**Listening to the user’s voice: Designing a museum application for children with autism**

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**Introduction**

In designing and developing digital technologies for young people with complex needs, recent research has suggested that inclusion and constructive feedback are necessary for the successful creation of applications tailored to various, and differential, needs and abilities. Furthermore, research has identified this lack of inclusion as problematic in designing technology, and that user’s feedback regarding the features of a technology is one that has yet to be given adequate attention.

However, this aspect is considered a priority for the designers in relation to enabling educational and therapeutic support. This poster presents some initial findings related to design preferences of young autistic people for a potential museum application. The limited literature in the field about the preferences of interface technology design was one of the main motivations to engage an autistic group in the co-design and input at the initial phase of a study (looking at designing a touch-screen app). This project adopts Participatory Design (PD) approach as an effective and valuable method to better understand the accessibility of an application.

**Background**

Many studies have reported that computer assistive technologies can play an important role in the well-being of people with autism. Existing research has placed an emphasis on the potential of applications for touch-screen and mobile devices assessing their potential benefits to autistic groups as a way to support communication and social skills. The characteristics of those programs such as accessibility, portability, customisation and personalization, are likely to help children with autism to interact effectively with the applications itself.

However, designers can encounter distinctive challenges when designing digital platforms for people with autism. The diversity of autism spectrum can have a considerable impact on how and whether the users might be able to successfully engage with a range of technology. Thus, such challenges entail the examination of inter-action design guiding principles that are appropriate to support people with autism through a better inclusive models.

As defined by some researchers, the Participatory Design (PD) approach offers significant value which involves end-users and other stakeholders in the process of designing technology. PD is user-oriented, giving participants the sense of empowerment whilst designers test and validate the platform’s interface. Several studies have reported that through an iterative design process, and by working directly with the end-users, platforms have created in line with participating user’s special interests and preferences.

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**Methodology**

The findings provide preliminary results of user’s preferences.

- Some of the results between the two groups are rather varied and contradictory to previous studies about specific features of an application. This inconsistency could be due to the broad spectrum of autism and the variation of the level of severity. This suggests that while there are some general design guidelines, there is not a formula to show which guideline is appropriate for each individual; this poses some concerns and barriers for the researchers/designers.

- Some participants expressed a range of inconsistent preferences about specific features of the application such as customisation and navigability. A possible explanation might be that the first sessions had the format of PowerPoint Slides (given some examples from existing applications) whilst the session with the low-tech prototypes was more helpful and clear for the participants to understand how the application will look like.

- In regards to the PD techniques employed:
  - Each class preferred different ways of responding. In the Blue class using sticky notes seemed to be very engaging for participants, whilst in the green class the teacher had the role of scribing participants’ responses on the classroom whiteboard.
  - Participants were engaged during the sessions and expressed themselves communicated with the researcher.
  - Some participants highlighted design recommendations about short and long term goals of the application.
  - Some of the ideas expressed related to the context of the application that will be considered at the development stage of the project.

Tables 1 and 2 below summarise the results obtained from the groups of children with autism.

**Results**

- The findings were a result of participatory techniques and by enabling young people with autism to have a role in the decision-making process and design phase of an application to be designed for them.

- The design activities were composed of four one-hour sessions.

- Two groups of children aged 11-15 years took part in the sessions (on average 12 children in each session).

- Seven participants were male and five female.

- The participants’ cognitive abilities varied, but all were autistic and presented without a physical disability.

**Conclusion**

- The findings were a result of participatory techniques and by enabling young people with autism to have a role in the decision-making process and design phase of an application to be designed for them.

- There were some disparities among the children in terms of the usability of an interface.

- The different opinions expressed by the participants, highlight that more work is required in trying to establish best-practice in this field. Notwithstanding, several key lessons were learnt and the next phase of development will be well informed by the users input.

- The use of PD techniques eventually contributed to providing a voice for the creation of the proposed application and generating practical design insights suitable for specific needs and requirements.

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**References**

- Some references are provided in the document.