means that those with ASD may be averse to social communications (including an interview) with an unfamiliar adult, such as the researcher. This can lead to further increased angst and stress. In addition, those with ASD have a particular desire to provide a "correct" answer, and may struggle with exploratory interview situations where the answer is not clear.

This paper reports on the use of an innovative interview technique to aid the understanding of the context of use of the system being designed as well as the end-user and their knowledge of social situations.

3.1 Peer Interviews

One possible way of reducing these limitations is to employ peer interviewing. Peer interviewing is where an individual conducts an interview with a member of his or her peer group. To date, there is limited literature available in the use of this technique,

with a focus currently being on the use of peer interviewing for review or employment purposes (e.g.[7]). This style of interviewing may be useful in overcoming the difficulties of traditional interviewing when working with children, particularly those with ASD.

4. PILOT STUDY

A pilot study was conducted to investigate the use of peer interviewing as a methodology for UCD. Peer interviews were conducted as part of the "understanding" phase of development and design. This was within research [8] to develop a social skills intervention to teach children, both Typically Developing (TD) and with ASD about sharing. As part of the UCD process, it was important to understand children's appreciation of sharing and their opinions about how and why to share. The peer interviewing methodology has been piloted with a TD participant group (n=27, aged 7-8 years). The purpose of this is to go some way towards to establishing the methodology before employing it with children with ASD. It is clear that there will be some changes in the precise implementation of the methodology with the ASD group due to the compromised development trajectory.

4.1 Methodology

Interviews were conducted within a local school as part of an ICT lesson. A visit to the classroom was arranged, whereby the researcher explained the interview process to the children and ensured that they were familiar with how to operate the video cameras. These instructions were printed onto a laminated sheet (complemented with photographs) along with the 10 interview questions (see figure 1). These interview questions were considered by the class teacher to be developmentally appropriate. The video cameras were left in the classroom for a period of one week. After completing classroom tasks, the children conducted a peer interview with a partner of their choosing.

What is your name? How old are you?

What is sharing? Why is it important?

Think of a time when you had to share something with a friend:

- Who was there?
- Where did it happen?
- When did it happen?
- Why did you have to share?
- What happened?

Figure 1. Interview Questions

4.2 Using the Results

Grounded Theory was utilised to extract themes from the interviews, with each theme relating to a concept of sharing. Each of these concepts is addressed in the development of the software system. This ensures that the software fits with the context of children's understanding of sharing.

5. POTENTIAL FOR USE IN ASD

From data gathered in the pilot study, there appears to be many potential benefits for the use of this technique by those with ASD. For example, the interview process is clearly structured with a well-defined start and end point. The child conducting the interview is in control of the situation and can determine the pace of the interaction. In addition, the nature of interviewing lends itself well to turn taking. This is a type of interaction that children with ASD often find difficult [2] and so providing opportunities to experience this successfully is beneficial.

This opportunity for success can increase an individual's confidence, particularly if the peer that they are interviewing is familiar to them. From an educational perspective, the peer being interviewed may become progressively less familiar as the individual becomes more accustomed to the task of interviewing. Providing confidence-boosting opportunities in this way may be generalised across the curriculum. The use of technology (video cameras) is likely to be a motivator for children with ASD, due to the natural affinity they have with technology [9]. This can encourage them to participate in the activity.

5.1 Future Work

In this case study, the methodology was piloted and evaluated with TD children. This was important to ensure that the methodology was robust, so as not to cause any unavoidable increase in anxiety in the target group by presenting an interview process that was not complete. The peer interview methodology is currently being further investigated in a class of six children with ASD in a specialist provision school. These incoming results will be presented and will aim to fully assess the potential of this methodology for this unique group.

6. CONCLUSION

The use of peer interviewing has been successful in identifying the context of sharing within the TD population. Through the use of this technique, requirements have been gathered software focussing on improving children's understanding of sharing. The purpose of this study was to ensure that the methodology was feasible before expanding the participant group to include the target children with ASD. Current work comprises expanding the interviewing process to include children with ASD.

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