Interactive Technology for Inclusive Play

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Abstract
We are currently doing research in the design space of technologies that promote "inclusive play," or play between children with and without disabilities. This work gives us insight into communication between children with and without disabilities, which we can use to contribute to the workshop Supporting Children with Complex Communication Needs. The workshop will also give us a chance to collaborate with our colleagues, learn about current research in this space, and better understand how researchers overcome barriers when working with this sensitive user population.

Author Keywords
Inclusive play; children with disabilities; assistive technology

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction
We would like to participate in the CHI 2014 workshop Supporting Children with Complex Communication Needs because the young children with disabilities with whom our research is concerned often have complex communication needs. This is something that we will have to take into account and learn more about as we move forward with our work. This workshop will also

allow us to learn more about the current research happening in this space, give us the opportunity to make connections with this community, and learn from researchers' experiences working with and for this user population. We believe that we can significantly contribute to the workshop due to the research we are doing in the design space of interactive technologies that promote "inclusive play," or play between young children with and without disabilities.

Biographies

Kiley Sobel

Kiley is a first-year PhD student in Human Centered Design & Engineering at the University of Washington, advised by Dr. Julie A. Kientz. She is also a National Science Foundation Graduate Research Fellow. Kiley received her B.S. with Honors in Computer Science at Harvey Mudd College, where she focused in Human-Computer Interaction, participated in assistive technology research with Microsoft Corporation, and worked as a behavioral therapist for children with autism. She is now interested in Human-Computer Interaction, Child-Computer Interaction, and Assistive Technology.

Julie A. Kientz

Julie is an Assistant Professor in the Department of Human Centered Design & Engineering and an Adjunct Assistant Professor in The Information School and Computer Science & Engineering at the University of Washington. She is also the director of the Computing for Healthy Living and Learning Lab and is active in the Design, Use, Build (dub) alliance. Dr. Kientz's primary research areas are in the fields of Human-Computer Interaction, Ubiquitous Computing, and Health Informatics. She was awarded a National Science Foundation CAREER Award in 2009, named her department's Junior Faculty Innovator in 2012, and named an MIT Technology Review Innovator Under 35 in 2013.

Our Current Research

Inclusion is one approach to education in which children with and without disabilities reside in the same classroom. This approach is based on the theory that engaging both children with and without disabilities will positively affect both groups [3]. Children with disabilities benefit from inclusive programs because they learn how to interact with their peers, develop true friendships, and learn other important skills in a natural environment [3]. Likewise, typically developing children in inclusive classrooms change their expectations about their peers and develop empathy for children with disabilities [3].

Play is regarded as an important aspect of education [1], and play in inclusive education is particularly relevant because it stresses the inclusion of all children [3]. Inclusive play promotes collaboration, communication, and other social interactions among children with and without disabilities [2].

The work we are doing now involves investigating the design space of technologies that can promote play between preschool to kindergarten-aged children with and without disabilities or "inclusive play."

Currently in its early stages, our research entails reviewing related work and inclusion criteria in education, observing classrooms, creating design sketches and storyboards, generating design guidelines, running interview studies and participatory

Provisional Design Guidelines
The design must be engaging and usable for children with and without disabilities.
The design must encourage social interactions and cooperation.
The design must allow for customizability.
The design must incorporate adult guidance.

Table 1. Provisional Design Guidelines.

design sessions, and finally building, testing, and evaluating a prototype. The ultimate goal is to show how interactive technology can help support children in preschool and kindergarten with play interactions in inclusive environments, which are comprised of children with and without disabilities. With the design and testing of a prototype, our work can reveal if and how technology can not only support inclusive play within the classroom but also potentially outside of the classroom in order to promote inclusion beyond strictly educational environments.

Presently, we have done an extensive literature review and fieldwork in the classroom. We have also come up with a set of provisional design guidelines (Table 1) and various preliminary design ideas, which we will continue to validate and refine. Soon, we will be completing interviews with teachers in inclusive classrooms. We plan on running participatory design sessions with teachers and children in inclusive classrooms in the upcoming months as well.

Our Contribution to the Workshop

In addition to sharing information about our work and research in design, our contribution to this workshop would also include providing insight into the space of children with complex communication needs, specifically in relation to communication between children with and without disabilities. We have done an extensive literature review in the technology, education, and psychology spaces in regard to children with disabilities, assistive technology, play, social and emotional learning, and communication. Additionally, the fieldwork we are doing in an inclusive kindergarten classroom, where we assist teachers in guiding students during their "buddy day," is focused on play, conflict resolution, compromise, communication, and other aspects of social and emotional intelligence. This often involves helping students express their emotions, communicate their wants and needs, and make play plans together. The knowledge we have gleaned from this fieldwork plus our findings from interviews and participatory design sessions will enable us to add significant material to the workshop.

Conclusion

Participating in the Supporting Children with Complex Communication Needs workshop would be beneficial to our research in interactive technology for inclusive play, give us a chance to contribute to the community, and allow us to connect with and learn from fellow researchers in this field.

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