A recipe for measuring behavior in autism research

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THEME AND OBJECTIVES

Autism spectrum disorders are a range of pervasive developmental disorders characterized by impairments in social interaction, communication and stereotyped patterns of behavior, interests and activities. (Mash & Wolfe, 2004) The broadness of the spectrum accords for individuals on the spectrum to have unique abilities and disabilities. This means that within user groups, the needs for therapy intervention are not equal between people, and may even be contradictory. This requires great flexibility and adaptation capabilities in intervention methods.

The aim of this workshop is to review and discuss existing approaches and search for common points on how the behavior of children with autism spectrum disorder (ASD) is measured. Specifically we are interested in measuring behaviors that relate to social interaction. These include verbal or non-verbal behavior that is expressed in social communication, perceiving and reacting to other's signals such as: spontaneous movements, confused and non-coded movements, coded hand movements, facial expressions, and verbal expressions. We are focusing on children with ASD, as these people benefit mostly from early intervention and early education programs, to maximize the effort of skill development. (Hume, Bellini, & Pratt, 2009; Rogers, 1996)

From the perspective of the therapists, using computer based technologies gives more opportunities to understand the complexity of (social) behaviors of the autistic children. They can make it easier to study specific (elements of) behaviors. We envision usage of different technological tools for observation and recording of behavioral variables such as video recorders, integrated systems as for instance the Noldus system, virtual reality systems and robots.

The broadness of the spectrum is also dependent on other dimensions. Children may have other needs and wishes than adults. Individuals may be low or high functioning, having linguistic together with social impairments, or combined with sensory impairments. When measuring behavior, we can look at the productive or receptive qualities of the individuals. Interventions themselves may be aimed at skill development or diagnosis of ASD.

The outcome of the workshop is to discuss several interesting projects that encompass a user study where the behavior of children with ASD is measured in one of these ways. What are the necessities and requirements to make such a user study successful? The objective of the workshop is to create a protocol or list of requirements through discussion of different example studies, distilling the ingredients for a successful user study with children with ASD. The recipe that comes out can be a useful handle for future studies that will help set up successful testing plans for children with ASD.

Industrial Design from Eindhoven University of Technology brings expertise in employing robotics systems for children with autism to promote social interaction between peers (Barakova, Gillesen, & Feijs, 2009), or to study their behavior by motion analysis. (Barakova & Chonnaparamutt, 2009) Sint Marie from Eindhoven brings clinical expertise on children with autism. The Humanities faculty of Tilburg University will bring expertise from the field of communication and cognition, in particular the functional analysis of nonverbal features in adults and children. (http://foap.uvt.nl)

PREPARATION

Participants are asked to bring inspiring materials from the abovementioned area to openly discuss and distill the interesting ingredients from. This includes papers of relevant studies, but may well be movie materials, presentations or anecdotes and so on.

In the selected materials, consider specifying dimensions like age (children or adults), abilities (low or high functioning), if the measured intervention is diagnosis or treatment based and if productive or receptive actions are measured.

To quickly process all the materials involved, we ask contributors to present their materials within maximally 6 minutes.

WORKSHOP
- Introduction round [10 min]
- Presentation of materials [30 min]
- Break [10 min]
- Presentation of materials [30 min] (continued)
- Discussion of ingredients [30 min]
- Break [10 min]
- Making the recipe [20 min]
- Summary and wrap-up [10 min]

Total time: 150 minutes

Introduction round [10 min]

Presentation of materials [30 min] Participants are encouraged to write down points they find interesting or inspiring on prepared cards during presentations.

Break [10 min]

Presentation of materials [30 min] (continued)

Discussion [30 min] Discuss the possible ingredients that we saw (through open forum discussion). Through this discussion, more ingredients may appear.

Break [10 min]

Making the recipe [20 min] Organizing and ordering the ingredients (through open forum discussion).

Summary and wrap-up [10 min] Process and results are briefly summarized. People are given opportunity to express their opinion on the workshop and their interest in following up on the workshop (i.e. contributing to a possible paper).

WORKSHOP FOLLOW-UP
If our aimed goal is reached then the results will be published in a (short) paper.

TARGETED AUDIENCE
We are looking for people who are related to autism research from different backgrounds , which can be technological, clinical, psychological, or anything else.

REFERENCES

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