“Ray of Sunshine Happiness Gun” and Other Apps in Pursuit of Social Justice: Teens’ Designs from Philadelphia

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Abstract
Young people everywhere are marginalized due to intersecting forces: poverty, racism, bigotry, and even language ability. Such marginalization limits opportunities for education, personal development, economic stability, and the ability to engage in civic affairs. Libraries can help, but are underutilized by teens on the fringes of society. Traditional methods, such as surveys and focus groups, can fall short as tools for understanding holistically the needs of teens and providing useful service. We used community-based design research with teens at the Free Library of Philadelphia (PA, USA) to uncover the meaning of technology, community, and social justice in teens’ lives, and to create designs for promoting social justice. A Raspberry Pi training session gave teens an inexpensive and user-friendly way to experience technology creation. Teens’ designs showed an array of creative apps and services for promoting social justice that reflect deep sensitivity of community and care for others.

Keywords: teens; libraries; design; community; social justice


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1 Introduction
Young people everywhere are marginalized due to intersecting forces: poverty, racism, bigotry, and even language ability. Such marginalization limits opportunities for education, personal development, economic stability, and the ability to engage in civic affairs. Libraries can help, but they are underutilized by teens. Young people, especially those on the fringes of society, often don’t feel comfortable in libraries. Nor do they readily think of libraries as resources for learning and enjoyment. Traditional methods, such as surveys and focus groups, can fall short as tools for understanding holistically the needs of teens. Further, such needs assessments do little to help library staff reach their ultimate goal of youth engagement. We need better ways—less expensive, more culturally responsive, and more fruitful for garnering research insights—for marginalized youth and library staff to engage with and learn from each other on the path to creating more relevant, useful, and usable library services and experiences. One approach that might prove useful for others is the “Teen Design Day” held during March 2016 at the Free Library of Philadelphia, an
innovative and participatory process we used to learn more about marginalized teens’ lives and to think about how technology and libraries could be used for improvements in teens’ lives and communities.

2 Theoretical and Conceptual Framework
Teen Design provides educators, researchers, and policy makers with a framework and techniques to gain a deeper understanding of the issues faced by the youth they seek to engage and serve (Fisher, et al., 2016, p. 5). Teen Design draws from a number of well-developed theoretical bases. First, it addresses fully the key developmental needs of teens: physical activity, competence and achievement, self-definition, creative expression, positive social interaction, structure, and clear limits (Davidson & Koppenhaver, 1992). Current knowledge from the field of psychology about redress for trauma experienced by youth provides our second critical foundation (Gwozdiewycz & Mehl-Madrona, 2013; Hinman, 2003); giving voice to one’s trauma, telling one’s story, can be cathartic, facilitate recovery through reflection, as well as build empathy. Also helpful is the opportunity to imagine and express a better future. The third important conceptual framing used in Teen Design is Design Thinking pioneered as a process of inspiration, ideation, and iteration embraced by corporate design firms, university departments, non-profit organizations, and foundations (Brown, 2008). Engaging children in the participatory, co-design process is fairly new (Guha, Druin, & Fails, 2013); working with teenagers even newer (Fitton, Read, & Horton, 2013). Finally, Teen Design also draws upon the values, theory, and practices common in community-based qualitative research (CBQR). Johnson (2016) identifies and discusses the basic elements of CBQR, which include: praxis (practical knowledge with the goal of action to improve the world); collaboration (dialogue and debate among professional researchers and community members); a critical stance (challenging status quo narratives, providing alternative voices, and connecting what is happening in local communities to larger societal conditions); and transformation for both individuals (by building capacity and changing one’s perspective and practices) and institutions, communities, and society (by enacting changes and improving programs and policy). Johnson’s take on CBQR aligns with community inquiry as pioneered at the turn of the 20th Century by Jane Adams and John Dewey and incorporated in recent decades into, primarily, education and LIS (Bruce, Bishop, & Budhathoki, 2014). While CBQR, collaborative design, and community inquiry also comprise aspects of methodology, we include them here to emphasize their contributions to theory about how we learn and how change happens in communities.

3 Methodology
The Teen Design methodology was developed in the InfoMe project at the University of Washington (Bishop & Fisher, 2015; Fisher, Bishop, Fawcett, & Magassa, 2014; Fisher, Yefimova, & Bishop, 2016; Fisher, Yefimova & Yafi, 2016). It is geared to (a) understanding the experiences, needs, capabilities, and dreams of young people; (b) engaging with youth in the creative design process, including the design of digital technology and media; and (c) nurturing gains for individuals, institutions, communities, and society. It was developed with youth in a wide variety of settings around the globe. For example, Teen Design was used in studies of immigrant information behavior in the Seattle area, to foster community-library links in Illinois, and to understand and support the needs of Syrian youth at the UNHCR Za’atari refugee camp in Jordan. Teen Design is scalable (in its duration, number of participants) and portable (implementable in wide variety of settings and circumstances). Researchers enable participants to explore concepts, test ideas, and create designs while simultaneously supporting teen aspirations, building teen capacity and, when appropriate, helping teens address trauma they’ve experienced. Researchers employ a flexible and simple process, using inexpensive and readily-available materials over brief time periods in ordinary community locations.

Situated in community-based qualitative research, the distinctions and connections among our work and more familiar iSchool territory become clearer. Like participatory design and collaborative design, it
involves researchers, end users and other stakeholders working together in a design process. Like scenario-based design and user-centered evaluation, youth elaborate on specific situations and experiences they have had, often creating scenarios. Like ethnography, it opens a window into teens’ lives, though it doesn’t observe them over an extended period in their natural habitat. We often include standard social science techniques like questionnaires and focus groups, but these tools are developed according to the theoretical beliefs and constraints outlined above.

Our Teen Design methodology is malleable within its methodological framework. The Free Library of Philadelphia (FLP) collaborated with us in hosting a Teen Design Day on social justice in the local community. Librarians and staff at FLP’s Parkway Central Library were responsible for local logistics and teen recruitment. They ensured the research activities were appropriate for FLP’s youth mission and identified two teens to serve as youth participant-facilitators. One librarian served as an adult participant-facilitator, along with other members of the research team. Youth recruitment and sign-up were accomplished with an event and ticketing app that the FLP uses via its website. We accepted all neighborhood youth who self-identified as meeting recruitment criteria (ages 14-19, cared about technology, community and social justice, wanted to play with Raspberry Pi), and signed up via brown paper tickets first-come, first-served basis, capping enrollment at 20, with a signing up at the event. The study received IRB approval from the researchers’ institutions and consent/assent included photography and common rights IP. All youth created aliases upon arrival, which they used on their name badges all of their design artifacts and questionnaires were also anonymous.

The FLP Teen Design day included the following individual, small team, and whole group activities:

- Introductions, overview of the day’s activities, youth setting of the day’s ground rules
- Conceptual discussion of social justice and community, conducted using the fishbowl technique, in which youth contributed definitions and anecdotes based on their own experiences
- A brief workshop on Raspberry Pi (building a digital camera and coding)
- Small group, iterative, 2D/3D prototype design of a “magical genius device for social justice”
- Games that incorporated physical activity while exploring youth characteristics, concerns, and behavior: a Human Bingo game related to digital technology use; and Hip Hop Musical Chairs
- A simple one-page written questionnaire to gather core data (e.g., demographics, information technology, identity and life aspirations)
- Discussion and questionnaires to evaluate the Teen Design Day
- Distribution of certificates and a cash honorarium to the teens

Researchers served dual roles: participant observation and taking field notes, general facilitation, and guiding design. Others were responsible for designing the day’s activities and instruments, facilitation, and overall coordination. We recruited two young women to serve as Participant-Facilitators. One worked at the FLP and we were able to converse with her about her role before the Teen Design Day. The other was a young woman enrolled in the FLP Teen Design Day who agreed same day to help out as a facilitator. In addition to their participating in the workshop along with all the other teens, the two youth helped lead discussion, take photos, and manage logistics.

Brown’s (2008) Design Thinking approach was followed for the design activities. The first stage is “inspiration,” which refers to eliciting authentic stories of needs, problems, and desires that people have related to a particular product, service, or process—whether that is how they feed their pets, use their cell phones, deal with bullying, or spend their time in the hospital. With Teen Design, teens tease out inspiration from their own experiences. At the FLP, teens used the fishbowl discussion technique to frame their own definitions of social justice and community, which they based on anecdotes from their own lives. The next stage is “ideation”: at FLP, we moved from the needs, desires, and issues condensed in their stories to brainstorming possible solutions and sketching out those ideas that seemed most promising to them.
In the final “iteration” stage, youth pairs created 2D/3D prototypes of their best solutions using colored markers and WikiStix. They wrote responses to questions about their designs—such as “what is the name of your device?” and “whom will your device serve?” on the same sheets of 11in x 17in sturdy paper sheets upon which they drew and glued their design prototypes. (Our previous Teen Design Days had continued over 2-5 days. In those workshops, with more time available, teens went through a more involved design process and created 3D prototypes.)

At the FLP, teens also used design thinking to envision incorporating technology, via a brief, 50 minute Raspberry Pi workshop. This workshop was based on activities developed as part of the “Easy as Pi” youth maker program, run in collaboration with public libraries in Vancouver (Meyers, 2014). The Raspberry Pi is a credit-card sized circuit board that allows makers to “play” with physical computing projects and concepts. The FLP teens reflected on the digital cameras they use everyday, and how little they understood about how they work. Next, teens used readily available electronics (such as camera modules, jumper wires, and bread boards) and a python script to build a working camera using the Raspberry Pi as a base (see Figure 1). Youth worked in pairs; adult facilitators roved and provided guidance. A set of printed instructions broke the project into steps, and prompted the teens to check their progress along the way. The goal was to help students reflect on the process of making technology, and empower/inspire them as designers, coders, and makers.

![Image of teens working on a Raspberry Pi project]

Figure 1. Teens Creating Digital Cameras with Raspberry Pi

Data were analyzed using simple qualitative and quantitative techniques. We examined and reflected on our field notes, as well as the teens’ design artifacts, to inductively identify, explore and summarize the primary themes and concepts expressed by participating youth. Given the small number of participants, we tallied questionnaire responses manually.

4 Findings

4.1 Youth Participants

Eighteen youth participated in the workshop, including 13 females and five males, ranging in age from 14 to 19. Of those reporting their ethnicity, ten were African American/Black, three were mixed, one was Hispanic, and one Bengali. The teens came from a variety of neighborhoods in Philadelphia. Most teens knew one or two of the other teens participating. Library staff members were familiar enough with the teens to know that most came from low-income families.
4.2 Community

After the initial welcome and ice-breakers, the youth engaged in deep discussion about several core concepts—community, safety, bullying and social justice—via fishbowl technique, that later fed into the co-design session. The teens’ discussion of these topics grew intimate and loud, as they shared personal stories, strong opinions, and rallied around each other, in support of being frank and confirming mutual experiences and thoughts.

Teens’ definitions of community ranged from “a central hub where people can get support—like a family,” to “others helping out,” or as one teen said:

Community is a neighborhood. Mine is so awesome. People know me. I live across the street from the day care where I went. I volunteer at the day care. It’s like a family. When there are issues, they rally.

Another said: “I only know three neighbors, and they know me. If I go missing, they know who to talk to.” For these teens, “community” is a two-way concept. It applies to their own safety—a community that rallies to take care of them, but it also applies to them being part of a community looking after other members—to an extent. As one teen explained about her neighborhood, “people stay to themselves but know each other. Don’t talk to each other...only help when someone needs help.” One teen described how community can fail its own citizens: when “Bob,” a neighborhood drunk got in a fight, which culminated in first a coma, and subsequently his death, this teen wondered why Bob’s sister didn’t take him in.

4.3 Safety

Philadelphia is the fifth most populous city in the United States (NLC, 2016, para. 1), and one with a significant crime rate. Many participants lived in Philadelphia neighborhoods characterized as representing residents who fell on the low end of the socioeconomic spectrum. One teen described her neighborhood:

In my neighborhood (Southwest Philadelphia), you can’t have a block party without someone getting shot. Someone shot a hole in my window. I don’t go anywhere. If there’s a fight, everyone wants to see. Anywhere you go in Southwest, someone gets shot. I stay inside.

Another said that she was afraid of people coming into her house. As a latchkey kid, her father tells her to ‘lock the door, don’t go towards the windows or the door,” and when she gets home, she tries to “get in the house as fast as [she] can.” Life at school is not necessarily safer than life at home for these teens. A different teen explained:

I go to [ ]. It’s a bad school. There are fights every day in every class. One time I was in the cafeteria, and my friend was getting beat up. We jumped in and there was a big fight but no one stopped it, and no one got in trouble.

4.4 Bullying

Much bullying experienced by this group had to do with being different. A girl recounted:

I always wear a hijab. In Philly, there are lots of Muslims, people don’t judge you. Out-of-state, people give you that look. I feel bad. I can’t stand up to them. I understand how people with different gender identities feel.

Another who self-described as being bisexual, said about her group of friends:

Everywhere we go, we get looked at differently. We don’t care. They laugh, especially at my cousin. They call him gay. It makes him mad. He has to walk out of class so he does not fight. We live in a family where if they knew, we don’t know what they’d do. We don’t tell them.
Most in the group thought that social media had a big role in expanding the potential for bullying. One teen said:

I was bullied for how I look since 2nd grade. Used to get in fights, get suspended. They’d push me around. I’d fight back . . . Social media has a big role in that. People make names – that’s what happened to me. Until 11th grade, and I got taller. I’m 6’6” [nearly 2 meters] now, and now it stopped. People try to ignore what is happening on social media but can’t.

In some cases, bullying was so bad that parents needed to intervene. One teen told the following story:

I was born in Texas. I’m half white, and half black. My skin color changed. I got jumped daily, bullied, my teacher watched and did nothing. Then my mom came up after school and broke her behind. The principal doesn’t like my mom.

4.5 Social Justice

Teens recognized that bullying and their lack of neighborhood safety constituted social injustices. They emphasized school as a primary site for bullying and told stories about a lack of intervention on the part of teachers or administrators, as in the following example:

Social injustice happens in school. It’s less controlled. Parents aren’t there. It’s the best time to strike. Schools don’t see it. What can they do anyway?

In fact, when teachers intervened, it was a surprise for these teens:

A lot of boys used terms for gay people calling each other words like gay, homo. Our principal is gay, but they [the boys] are doing it left and right. One time in science, this boy said ‘faggot’ really loud. The teacher said: ‘I did not hear you just say a horrible word. Don’t say it again.’ Nice to know the teacher paid attention.

Teens in this group also knew that stark social inequalities exist on a broader level and included racism and homophobia. According to one teen:

We don’t have a lot of social justice in our society, which is built on making people feel like they’re getting justice when they are not. There’s institutional racism but we are all equal. You may think someone has a lot of power, but you can rally against them.

And another explained:

I go to a bad school and everybody knows it. Bisexuals, homosexuals – they all have the same lunch and sit together at lunch and people around them in the cafeteria call them names. Inequality—why act so different? If you x-rayed everyone in the cafeteria, or everyone in the room, everyone has the same skeleton.

One teen concluded: “we should live in a judgment-free society.”

4.6 Teen Designs

Working in small groups, the FLP teens created designs—paper prototypes to combat social injustice and improve their lives and their communities (see Figure 2). Their designs included:

- City Bus Stop App: For teens to determine if drivers were unjustifiably passing them by
- Virtual Reality Empathy Helmet: So wrong-doers would understand their effect on victims
- Ray of Sunshine Happiness Gun: Teens could shoot people to make them happy
- Hologram Friend: That teens could call forth when they were lonely, upset, or discouraged
- Street Sweeper Robot: To help keep teens’ neighborhoods clean, tidy, and welcoming
- Robot Friend: To help those with disabilities
- SOS Mom App: So you could always get in touch with your mom if you were hurt or in trouble
- Positivity Petals: A flower-like device that would help you encourage and support other teens
- Team First Aid: An app that notifies you when there are shootings or armed robberies in a community
- BMX20: A personal robot that acts as a first responder

Figure 2. Teen Designs a VR Empathy Helmet for Bullies and Criminals

Figure 3. Cousins Work on their City Bus Stop App
Consistent with the Teen Design methodology, the teens gave presentations about their designs. They described their designs’ purpose and how they were intended to promote social justice. In turn, they also received feedback from the entire group (See Figure 5). We were struck by the overwhelmingly positive nature of the teens’ designs. None were mean-spirited, aimed at getting revenge, or designed to make things better at someone else’s expense.

4.7 Teen Evaluations

Teens’ assessments of their Teen Design experience at the FLP were highly positive. We received 16 completed evaluation forms. Of those, ten rated the day’s activities as “Excellent,” five deemed them “Very Good,” and one didn’t answer that question. When asked if they would recommend the Teen Design workshop to their friends, 15 circled “yes,” and one response was not readable. We found teens’ responses to the question “What are two things you learned/will take away?” especially intriguing. The most common reply was related to hands-on technology learning in the form of Raspberry Pi. But also common were answers signaling conceptual learning, creativity, social skills, and aspirations, such as: 1) “To keep Dreaming and work hard;” 2) “To use my imagination;” 3) “Learned about the types of equality;” 4) “Don’t put people down;” 5) “Interactions with others is good for opinions and perspectives;” 6) “Another design program ’Dr. X’ talked about that I want to join;” 7) “Learned how to define social justice for myself,” and 8) “How to be a positive person; How to get along with others.”
5 Discussion / Future Research

What can we learn from using the Teen Design methodology to study young people? How can understanding individuals and entire communities influence youth services librarianship? The Teen Design process can yield prototypes useful in the actual development of new products and services. But often, it reveals much more, giving a glimpse into the lived experiences, hopes, and dreams of young people. For example, in the FLP Teen Design for social justice workshop we learned that the foremost injustices faced by the teens were school bullying, backlash from gender identity, and threats to neighborhood safety and health. Further—far from the stereotype of urban thugs—participating youth all designed prototypes related to helping others and achieving constructive outcomes. In our previous Teen Design experiences, participating adults have told us that they gain a more positive picture of teens and a better understanding of their capabilities and strengths, as well as their needs and preferences. Teens from previous workshops have also said that they feel more positive about themselves, more confident and able to contribute to society, more welcome and comfortable in the organizations hosting Teen Design workshops, that they have learned something valuable that they can incorporate into multiple spheres in their lives, and that had a great time.

While Teen Design Days are rich spaces for engaging with young people, we acknowledge that there are limitations to this approach. Participants, for example, had the freedom, mobility, and time to spend a Saturday playing, talking, working and learning with us. If our aim were to develop new programs and services for the FLP, we would want to enhance these findings and further validate the themes that emerged by following up with these and other Philadelphia teens.

6 Conclusion

Teen Design Day presents an alternative, well-vetted approach to studying the lives of youth in diverse settings, one with strong foundations in community-based, participatory qualitative research. Teen Design is focused both on documenting youth behaviors, attitudes, and issues, while providing opportunities for reflection, creative engagement with ideas, and inspiration. The Teen Design approach is a set of techniques as well as a philosophy of “youth first” that premises youth as co-researchers and co-designers, empowering them to make a difference in their own lives and the lives of others. Through this paper we have described
and reflected on our work with young people and presented early findings from the Philadelphia workshop. However, we also wish to elevate the conversation at the iConference about how iSchools can engage with youth in research, development, teaching, and service. In particular, how social justice should be incorporated in our work (Cooke, 2016; Dadlani & Todd, 2016; Darder, 2016; Mehra, Albright & Rioux, 2006). Our findings indicate that youth are articulate about designs for apps and services in support of community justice, and are eager for willing partners to work with them in improving libraries and other local institutions in which they have a stake.

7 References


