The impact of the Self-Portrait's design elements on child engagement in care, children's emotions and cognition, and their personal development

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Context

Although engaging digital technology in paediatrics has become increasingly prevalent, a tool specifically for children with a brain condition is lacking. The Child Brain Lab is currently developing such a tool, the "Self-Portrait", which potentially has great impact for involving these children in their care. Namely, the Self-Portrait aims to prepare children on tests of their brain function and provide feedback on obtained results. To ensure that the Self-Portrait meets its promise, we study the impact of the design elements of the Self-Portrait on children with a brain condition and their care. Additionally, we provide improvement suggestions for its design.

Methods

Our study consists of three parts: 1) determining the intended types of impact of digital technology on children and their care; 2) determining the design elements of the Self-Portrait; 3) evaluating the influence of the design elements on the types of impact. We obtained data from diverse stakeholders of the Child Brain Lab (Erasmus MC-Sophia Children's Hospital): child patients, caregivers, and developers involved in the creation of the Self-Portrait. We followed a qualitative research design, which consisted of interviews with 4 developers (part 1), document analyses (of, amongst others, 30 design drawings) (part 2), interviews with 3 children, 2 cocreation sessions with 7 children, and 2 focus groups (one with 10 children, one with 14 caregivers and developers) (part 3). Data was analysed through thematic analysis. For this purpose, both deductive and inductive codes were used and supported by Atlas.ti.

Results

Results from part 1 show that there are different types of impact that can be grouped under 1) child engagement in their care, 2) children's emotions and cognition, and 3) the personal development of children. Moreover, the design of the Self-Portrait can be described by a combination of 1) visual, 2) usability, 3) interactional, and 4) motivational elements (part 2). Our results from part 3 show that the design elements of the Self-Portrait can influence various types of impact. The results are summarised in a conceptual model that provides insight into the relationship between design elements and the types of impact for the Self-Portrait. Based on the conceptual model, suggestions for improvement are made.

Discussion

The present study shows how a digital tool for children with a brain condition can have several types of impact on children themselves and their healthcare. We have linked different child-friendly design elements to different types of impact, both of which can be divided into categories. This study gives insight into the role that digital technology can play in paediatrics, while also providing points of improvement for the design of the Self-Portrait. Furthermore, the results may offer information and guidance for the design of similar tools for children in future care practice. Since the current research is conducted during the development of the Self-Portrait, it is recommended for follow-up research to examine the impact of the tool when effectively implemented.