Games User Research with Children: Reaching a Difficult Demographic

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Abstract

In this breakout session, we discuss the variety of research methods and settings we use in testing games for children. The strengths and weaknesses of each overlap to build a strong overall research program that has surpassed the needs of our product teams. Our kids research group balances traditional games user research methods of playtest and usability with fieldwork, "light" usability known as Kids Thursday, and offsite testing to build a deep understanding of how children interact with technology.

Author Keywords

Kids; games; usability; field studies; outreach; methodology; user research.

ACM Classification Keywords

K.8.0. Personal Computing: General: Games.

H.5.2. Information interfaces and presentation (e.g., HCI): User Interfaces.

General Terms

Design; Human Factors

Introduction to SUR

Studios User Research at Microsoft Studios has been conducting user testing methods in games since 1999.

Traditionally, we use a combination of usability tests and playtests with adult participants to assess our games in development [1]. Usability tests are used primarily to collect behavioral data. They are useful to uncover potential confusion or frustration, similar to usability performed on websites or productivity software [2]. In this method, researchers have participants perform a set of pre-defined tasks, while observing behind one-way mirrors.

We use playtests to assess the more subjective aspects of the game such as: How fun is this game? How did the difficulty progress over time? In this method, participants play through the game more naturally than in usability [3]. They then answer a series of survey questions. Playtests are conducted with a larger sample size and with standardized questions so that we can make meaningful comparisons across games, or across iterations of the same game in development. We recruit participants from a database of people who have opted in to the program. These individuals are largely from the Puget Sound, WA area and tend to be adult males, not preschool-aged children.

With the introduction of Kinect, especially Kinect for Kids titles, we reassessed our approach. What is the best method for collecting feedback from children while they use gestures to interact with the system? How can we quickly educate our design and development partners about what works best for children using Kinect? How do we gather statistically meaningful subjective feedback from children? And the most practical question of where can we find large numbers of child participants?

Testing with children: An overview
Our solution to this was a mix of three new strategies, building off of our core playtest and usability methods. Each method is described in the following pages.

	Purpose	Pros	Cons	Scheduling	Approx. N per day
Usability	Uncovering problems	Behavioral data	Expensive; difficulty getting think-aloud data	As needed	6 - 8
Playtest	Assessing subjective experience; Benchmarking	Attitudinal data; statistically robust	Expensive; difficulty surveying children	As needed	25
Kids Thursday	Usability of prototypes; foundational research	Early testing; eases cross-platform research; ongoing stream of participants	Expensive	Regular	6

School outreach	Usability of prototypes	Inexpensive; lots of participants	Up-front work to get in to schools; distractions during testing	Regular	10 - 20
In-home studies	Discovery	Ecological validity; Data on attitudes, behaviors and motivations	Expensive; time consuming	As needed	1 - 2

Table 1. Overview of our methods used in testing (largely Kinect) game experiences with children. Usability and playtest are standard methods for our research group. Kids Thursday, school outreach and in-home studies were added to our repertoire.

First step: Kids Thursday

With the introduction of Kinect, our researchers quickly started testing several games being developed for children. We also wanted to roll up general "best practices" in designing these experiences quickly to our partners as they built the games. We wanted to avoid inefficiently rediscovering similar issues across multiple products and teams via separate product-specific usability studies.

To address these needs, we set up a regular weekly session with child participants. These sessions, held each Thursday, became known as "Kids Thursday" in our labs. Each week, we work with our partners to test early prototypes of games or other Kinect experiences. Five to six children come individually to our child-friendly lab for 30 to 60 minutes each, playing a variety of prototypes. The session is run similar to a regular usability study; the child plays in a room while a researcher behind the one-way mirror observes. Because children need special guidance in this situation, a moderator sits in the room with the child. The moderator has training in how to elicit certain responses from children according to what types of data are required, without biasing the session. The

child's parent sits in the same room as the child, behind a room divider. The parent is able to see their child, and the child is able to walk to the other side of the divider to see the parent. The barrier, however, reduces interference by the parent in the data collection process.

After all children have participated for the day, the researcher quickly reports findings to all partners working on kids titles. Our partners see an analysis of their prototype, as well as other teams' designs that were in the lab that week. We opted to freely share this information across teams, so that we might all learn from each other. Additionally, we roll up general findings about how children interact with Kinect. For example, we quickly learned that titles should be explicit in telling the child to stand up in order to interact with Kinect.

In addition to testing early game prototypes, this testing format allows us to easily slot in tasks for foundational research, which require a controlled environment. As a result, we were able to answer such questions as "When designing for children's gesture-based input, how large should the target be?"

We were able to leverage Microsoft's central usability recruiting team in finding young participants for these sessions. This group actively recruited parents and their children at events around the Puget Sound, WA area. The team also handles gratuity and communication with the participants prior to the sessions.

We rotate the age range of children participating each week, to include the various target audiences of our game titles. Our age ranges are approximately: 3 to 6, 7 to 9, 10 to 12, and 13 to 17 years old. These ranges were chosen both for child cognitive, physical and developmental stages, as well as ESRB ratings for games. Children in our labs only test games rated appropriate for their age by the ESRB.

In short, Kids Thursday allows us to quickly test early game prototypes with children on a regular basis. We are able to communicate findings efficiently across multiple product teams.

Kids Thursday is ideal for testing game experiences shorter than about ten minutes. When a game has progressed past the early prototype stage, we often turn to traditional usability sessions dedicated to that product. Although we are able to leverage the central service mentioned previously, the cost of Kids Thursday is still higher than preferred. We then sought out a less expensive way to reach more children.

Second step: School Outreach

While Kids Thursday was going well, there were a few problems we needed to solve: 1) our database of child participants was somewhat limited; 2) older kids (age 6+) were not able to make it to our facilities during the daytime; 3) we needed a more cost-effective method to

reach a large number of children. As a result, we began to build partnerships with local schools.

Researchers contacted these schools and preschools, reaching out to administrators or CIO's. Typically, there were several meetings with teachers and administrators to arrive at an ideal situation for all parties involved: researchers, teachers, administrators, children, parents, and lawyers. Prior to any testing session, parents were sent a letter to inform them about the program; they were given an option to grant permission for their child to participate.

Today these relationships allow us to bring game experiences to the classroom, to assess usability on site. At each school, we have 10-30 children whose parents have granted permission to participate in the study.

We did run in to some challenges in our school outreach program. In one case, a very eager school (principal, CTO and teacher) was forced to back out due to the overabundance of legal issues from their perspective. In another case, a preschool testing situation was delayed because of parental concerns that we believed had been mitigated. In the first case, we were unable to continue the relationship. In the latter case, we communicated again the goals, procedures and details of the research program, to dispel misconceptions. When dealing with children in schools, it is essential to delegate one researcher to communicate openly as an often as needed by invested parties.

The school setting is ideal to test early game prototypes, similar to Kids Thursday. Research that

requires a more controlled situation, however, is not a good fit with this environment. We quickly learned, for example, that time on task studies did not work at the schools; children were often distracted by the classroom context.

The non-lab setting could also be a benefit as well; we discovered different, or more pronounced, behaviors in the classroom versus our labs. While children in our labs often remain focused on the experience we are testing, in the schools, their attention may wander to alternative activities if the experience isn't captivating enough. This is usually good feedback to provide to teams curious about engagement with their designs.

Third step: In-home studies

Our researchers wanted to investigate children's Kinect experiences in their own homes, to add a layer of depth to what we had learned about how children interact with Kinect in more controlled environments. Our goals of conducting research in the home included: 1.) observe and learn about play as it occurs more naturally; 2.) determine if findings in the lab hold up in the home; 3.) understand more about the behaviors, attitudes and goals of young families.

Earlier this year, we completed a pilot in-home study of young families. By observing people in their own homes and by speaking with them about their entertainment use, we added to our body of knowledge gained via lab and school studies. For example, we observed how families naturally move in their own family rooms while playing Kinect games, and how some children pass Wiimotes strategically between players during a Wii game. These behaviors are more difficult to obtain in a lab setting, without concerns for ecological validity.

Case study: One title; three settings

In the break-out session, we will present a case study illustrating the advantage of overlapping methods. A competitor children's title was tested with children in our Kids Thursday sessions, in schools, and in the homes of young families. We hope participants of this session will learn more about the strategies we have employed, and how to implement appropriate plans for their own projects.

Acknowledgements

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