Understanding Accessible Gameplay at the Children's BBC

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Working in partnership with digital agencies, local charities, academics and care givers, the BBC are embarking on a ground-breaking research project to understand the needs of game players with varying access needs. The findings of this research will be shared with the wider industry to challenge perceptions of accessible game design.

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1. INTRODUCTION

Children's BBC create and publish award winning content that informs, educates, entertains and inspires our audience of 0-12 year olds. A fundamental objective of CBBC and CBeebies is to make the content accessible to all audience, which is achieved by taking steps to understand the audience need, innovate with technology and collaborate with the children's media industry to ensure every member of the collective audiences are considered.

2. THE CURRENT ACCESSIBLE GAMES LANDSCAPE

1 in 20* children in the UK have a disability, and many more face barriers in gaming, such as the 8% of boys who have a colour deficiency, children who have difficulty reading, have English as their second language, have temporary impairments such as a broken arm, or situational such as playing in direct sunlight (Disabled Living Foundation 2016).

Playing games is a fundamental facilitator of knowledge and learning acquisition in a child's development, which is why games need to be accessible to children with a range of skills and abilities. The BBC develop games both internally and with third party partners, and uses research to ensure the requirements that go into any guidelines are accurate, relevant and realistic.

The work that has been undertaken by the BBC to date became even more pertinent in light of the disability ministers Penny Mourdant's report in February 2017, which stated the video games industry needs to urgently increase their representation of people with disabilities. This includes presenting disabled characters in games, and catering for disabled gamers by designing games to be more accessible across the board.

Recent ethnographic and field research conducted by the BBC highlighted major gaps in the availability and discoverability of games for children with disabilities. Parents, carers and academics all reported issues accessing suitable games, with barriers ranging from financial constraints, to a lack of adequate skills by parents and teachers to use current technology. In addition, preferences were surfaced for collaborative learning and playing over insular play, and innovation in therapeutic and educational gaming.

3. ACCESSIBLE PROTOTYPES

To address the gaps in accessible gaming the BBC launched an exciting project to create a set of prototypes with accessible game mechanics and technology at their heart. This research was designed to increase understanding of where game play fits into the lives of children with disabilities, what mechanics elicit the most delight and frustrations in combination with a specific access need, and to better understand what influences the choices parents and teachers make when selecting games and apps for these children.

The BBC conduct regular user research with users of assistive technology. However, the key to the success of this research project was to nurture longstanding relationships with users and their families, primarily in a home setting, with their own devices and set-ups. Historically a project like this would involve short user testing sessions that investigate understanding of completing a specific task in a game, which does not necessarily lead to deeper insights in adapting or revisiting a game.

Working with local support networks, Special Educational Needs (SEN) schools, and academics from around the UK ensured our prototypes were

user focused and we could reach a wide variety of children to work with, in addition to supplementary ethnographic work.

3.1 ideation for inclusive Innovation

Existing research and data from our current products were used to form ideas for game mechanics to best test our project hypothesises. Working with two external design agencies, the Children's UX department and BBC Accessibility team, six key themes for this work were established. These are as follows;

- Cause and Effect: Creating small interactions that have big payoffs for children who might find complex interactions difficult to motivate and delight them.
- Audio enhancement: promoting audio in games and exploring audio games that don't rely on visuals.
- Multiplayer: Games that support and encourage siblings and families to play together, creating a playful space for families to spend time together.
- Personalisation: tailoring games to individual children to cater for variable abilities and needs. Making games that support and reward children's uniqueness in the game context.
- Alternative controls: Experimenting with alternative controls that provide more flexible modes of interaction e.g. voice activation,
- Social stories: Designing games to help with elements of everyday life that children find challenging, e.g. getting used to environments.

3.2 Researching Prototypes

Home visits

10 families were recruited, consisting of single or multiple children with cognitive and motor impairments. A mix of boys and girls were identified, with a developmental age of between 2yrs – 10yrs old. They may or may not currently be users of assistive technologies, but there was a particular interested in visiting users of switch devices or mouse mimicking software.

Home visits were engineered into four points of contact with the families. Starting with an introductory call or Skype chat with a set piece of 'homework' to complete before the first physical interview. Constructing a research plan based on four key contact points with children we ensured insights were more rounded and reliable.

The first face to face visit let the children met the in researchers in their natural environment, and explain more about the project. The families technology set up was established, plus any key interests or obsessions from the children, which was important information to inform our personalisation prototype. Two subsequent visits are planned in May, where first build prototypes will be tested, recording responses, observing challenges and noting future improvements. The final visit will involve playing modified versions, paying attention to multi-player situations and the impact of adaptations to game difficulty and speed.

School visit

Building upon existing relationships with schools across the UK, game prototypes will be taken to classroom situations, where they will be tested during independent play and group scenarios. One exciting outcome of these school visits will be the creation of auditory games with visually impaired students, who will be tasked with creating a make believe auditory environment, and invited to Media City to play their completed games as part of Global Accessibility Awareness Day.

Academic research

Features built into the prototypes, (including variable colour contrast, adaptive difficulty, voice input and personalisation) have all been included thanks to previous research in the BBC (Jones 2016) and with university partners – the University of Central Lancashire and Edinburgh University. These institutions were consulted for their academic expertise, and to maintain contact with children who participated in research informing this work.

4. CONCLUSION

The first phase of this work will be completed by May 2017 and our ambition is to share our results widely with the HCI community. Video footage, insights, and sample games will all be available to the attendees the British HCI conference. This is an ideal UK forum for the BBC to share research findings and inspire other practitioners to innovate in the field of accessibility, both for online gaming and other creative pursuits.

5. REFERENCES

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