
“TechShops”: Engaging Young Adults with Intellectual Disability in Exploratory Design Research

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ABSTRACT

This case study presents “TechShops”, a collaborative workshop-based approach to learning about technologies with Young Adults with Intellectual Disability (YAID) in exploratory design research. The “TechShops” approach emerged because we found it difficult to engage YAID in traditional contextual interviews. Hence, we offered a series of “TechShops”, which we found useful in: enabling engagement with participants, their families and support staff; fostering relationships; and gaining research access. We explain the context of “TechShops”, and reflect upon the opportunities and challenges that the approach offers for both researchers and YAID in exploratory design research.

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CCS CONCEPTS

• Human-centered computing → HCI design and evaluation methods

KEYWORDS

“TechShops”; contextual interviews; intellectual disability; engagement; co-design workshops

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1 INTRODUCTION

Young Adults with Intellectual Disability (YAID) are often keen users of social media (Figure 1), but there is little understanding of how they participate on these platforms. Thirteen months ago, we embarked on research to understand social media use by YAID and to investigate how to support their social media participation through co-design. We sought to understand and identify participants’ social media use activities, competencies and support requirements, and to co-design participation support that reflect their abilities [15].

As a method of investigation, at first, we adopted contextual inquiry [1]. This approach involved directly observing the social media use of participants and engaging each of them in a contextual interview to understand how they use social media. However, we found this to be impractical and challenging principally for three reasons: 1) contextual observation of participants as they used social media seemed to invade their privacy, especially as we did not know them well; 2) individual contextual interviews with participants while they were logged onto social media platforms felt intimidating to them, as if they were being tested; and 3) there were direct research access and engagement challenges with participants due to the nature of activities in the support organization through which we accessed our participants. These methodological challenges made data collection through contextual inquiry difficult, requiring us to develop a different approach.

This case study presents how we created technology use workshops which participants subsequently referred to as “TechShops” to engage, and contextualize our research with YAID. First, we give further motivation for this work, and a synthesis of methods used for research with people with Intellectual Disability (ID). We then describe our research context and participants. Next, we discuss two cycles of our research method, and findings; concluding with a discussion of the opportunities and challenges of “TechShops” approach.

2 BACKGROUND

Technology offers a lot of possibilities and opportunities for people with ID [4]. As such, equity in access, inclusion and participation in the use of the internet and technologies such as social media is important for YAID.



Figure 1: Young Adults with Intellectual Disability (YAID) use social media especially graphical and visual social media applications such as YouTube, Facebook, Snapchat and Instagram.

2.1 Research Methods Employed with People with ID

In conducting research to understand the technology use practices of people with ID, researchers have adopted a number of well-established methods such as surveys (e.g. [7]); participant logging and tracking (e.g. [5]) ; and contextual interviews (e.g. [11]). Other exploratory and participatory approaches such as exploratory prototyping, probes and co-design have also been employed to directly engage people with ID in design research [3, 6, 12].

2.2 Matching Methods to Context

While these methods can be used effectively, successful adoption often depends upon the context at hand and their suitability with participants. For example, surveys and interviews require that participants are verbal, can read and write, and are able to engage with researchers for a considerable amount of time. Therefore, in adopting a method of enquiry, one must consider participants' abilities, values, feelings and the research context and objectives [14]. In situations, where the context makes applying a method challenging, innovative and adaptive approaches are required.

2.3 Research Context

The research was conducted in Learning and Life centers (L&L) of a Disability Service Organization (DSO) that was our research partners. Participants attended the L&L centers daily where they received structured support services such as identifying and developing their goals of daily living, social skills and literacy. A core focus of the research was to identify participants' competencies, abilities and support requirements in social media; and to co-design participation support. We wanted the research data collection approach to be principally focused on participants' perspectives, even though some topics of our discussion, such as safety and privacy on social media, were to be triangulated with their support staff and parents. Thus, a situated, practical and contextual observation of participants on the social media sites that they used was needed in order to evoke their concrete reflections and opinions. The ethics approval that governed the research allowed for observation of public posts and activities of participants on social media.

2.4 Research Participants

Participants in the research were young adults with an ID – a condition defined as “characterized by significant limitations in both intellectual functioning and adaptive behavior, which covers many everyday social and practical skills originating before the age of 18” [9]. Participants comprised 27 YAID (14 males and 13 females aged 18-31 years) receiving services at the DSO. Participants self-identified or were identified by support staff as having some interest or ability in using tablets/computers. Most participants had minimal reading and writing literacy, and had familiarity with applications such as YouTube, Google, and other social media platforms. Some participants were minimally verbal, and speaking was quite challenging for them. Thus, employing methods such as surveys and written diaries was not a suitable approach for all participants. A number of support staff and parents were also spoken to as a form of data triangulation, but were not key participants of the research.

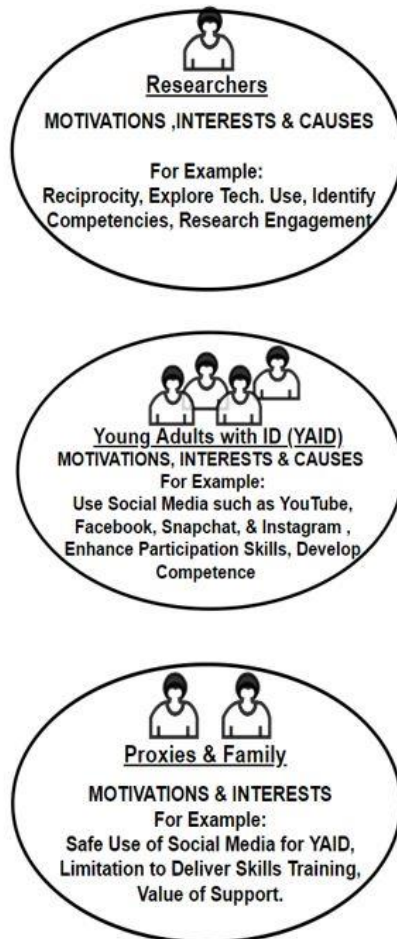


Figure 2: Interest and motivation of collaborators in “TechShops” based upon which activities are planned.

3 METHODOLOGY

An action research approach [10] was employed involving two cycles of inquiry: 1) contextual interviews, and 2) a workshop-based approach referred to as “TechShops”.

3.1 Cycle I: Contextual Interviews

Due to the power of contextual interviews in blending observations and open-ended questioning in the context of use, giving scope to the participant to lead the discussion within a familiar environment, we initially thought this would be the best approach. We imagined that contextual observations would support engagement with minimally verbal participants, and elicit further understanding from across a range of participants. However, contextual inquiry proved challenging with our participants for a number of reasons.

First, it was challenging to engage in contextual observation of participants while they used social media at the DSO center. It felt like an invasion of privacy to be looking out for when participants were on social media in order to observe what they were doing and engage them in a discussion. Therefore, we preferred a planned approach in which we asked participants to sit with us and show typical ways in which they used social media, drawing upon examples. However, this led to a second concern that most participants seemed to feel intimidated at being asked to discuss their use of social media platforms in this way. The contextual interviews included participants demonstrating everyday typical use, and competency in daily use activities such as how to make posts or enable privacy and safety settings. These activities felt like an examination to most participants leading to a loss of their interest and cooperation during the contextual interview sessions. Thirdly, there was a general sense of a lack of familiarization and engagement with participants. The daily support service plans designed for participants by the DSO were structured to cover the entire day. As a result, it became difficult to engage participants in research outside of lunch breaks. We could only observe participants in the structured activities that they were engaged in. Our role of observer and contextual interviewer did not foster familiarization, bonding and engagement with participants.

3.2 Cycle II: “TechShops” Approach

While constrained by these methodological challenges in exploring the research, we discussed with participants and their proxies (support staff and parents of participants) the idea of offering technology use workshops to participants. We were keen to offer our support in using technology as well as to do research. “TechShops”, as the workshops were subsequently referred to by participants, is a collaborative workshop-based approach for engaging young adults with ID, in design research. It involves learning the use of mainstream technologies (tablet, iPads, social media, search and other apps of interest to participants); first as a way of technology use skills learning support, but also as a strategic methodological approach for research exploration and engagement with YAID.

3.3 “TechShops” Activities

The first implementation activity of the “TechShops” approach involved collaborative planning. Here, the technology, activities of interests and needed resources for “TechShops” were discussed



(a)



(b)



(c)

Figure 3: Some “TechShops” sessions with participants

and agreed upon by collaborators (researchers, proxies, and YAID) as indicated in Figure 2. The activities included showing use steps, scenarios and completing practical assignments, with an interactive screen or projector enabling participants to see and engage. Participants followed the activities individually using tablets or iPads as shown in Figure 3 (b) and (c).

With YouTube, activities included using voice search as an alternative search mechanism to typing, creating a playlist in the participant’s name and populating it with favorite content, and enabling privacy settings among other activities. Participants found the voice search feature, a novel method of looking up information, very exciting, as many of them could not spell their search queries easily. More importantly, they experienced YouTube as a repository where they could not only watch their favorite music videos, but also learn about new skills e.g. making pizza or onion rings.

For Facebook, participants named the shared page we created “Onion Rings”, because it is a type of food they all liked. Key Facebook activities included how to post pictures; how to view content from the wall of friends; search and add friends; netiquette; and enabling privacy settings. Netiquette was a key activity proxies recommended “TechShops” to address. We used YouTube videos about safe use of Facebook, in our discussions on netiquette. Participants who were already users of YouTube and Facebook demonstrated the activities they engage in when using these platforms, and provided support as peer-teachers in some of the “TechShops” (Figure 3 (a)).

4 FINDINGS

4.1 Gaining Research Access and Fostering Relationships

Due to the value that “TechShops” contributed to participants and proxies in realizing their interests, we were allocated a time slot by the DSO to directly engage and access participants each week. Support staff found the sessions valuable to participants and re-structured their schedule to accommodate “TechShops” in their timetable. We also developed a closer relationship with YAID, proxies and families. For example, because some participants told their parents about “TechShops”, parents made time to have discussions with us about things they would like their adult children to learn through “TechShops” (mostly on netiquette). Support staff also began involving us and seeking our support for some of the other technology-related programs, run by the DSO center.

4.2 Enabling Engagement and Familiarization

At first, though the DSO allowed us to make observations, we could only observe participants in their structured activities. However, “TechShops” allowed us to directly engage with participants. This facilitated familiarization with participants, building trust and an enabling environment for our research. Participants who used to ignore us before we begun “TechShops” opened up to us and freely discussed their technology use experiences with us.

4.3 Mutual Learning between YAID & Researchers

“TechShops” provided a mutual learning experience for both researchers and participants. We (researchers) learned about their use competencies (e.g. usage characteristics of typing and voice interfaces), skills support needs (e.g. voice interface technique training or voice interface redesign

needs), and participants values in relation to technology use (e.g. avoiding YouTube rather than putting up with ads) to inform co-design. We learned how to engage YAID on their terms, e.g. YAID value establishing personal relationships and familiarization before engaging in research. For YAID, “TechShops” provided an avenue for developing social media skills, a way to enhance their participation in social media, and a means for participants to interact with and support each other.

4.4 Challenges of “TechShops” Approach

We found that the number of participants in “TechShops” and the varying interests and skill sets of participants made the sessions challenging to manage. When there are more than eight participants, keeping order and providing the needed support becomes challenging. Some participants lost interest when we did not start with their preferred technology (e.g. Snapchat instead of YouTube and Facebook). Due to the varying skill sets of participants, even with peer teaching, some participants who were already conversant with a skill grew bored and restless.

5 DISCUSSION

5.1 Reciprocity, Collaboration & Research Access

Whereas the key motivation of researchers is to understand and develop skills of YAID through designs that support them, the primary aim of DSOs is to provide high quality services for their clients. These differences in motivations and expectations make it challenging to establish and maintain relationships, interest, and support between researchers and proxies [13]. The DSO was initially wary of researchers because of a suspicion that their activities would interfere with its programs. However, in “TechShops”, we found a needed and valuable service for both participants and proxies. “TechShops” served as a form of research reciprocity [2], offering something of immediate value, improving our relationship with parents and DSO staff, eliminating feelings of being used in research, and instead engendering a feeling of collaboration between the researchers, staff and guardians of participants. We thus found reciprocity to be a key element in negotiating access and reframing engagement in settings where participation had previously been problematic. Reciprocity must be based on, and serve a real need of the intended beneficiaries, in this case YAID and their proxies. The “TechShops” also received a strong endorsement by the participants and DSO staff because they were collaboratively involved in the entire process. The value of “TechShops” was further confirmed when a staff of the DSO who sat in on the sessions began to duplicate the sessions, re-teaching them to other YAID on days when we were not there. The value of “TechShops” was further expressed by the remarks of a support staff who sat in a YouTube “TechShop” session: *“I learned something new personally, I did not know that my playlist is public and anyone could see what I was listening to if they searched me. These sessions are really very educative and valuable”*.

5.2 Researcher-Participant Engagement & Familiarization

As practice moves away from solely using the views of proxies, to directly seeking the views of the person with disability, engaging persons with ID in design research becomes essential [8]. However, trust, familiarization and bonding are essential preconditions for effective engagement with persons

with disability. “TechShops” enabled us to engage, build trust, bond and familiarize with participants. In our first visits, most participants were evasive towards us. It was difficult to engage them as we did not understand their behaviors and favored ways of interaction. We were also unfamiliar to them. For example, some participants needed to be asked to take deep breaths to calm down. In the first “TechShop”, participants ignored our instructions, responding only to the DSO support staff. However after a few “TechShops” sessions, participants started approaching us and welcoming us by name anytime we arrived at the center. They began inviting us to have contextual discussions on the social media platforms they used, with some participants willingly telling us about their daily experiences on Facebook. One participant we thought was non-verbal because she never responded to anything we asked, suddenly opened up to us. Some participants invited us to their birthday parties and to come and cheer them on during Special Olympics events. Participants thus grew to know and trust us and began to engage willingly in further contextual discussions outside of “TechShops” about their social media use.

5.3 Competencies and Values Mapping

Given that our fundamental research interest is to design competency-based technologies in support of social media participation, and inclusion, the “TechShops” served as effective strategy for identifying the technology use competencies of participants. For example, “TechShops” helped us establish that only a few participants had challenges launching an app. For these participants, the nature of their tapping on the app would lead to advanced options that resulted in deleting or moving the app, rather than opening it. We were able to identify basic skills, strengths and abilities across participants. “TechShops” also aided us in identifying participants’ values related to technology use. For example, most of our participants wanted an immediate effect once they initiated or enabled an action, and thus we observed that internet latency diminished their effective use of YouTube. Some participants did not like “ads” on YouTube and did not watch YouTube videos because of the disruption caused by ads. We also identified the value of having multimodal interaction and learning techniques that suit the spectrum of interaction requirements for participants. The biggest competency of our participants is the ability to learn new things which in turn inspire participants to keep learning.

5.4 Navigating the Challenges of “TechShops”

Challenges of “TechShops” relating to supporting a larger number of participants— while maintaining order and interest— were resolved by asking participants who had mastered aspects of “TechShops” activities to support others who were learning. However differences in participants’ interests about which technologies to learn remain challenging and we are continuing to look at strategies for peer mentoring, organization, and using content available on social media to resolve these issues. Lastly, since “TechShops” were conducted entirely in a formal DSO environment, we do not yet know if they can be conducted in other settings or address different skill areas besides learning about technologies.

6 CONCLUSIONS

In this case study, we have discussed how we developed technology use workshops, referred to as “TechShops”, first as a form of reciprocity, and subsequently as an approach to exploring research with YAID. Although there are a number of ways to engage people with ID in research, few are suitable for exploring competencies and interests in-depth, which is a necessary foundation for ability-based design [15]. “TechShops”, besides supporting skills learning, provided opportunities for reciprocity, engagement, inquiry and co-designing with participants. “TechShops” approach supports exploration of interests, skills learning and design to support interests and abilities, rather than focusing on deficits. We plan to collaboratively explore and develop “TechShops” further, as a methodological approach for exploring co-design with people with ID, identifying techniques, strategies and conditions that support and limit this approach.

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