
Deceive or Democratize? – PD and Children with Special Needs

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The authors belong to **IDAC** – Gothenburg working group on Interaction Design and children, <http://www.idac.se/>
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Abstract

This position paper is based on our experiences from conducting fieldwork and participatory design together with developmentally diverse children and their teachers in the special education context. We will briefly present the concepts of acceptance and understanding, and then give an example from a participatory design workshop in which the children designed a collaborative game. Based on this we ask the question "*Are we deceiving them?*" and present three points for discussion:

1. Many of the design ideas were not that usable, even if a lot was learnt about collaboration etc.
2. Researchers may pick up on ideas from the children that are not the most important ideas for the children.
3. It may be hard for children to identify their contribution in a final design, as it can be hard to recognize the elements they consider to be their contribution.

Introduction

Conducting research- and design activities with developmentally diverse children and their teachers in a school context can be complex. The school context can provide structure and familiarity as the routines, values, and relationships with teachers and other children forms a practice in which children feel safe and

Developmental Diversity – what is that?

Based on a systematic literature review, we choose to introduce the overarching term 'developmental diversity', where we combine the terms 'developmental disability', with 'Neurodiversity' [2]. With this term, we want to emphasize the fact that we are talking rather broadly about diverse groups of children, which may have e.g. Attention-deficit/hyperactivity disorder (ADHD), Autism Spectrum Conditions (ASC), Down Syndrome, Cerebral Palsy, Intellectual Disabilities, or combinations thereof. This term will be used in the rest of this position paper.

secure, and know what to expect. Structure and children in school [e.g. 3]. As shown in our literature review on methods for involving children in design activities [2], the most prominent context for involving developmentally diverse children in design of technology, is the school context. However, in the school context, methods also need to conform to practice in school, e.g. routines and structure (*e.g. usual length of activities, usual group size and composition*), support needed (*e.g. from adults, instructions, etc.*), but also values [4] in that practice (*e.g. view on technology and learning, or willingness to explore and try new things*). Therefore, the relationships and mutual understandings are important, not only between researcher and children, but also between researcher and teachers or assistants [3].

Acceptance and Indirect design activities

When children are included indirectly as described by the Role Definition Matrix [1], being merely observed either in a natural context or observed doing something, e.g. testing an application, it is often enough with acceptance. However, it is important to realize that if acceptance has not been reached it can affect the outcome of an activity. As an example, children may be more occupied with keeping track of what a researcher is doing rather than focusing on the task at hand. Once acceptance is gained from children and teachers, it is possible to hold activities where children are involved more actively e.g. in dialogue or giving feedback [1].

Understanding and Direct Involvement

Being part of the practice rather than just observing allows the researcher to interact and talk with the children more directly. Eventually, involvement could lead to the researcher being able to spend time alone

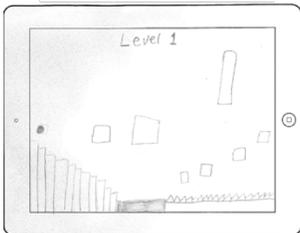
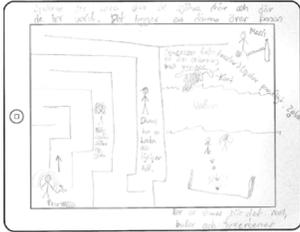
with the children which can increase the understanding of how children interact with each other without a teacher close by, e.g. how they may get into conflict, and when and how they lose focus. Involvement can also make the children more comfortable interacting with the researcher on their own, which could enable them to take part in design activities with less support from teachers or assistants.

The understanding stage is reached once acceptance has been gained, and in this stage, the focus is twofold. First, the researcher aims to understand e.g. the activities, routines, structures, values, relationships, etc. that form the practices in the school context but also to understand the children's strengths and needs. Second, the focus should be on making sure the children, teachers, and assistants understand what the goals and underlying values of the research or the technology under development are.

Making the children understand the goal of the research is challenging. What is understood is often the tangible outcome, e.g. that they will be part of making an application. It can similarly be hard to explain the outcomes of a design activity and to manage their expectations. For example, during game ideation it can be hard for the children to understand that the outcome will not be their verbatim idea of a game, but rather a game based on their ideas and what they find engaging. So how do we deal with that?

Example: Collaboration game design

In this workshop, a group of developmentally diverse children, age 11-16 got to design a game. The class teacher was involved in the planning of the workshop, and teachers and assistants acted as facilitators [2]



Examples of design ideas from the children.

during the workshop to provide structure and familiarity. The children worked in groups of 3-4 children divided by age. Audio was recorded in each group during the workshop.

The workshop started with an introduction for the class, which outlined the structure of the activity, and the three requirements of the game; it should be played by two players with a tablet each, they should be seated at the same table, and they should collaborate in the game. It was also explained to both children, teachers and assistants that the most important thing in this workshop was to capture the children's ideas, and that no consideration had to be given to whether an idea was hard to or even impossible to implement. After this the three groups were seated in different rooms in order not to disturb each other, assisted by two adults from school staff.

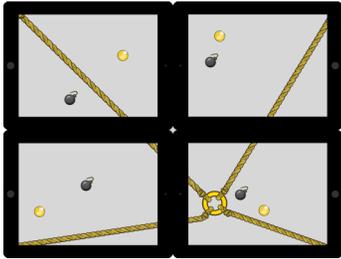
The three groups were handed a design kit, which included the description and instruction that had been given verbally, one for the children and one for the teacher or assistant that facilitated the activity with the group. The kit for children could act as a visual and textual support during the workshop about the requirements of the game. The kit for the teacher explained in more detail the requirements in more detail, and reiterated that the main purpose behind the workshop was to elicit the children's ideas and reasoning about collaboration, and what they found fun and engaging. The children were also given templates of a tablet, on which they could draw and show their design ideas.

The outcomes in the different groups varied. In the younger group, the ideation was heavily influenced by

the assisting teacher who came up with most of the ideas and mainly asked the children to give feedback on them. In addition, the children barely drew anything. While some of the children in this group are less communicative and need more prompting and guidance it was clear after reviewing the audio recordings that the teacher had a vision for the game. One of the reasons that the children did not draw anything was based on the teacher's assumption that the children had to draw very small in order for a game character to fit within in the template, and therefore suggested to the children that he should draw instead. The game concept from this group was a maze game in which one could play as either a princess or Lionel Messi, a famous football player, and save the other character. The two characters had different super powers. After one of the players had saved the other, they both worked together to find the exit.

In the older group, assisted by an assistant, the problem was getting the children to collaborate during the workshop. The girls were interested in making a game about a horse, while the boy wanted to make a game resembling air hockey. In the end, guided by the assistant they came up with another idea for a game, that was heavily influenced by an existing game. After this the focus on collaboration was lost and the children focused on designing the different levels of the game. The game concept was a geometry game where players helped a rolling ball get past different obstacles shaped as different geometric forms.

The middle group struggled with combining individual ideas into a common game, as one of the children was currently obsessed with Ninja Turtles, and another with Shrek the ogre. The third had no strong preference for



Four tablets arranged to create a large game board in StringForce – one of the final designs.

the theme of the game. The teacher guided the children in combining the two conflicting ideas into one. After this a number of game elements that needed to be drawn and described was decided and the children were allowed to work on them. This approach worked very well and provided structure for the children, even if it was still a bit unclear how collaboration in the game was to be carried out. The game concept was a game with two worlds, one for Shrek the Ogre and one for the Ninja Turtles. At certain times one of them would get in trouble and be in need from the other who would come over to the other world using a portal. After the ideation, the children got to present their ideas to the class. This gave researchers, peers, and teachers, a chance to hear their ideas again, and to give them praise, feedback, and ask them questions.

After the workshop, the researchers synthesized the findings from the game design workshop, both concerning the game concepts, and the method for involving the children. While some concepts seemed more promising than others, it was decided to continue to explore them all further, to show children that their ideas were valued. The three concepts were refined and adapted for four tablets, and for each concept a number of questions were defined, related to the collaborative mechanisms in the games, e.g. how to interact and collaborate with the other players, through different game objects.

A number of points for discussion can be extracted from the above example. First, many of the design results from the first workshop were not really usable, even though a lot was learnt about collaboration. To handle this, and to spur the children's engagement in the process, the children's results from ideation were

used as design material for a follow up workshop with the children. However, and secondly, it was evident that the some of the ideas from the children that the researchers had picked up one in the analysis of the data, e.g. design results and audio recordings, were not that significant to the children, e.g. the portal. Lastly, in a final game the children may not be able to recognize their contribution. Are we deceiving them? Though they will recognize the idea of the four combined tablets planted in the follow up workshop. So perhaps planting new interaction concepts at an early stage can make the level of recognition and sense of involvement higher, all through the process. The point is that even if the actual design ideas from the children might not really be usable for the final design – their involvement is crucial for the researchers understanding of the context and users.

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