

“Getting Basic Information Isn’t as Helpful as the Nuanced Advice We Can Give Each Other”: Teens with Autism on Digital Citizenship Education

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Abstract

In this exploratory study, the researchers examine the intersection of teens with autism as public library users, their perceptions of and experiences with cyberbullying, and the potential role of public librarians in providing relevant digital citizenship programming. Results from this study indicate that teens on the autism spectrum live rich digital lives and have experience with both sides of cyberbullying, or digital drama. This study suggests that teens are willing to answer questions about their digital lives and demonstrate a desire to learn more about best practices in navigating the online environment, especially when learning alongside peers. Practical implications based in inclusion are given for public librarians seeking to implement digital citizenship education for the communities they serve.

Introduction

Public libraries meet the needs of their users by providing relevant and community-driven collections, services, and educational programming. One population that librarians serve are individuals who identify on the autism spectrum, an estimated one out of every fifty-nine individuals in the United States (Baio et al., 2018). Autism is a lifelong disorder, and this prevalence is true for all members of the population, regardless of age. Librarians, whether they realize it or not, are already working with children, teenagers, and adults with autism spectrum disorder (ASD).

Teenagers, defined as 12–18 years old in this study, often have tailored services at their public libraries. Depending on the size and staffing of the library, some have a dedicated teen librarian(s), a teen space, and/or teen programming and other services. Teen programs can consist of those designed for recreation, such as movie nights, to those planned with an educational aspect, such as learning to code and do game design. Within these planned educational events, many public libraries offer inclusive programming for teens with disabilities, and some work deliberately to ensure inclusion for teens on the autism spectrum. One such area for educational programming particularly important for teens is digital citizenship. However, while digital citizenship education for teens is prominent in many school districts, it has infrequently been incorporated into educational programming in most public libraries (Agosto, Forte, & Magee, 2012; Hill, 2015).

In this study, the researchers explored the intersection of teens on the autism spectrum as public library users, their perceptions of and experiences with cyberbullying, and the potential role of public librarians in providing relevant digital citizenship programming. This work is an extension of an earlier study conducted by the researchers that investigated current and potential digital citizenship programming for teens on the spectrum through interviews with public librarians across the United States. The findings from the previous study indicated that while librarians are interested and motivated to provide digital citizenship programming, it is rarely offered as a teen library program (Phillips & Anderson, in press).

This project addresses the following research questions:

1. What perspectives do teens with ASD have regarding digital citizenship?
2. How can public librarians address the digital citizenship needs of teens with ASD?

Literature Review

With access to the internet and handheld digital technologies also comes the potential for mentally, emotionally, and psychologically damaging interactions (Kim et al., 2018). Cyberbullying is one such manifestation of these interactions that teens might experience while online, whether in the role of a bully, victim, bully/victim, or bystander (Bastiaensens et al., 2014). Not only are these experiences painful and humiliating in the moment, much like traditional face-to-face bullying, they can have lifelong consequences such as contributing to low

self-esteem, depression, and social anxiety (Brown, Demaray, & Secord, 2014; Giménez Gualdo et al., 2015). Like their neurotypical peers, or those who are not on the spectrum, teens on the autism spectrum have the potential for engaging in, and being subjected to, cyberbullying. Combined with guidance from parents, teachers, and other community members, some opportunities are available for teens to learn safe, ethical, and healthy online behaviors. This study investigated the potential for public libraries to provide this education through library programming. The following literature review provides context for the study based on work done in the areas of cyberbullying, autism, digital citizenship, and public library programming.

Cyberbullying

Cyberbullying has been defined “as any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others” (Tokunaga, 2010, p. 278). Alongside cyberbullying, trolling and other forms of online harassment are a persistent problem that teens encounter as well as perform (Davis et al., 2015). Like traditional bullying victims, cyberbullied youth have long-lasting mental and emotional consequences such as being prone to self-harm, low self-esteem, and depression into adulthood (Accordino & Accordino, 2011; Kim et al., 2018).

While statistics regarding the prevalence of cyberbullying vary widely, Brochado, Soares, and Fraga (2017) evaluated cyberbullying studies published from 2004 to 2014 and found that victimization rates spanned from 1.7 percent to 61 percent. Although these numbers may be widely differing, what is clear from cyberbullying research is that online harassment is an ongoing, increasing problem among teens within the United States and internationally (Ditch the Label, 2017). Additionally, Smith et al. (2008) found that teens suffering from cyberbullying are less likely to tell anyone (e.g., a teacher or parent) than teens who experience traditional bullying, which significantly reduces the ability to collect accurate rates of victimization. Cyberbullied teens are more likely to share with friends, if anyone, what they are experiencing and/or witnessing (Phillips, 2016). Even the terminology around cyberbullying is complicated. In a presentation by Marwick and boyd (2011), they explained that teens themselves do not typically refer to what adults would label “cyberbullying” as cyberbullying. To teens, cyberbullying behaviors are “drama,” everyday occurrences, and accepted as just a norm among teens.

Therein lies the challenge of fully understanding how pervasive cyberbullying truly is among teens. The secrecy involved is common. The challenge becomes even more complex when attempting to understand cyberbullying prevalence among teens with special needs.

Bullying and Autism

Like their neurotypical peers, teens with autism spectrum disorder (ASD) experience, witness, and sometimes even participate in bullying. However, teens with autism can be at an increased risk of being the victim of these behaviors (Cappadocia, Weiss, & Pepler, 2012; Carter, 2009; Didden et al., 2009; Kowalski & Fedina, 2011; Little, 2002).

Though characterizations of autism manifest differently in those with the disorder, diagnostic criteria include differences in communication and social interaction. From the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (*DSM-5*), criteria include “persistent deficits in social communication and social interaction across multiple contexts.” The following areas are given as examples as that which might be observed presently or noted as having previously occurred: “Deficits in social-emotional reciprocity. . . . Deficits in nonverbal communicative behaviors used for social interaction. . . . Deficits in developing, maintaining, and understand[ing] relationships” (CDC, 2018, para. 2). It is these very differences that might lead to misunderstanding both of and by their peers, putting teens with ASD at increased risk for so-called digital drama. As noted by Anderson (2012), youth on the spectrum are not only more likely to be bullied, but they also, whether knowingly or not, participate in bullying others; parents reported that at school, their children “with ASD usually do not have the social awareness to stay quiet or even lie when called for in social situations. Unfortunately, their complete honesty was viewed as bullying in some cases” (para. 24). Additionally, being bullied can lead to youth with ASD demonstrating bullying behavior, a phenomenon known as the “bully-victim”; these bully-victims are typically less passive and “try to fight back in a way that only makes the situation worse” (Anderson, 2012, para. 22).

Parents, teachers, and teens themselves describe increased bullying/bullied experiences for those on the autism spectrum. Ninety-four percent of mothers of children with Asperger syndrome (a former diagnosis on the autism spectrum) reported that their children “experienced some form of victimization within the previous year,” while teachers reported not just victimization but also, and with even more prevalence, perpetration by those on the spectrum

(Little, 2002, in Sterzing et al., 2012, p. 1059). Teens themselves reported perpetrating bullying in the previous year (19 percent) more often than being victimized by bullying (17 percent), with both percentages higher than those reported by their neurotypical peers (Sterzing et al., 2012).

The notion of bullying perpetration is echoed in interactions online; multiple studies have noted that individuals with ASD, or “autistic traits” (Kowalski & Fedina, 2011, p. 424), are more likely than their neurotypical peers to perpetrate cyberbullying (Kowalski & Fedina, 2011; Seigfried-Spellar, O’Quinn, & Treadway, 2015).

Digital Citizenship Education

School librarians frequently adapt various national- and state-provided resources for use in information literacy education for all teens (e.g., “Common Sense Media”; “Be Internet Awesome”). This is illustrated by a study by Phillips and Lee (in press), who conducted a statewide survey of Utah school librarians on the provision of digital citizenship instruction in their schools and resources used. Public librarians are aware of the necessity for digital citizenship education, with this being one of six core teen outcomes recommended by the Young Adult Library Services Association (YALSA, 2019). However, little awareness has been given to similar instruction and resources for teens on the autism spectrum who, like their neurotypical peers, are playing games, socializing, and seeking information online (Phillips & Anderson, in press). Mainstream digital citizenship publications and other materials are heavily focused on neurotypical teens.

Established resources, such as Common Sense Media, offer regularly updated lesson plans and guides for educators and parents. However, these school-based resources provide complications for public librarians who want their libraries to not adhere to the strict scheduling of school and to offer an open-environment space for socializing and informal learning through “hanging out, messing around, and geeking out” (Ito et al., 2010). The question becomes how to support autistic teens’ digital literacy and digital citizenship without replicating a classroom-style education; perhaps the answer is through the public library.

Public Library Programming

Public libraries frequently include programming that support children with disabilities, encompassing sensory and motor disorders, physical disabilities, and cognitive impairments

(Grassi, 2016). Library and Information Science (LIS) researchers highlighted the critical role librarians play in educating teens about cyberbullying (Agosto, Forte, & Magee, 2012; Hill, 2015).

In an earlier study by Phillips and Anderson (in press), public librarians described a willingness to create programming for teens on the spectrum, though they expressed reluctance at being seen as the subject-matter experts within their library. Instead, librarians seemed more at ease when hosting presenters, providing meeting spaces, and coordinating educational sessions. Some librarians already provide inclusive opportunities for teens with ASD and are comfortable expanding these sessions to include digital citizenship; however, how to successfully incorporate digital citizenship instruction is still a discussion point for librarians (Phillips & Anderson, in press).

Methodology

This study employed an online survey of multiple-choice and free-response questions (see Appendix). The researchers combined survey questions from three different instruments, two originally distributed by Common Sense Education and one from the Pew Research Center (Common Sense Education, 2014a, 2014b; Pew Research Center, 2016). Survey questions were imported into Qualtrics software and, after receiving IRB approval from both of the researchers' institutions, distributed online. Calls for participation were posted to the online discussion forum *Autism Forums* (www.autismforums.com), in the specific forum "Autism Spectrum News, Events and Research," under the title "Teens Who Use the Library." These postings and the survey remained available for two months.

Individual survey responses were examined closely using SPSS software to determine authenticity. First, responses were evaluated based on length of time taken to complete the survey in totality. Qualtrics suggested the survey should take approximately fourteen minutes to complete; those that were significantly shorter (the researchers determined ninety seconds to be the appropriate cutoff based on review) were removed prior to analysis. Some responses mirrored one another too closely to be considered unique; what's more, other responses were simply strings of words unrelated to the questions. Responses were also removed if the grade entered indicated that the participant was not truly a teen or, if so, was not taking the survey seriously (e.g., "Grade 34"). Finally, participants had to complete a majority of the survey, at

least 90 percent, to be included for analysis. From an initial pool of seventy-two survey responses, responses were narrowed down to nine valid participants. These participants were provided with ten-dollar gift cards for their participation. It is assumed that the responses deemed to be invalid were submitted in hopes of earning this incentive, though these participants did not meet sampling criteria. After verifying and finalizing the sample, the researchers analyzed participant responses in two approaches: first, using statistical tools within Qualtrics for quantitative data, and next, using open and axial coding following the Saldaña (2016) method for qualitative data. Using the open-coding approach, the researchers read through the data multiple times before assigning initial codes based on emerging themes. Using axial coding, relationships were identified among those initial codes.

Findings

In this study, qualitative data is presented in its original format, attempting to provide participants' control over their own narratives. Exceptions have been made only in the instance of potentially offensive curse words, in which asterisks are used with the first and sometimes last letters instead.

Results are presented below in response to this study's two research questions, first exploring the perspectives that teens with ASD have regarding digital citizenship, and next exploring digital citizenship education and the potential role of public librarians.

Perspectives of Teens with ASD Regarding Digital Citizenship

PERSONAL SOCIAL MEDIA USE

The majority of teens in this study reported that they used privacy settings on their social media accounts (six of nine participants). When asked in the survey as an open-text response, "What is one thing you would never share online?" most of the teens described personal information. One-third of participants (three of nine) said they would never share their home address or "exact location"; another said "identification information: SSN, credit card number, etc." One teen said health information, another replied legal name, and one stated that he or she would never share his or her naked body. The remaining answers were "all" and "my painting"; this suggests that these participants would, respectively, keep all information and their own creative works private.

The majority of participants in this study reported that they do not have rules in their house about technology (six of nine participants). Of those who do have rules, the rules that they found to be helpful were the following: “For every hour using a computer or phone, spend one minute at least walking around,” “Don’t use extensively,” and “Not using it during meals.” Though all of these rules were different based on the participant, each of the reasons given for *why* they were helpful all related to self-moderation and staying grounded in reality: “It stops me from spiraling and losing track of time. I set a timer for an hour which is super useful”; “If I’m using it past midnight I’m obviously not sleeping”; “Keeps us in reality.”

PEER SOCIAL MEDIA USE

When asked, “What kinds of digital drama do you see on your newsfeeds or timeline?” some teens said they did not see digital drama or they declined to respond (four of nine participants). But others noted that they witness “people arguing on Facebook,” “Politics” as digital drama, “awful people being awful,” and specific niche interests such as those related to “pewdie pie youtube drama and ice poseidon.” One teen described an event that occurred in the physical environment but was discussed online: “I’m a senior in high school, and so people are sometimes insensitive dips***s. Most recently, there was drama over a senior prank and whether releasing crickets in the school library was funny (it wasn’t). High schoolers are dips***s, but they aren’t any more dips***s than they would be without the internet.” This teen commented that the drama would have occurred with or without the internet.

To another survey question, “If you could make one new technology policy that everyone had to follow, what would it be?” open-ended responses varied widely, though themes emerged related to respecting others as far as not bullying or using “other people’s stuff,” self-moderation, age limits for accessing content, and limiting “horrible s***” (with child porn and gore given as examples). One teen replied “not to bully online,” another answered to “impose age limits on some websites,” and another teen said to complete homework first. One response related to taking a pause: “Before replying to something on the internet, take five seconds to think about it.”

Do teens want their loved ones to unplug? Mostly, yes. One would like a sister to reduce the time she spends on Snapchat because “she’s on it constantly.” A different teen felt that his or her mom was “on the phone too much”; another participant thought his or her parents need to

unplug because “there are times they just make the situation worse.” It is unclear what situation was being referred to here. Finally, one said confidently, “My parents have an unhealthy relationship with technology which I think we’d all benefit from them getting over.”

However, one participant felt adamantly that it was not his or her business to tell family members what to do (“Parents can do whatever the f*** they want. Its their life smh”), and the question was deemed as largely irrelevant to one participant who answered, “I don’t have friends and don’t care too much about my parents.”

Cyberbullying

How did teens in this study define cyberbullying? For many of the participants, they described it as a form of bullying on the internet, with one elaborating eloquently to say that it is “bullying with the benefit of online relative anonymity.”

When asked, “Do you feel like you have ever been cyberbullied?” four of nine participants said no, another four of nine said yes, and one was not so clear: “I occasionally argue with people on the internet (don’t) but it’s not one sided in the way it would have to be to be bullying.” Those who said yes expanded on their answers. Two reported instances of photos being used: “yes i have been harassed online people at my school took a picture of me and edited it so i looked badly”; and “Yes. I had a situation where I became a Snapchat sticker by a group of bullies.” The other two described: “Yes, girl got jealous I was talking to her boyfriend and called me a wh***”; and “Some c*** stalked me once and told me to go kill myself.”

On the opposite side, we asked, “Do teens feel like they have ever been a cyberbully?” Five participants said no or nope; one of those expanded on his or her answer: “no I have always been taught to treat people the way i want to be treated.” Three responses were not so black-and-white: “I don’t think so”; “I occasionally argue with people on the internet (don’t) but it’s not one sided in the way it would have to be to be bullying”; “No. I complain online but never point it towards others.” Finally, only one teen fully admitted to being a cyberbully at one point, giving the following example: “I called someone a c*** once.”

When asked, “What is especially tricky about managing a situation of cyberbullying?” the idea of anonymity arose in many answers: “no way of really knowing the person doing it”; “we don’t know who did the bad thing”; “It is difficult to find a real person.” The internet was also described as a boundary object: “It’s more common, just because people evolved to feel bad

about seeing other people upset, but that natural safeguard isn't there for cyberbullying"; and another cited the "isolation of the Internet."

Additionally, teens surveyed reported that cyberbullying spreads quickly: "No one can stop it." And it reaches many people: "it's hard to stop cyberbullying because lots of people see the messages on social media and it spreads like a virus." One teen said what is "tricky" is that "unless you have proof of everything, nothing gets done about it"; another responded that he or she does not know because "I've never really witnessed it happened."

The teens were asked: "A lot of adults are worried about how teens use technology. Are their worries legitimate?" A slight majority (five of nine participants) said no, while four participants said yes. As a follow-up, they were asked which worries that adults have about how teens use technology were legitimate and which were not. The four teens responding to this question replied that legitimate concerns were "bullying, giving out personal information, becoming addicted to gaming" and "Legit: predators, disconnection from real world, ease of information for things like, idk, how to make a bomb, cyber bullying?" One teen said that concerns depended on "the teens using it," and another stated that legitimate concerns focused around health issues: "a lot of people do use technology as a way to avoid having to spend any time inactive, which can't be healthy." Teens in this study thought that adults should not be concerned about teens making friends online: "Not legit: teens having internet friends that aren't pedophiles"; and about ". . . using technology to think for them. That's wrong. Having something that can do the meaningless parts of problem solving is incredibly useful and there's no reason not to have it."

Digital Citizenship Education

DIGITAL CITIZENSHIP AT SCHOOL

The majority of teens, six of nine participants, had conversations at school, whether through conversations with friends or through formal instruction, about "managing tech distractions," "using tech for homework," and "behaving appropriately online." Five participants also had conversations about "sharing pictures of myself"; four described instruction about "having a balance of online/offline activities"; and three participants had conversations about "tagging or uploading pictures of other people," "downloading movies/music legally," "understanding creative credit/copyright," and "shopping and buying things online."

Do teens talk about digital citizenship at home? When asked, “Which topics have you had conversations about at home?” the most common response (with teens choosing all options that apply) was “Having a balance of online/offline activities,” followed by four of nine who reported: “managing tech distractions,” “sharing picture of myself,” “using tech for homework.” Three out of nine had conversations on “shopping and buying things online”; two of nine had conversations about “tagging or uploading pictures of other people” and “behaving appropriately online.” Only one of nine had discussions about “downloading movies/music legally,” and none had conversations about “understanding creative credit/copyright.”

Outside of school or home, in response to the same question, the most common response (four of nine) was “having a balance of online/offline activities.” Three of nine each had conversations about “downloading movies/music legally” and “understanding creative credit/copyright.”

Interestingly, when asked where conversations about digital practices took place outside of home or school, of those who qualified their answers, the most frequent answer was “online.” Two also discussed these topics with “friends,” with one elaborating: “I talk to friends about balancing our lives. Teenagers are smarter than you’d expect, and getting basic information isn’t actually as helpful as the nuanced advice we can give each other.”

Despite having some of these conversations already, teens do want more information about some digital citizenship topics. When asked, “Are there any topics you wish you had more information about and help with?” not one selected “other” or “no.” Instead, responses were varied. Teens could choose multiple options. Two selected the following: “managing tech distractions,” “behaving appropriately online,” “setting privacy settings,” “sharing information online,” “understanding your digital footprint,” and “dealing with cyberbullying.” One selected the following: “sharing pictures of myself,” “tagging or uploading pictures of other people,” “using tech for homework,” “downloading movies/music legally,” “understanding creative credit/copyright,” and “shopping and buying things online.” None wanted more information about “choosing passwords,” “creating usernames,” or “talking with strangers.”

Public Libraries

Despite wanting to learn more about digital citizenship, when asked, “If the public library offered free programs about any of the above topics, would you be interested in attending?” most of the teens said no or probably not (seven of nine). One said yes, and one said maybe.

Would anything bring them in for a program about digital citizenship at the library? When asked, “What could the public library do to make you more interested in attending a free program about any of the above topics?” three teens said no or that nothing would bring them in. Others responded similarly, though did not say no quite so directly: “Not treat all people with autism as stupid, smh”; “Pay me to go”; and “programs where adults tell teenagers what they’re doing wrong will never be an effective model for changing teen behavior. Never.” One teen said that they would be interested if the library could “have a pizza party and bring in different speakers”; and another suggested he or she would be interested if the library could “have other teenagers talking about it.” One did not respond to the question.

This is not because they don’t use public libraries. Reflecting upon the previous year before the survey, teens reported visiting the public library in person at least once a week (three of nine); at least once a month (three of nine); or several times a month (two of nine). One participant said never, and no participants answered “at least once.” This indicates that of those who visited in the prior year, they visited more than once.

Do they use the library online? Yes; the most common answer was “several times a month” (three of nine), followed by two who said “never in the last year” and two who replied “at least once a month.” One uses it at least once a week, and another has used it at least once in the prior year.

When asked if they have “ever visited the library to . . . ,” selecting all that apply, the most common answer was “just sit and read” (seven of nine). This is followed by “borrow books” (six of nine). The next most popular answers, in order, were “study or watch and listen to media” (four of nine); “attend a class” (three of nine); and “attend a social event” (two of nine). Only one visited the library to “attend a meeting for a group you belong to,” and one responded with “none of those options.” None of the teens report that they have visited a public library, ever, in order to “get help from a librarian” or to “use computers, the internet, or a public Wi-Fi network.”

Of all of the reasons why they've visited a public library, what is their favorite? Again, "just sit and read" was the most popular answer for three of nine participants; otherwise, answers were scattered.

Discussion

Teens in this study opened up about their digital lives and provided insight about their experiences with digital citizenship. Previous work suggests that librarians are open to digital citizenship programming for teens on the spectrum, though they are not currently implementing it and appeared reluctant to be the subject-matter experts at their libraries (Phillips & Anderson, in press). The current study suggests that the teens, though willing to answer questions about their digital lives and demonstrating a desire to learn more, were not eager to be educated by adults about the topic. Additionally, though they reported themselves as library users, they might not envision the librarian as playing a role during their visits.

Digital Lives of Teens with ASD

Teens who participated in this study have active digital lives and gave many examples of how they interacted in various ways with technologies. They were also very aware of the digital lives of others, including friends and family. These teens expressed being quite savvy about their media usage, and more than half already had some form of privacy settings on their digital devices. Some also had clear strategies for taking a break from their devices. However, the prevalence of digital drama persisted as a theme, as reflected in this study's findings.

Teens with ASD and Bullying

There is no definitive answer, but results from this study suggest that digital citizenship instruction of some sort could be beneficial for teens on the spectrum. Researchers, parents, teachers, and other adults know that teens in general are at risk for being cyberbullied, and that those on the spectrum are even more so. This study found that, of those who reported being cyberbullied, the examples were extreme. Pictures of the participants were used to attempt to humiliate them online, one was called offensive names based on talking to a peer's boyfriend, and one was told to kill him- or herself. These examples are not to be taken lightly; it is clear that there is severe damage being done to teens on the spectrum during their online interactions.

Nearly half of the teens who participated definitively said yes, they have been cyberbullied, which is more than twice the number of self-reported bullying incidents as previously cited in works about perceptions of face-to-face interactions (Van Roekel, Scholte, & Didden, 2010). One reason for this variability could be that the sample size is small and not reflective of youth with ASD as a whole. It is likely that with more participation, these statistics might shift. However, it is possible that there are simply more opportunities to bully and be bullied in the online environment. Teens, both neurodivergent and neurotypical, participate in social and communicative interactions while sometimes employing the shield of anonymity and online disinhibition, allowing for less consideration to or awareness of the effect of their actions. Teens in this study recognized the issues particular to the online environment, including the relative anonymity the internet affords for digital drama to spread rapidly.

Answers to the questions about perpetuating and being victimized by bullies are nuanced and must be explored for more than just a yes or a no response. One participant in this study did note that he or she “occasionally argue[s] with people on the internet,” but that he or she did not view this as being a bully because it is not one-sided. How these arguments appear to those this teen interacts with online, however, is unclear. As this study relied on self-reported information, the researchers were unable to understand the perception of the others involved in these “arguments,” and it is possible that bullying may be taking place. Clearly, the participant realized the potential for these arguments to be viewed as bullying since he or she used it as an example in response to the question.

As with neurotypical teens, teens with ASD are at risk for being cyberbullied and acting as the bullies themselves. In this study, some admitted to having the dual role of bully-victim. This is not an uncommon finding in cyberbullying research with teens in general (Bauman, 2010; Dukes, Stein, & Zane, 2009). However, it should be noted that the survey responses were the perceptions of teens, and only reflect their interpretation of these situations. Additionally, some instances of cyberbullying, as perpetrator or victim, are not clear. Van Roekel and colleagues (2010) found that as a teen was bullied, the more likely he or she was to map those perceptions on non-bullying interactions, misinterpreting what might be benign as instead an instance of bullying. As a result, those who viewed themselves as victims may have a biased view of what might be normal interactions. It is possible that differences in communication styles and

interpretations of communication by others may compound these experiences for teens on the autism spectrum.

It is critically important to gain insight directly from the population studied instead of asking others to speak for them; this is particularly true in the context of marginalized or underserved populations such as those with disabilities, in which parents or caretakers are often asked to speak for them. Researchers in this study made a very conscious decision to ask teens with autism themselves to speak to their own lived experiences. While parents, teachers, or researchers often have different understandings of cyberbullying and are able to clearly state that these interactions have occurred, the self-reporting of data is one of the biggest strengths of this study. Additional perspectives would add a valuable thread to the findings of this study; however, the responses can also stand alone, as previous work found “several indications that the perceptions of adolescents with ASD on bullying were likely to be accurate” (Van Roekel, Scholte, & Didden, 2010, p. 70).

Role of the Library

As indicated by the teens’ responses, libraries do play important roles in their lives. Teens may not directly engage with librarians regularly, but they are using the books, materials, and space that their librarians have carefully developed with teen patron needs as the focus. Interestingly, even though the teens in this study are tech-savvy enough to have been recruited from an online discussion forum, and answered high-level questions about their digital practices, their experiences and preferences in using libraries are quite traditional. They expressed enjoyment in going to the library to “just sit and read” and borrow books. They like to explore their interests and enjoy a quiet space. As noted earlier (Ito et al., 2010), teens want a place to hang out.

In contrast, teens in this study reported rarely using the library to attend events or classes, and this is not because they don’t have things they want to learn. Teens in this study gave us many answers when asked what topics related to digital citizenship that they wanted to learn more about (not one said “no, there are not topics I want more information about or help with”). But when asked if they would attend a free program about any of those interests at the library, they largely said no, and that not much would bring them in. Pizza and peer-led interaction and/or education were the only practical suggestions offered as to what might bring them in for such a library program.

Implications for Practice

As suggested by the survey responses, instruction about digital citizenship for teens with ASD would likely be helpful. The question that remains is whether public librarians should be the ones to address this gap. Public librarians provide programming that meets the needs of their communities, and previous work indicates that they are willing to offer digital citizenship programming (Phillips & Anderson, in press); however, it is possible that even if such programs are offered, teens might not be receptive. Many school systems provide education for successfully navigating the online environment, and perhaps this is where public libraries might start. Librarians could work to supplement, not duplicate, the efforts already being made in the classroom by providing inclusive programming for all teens. Most importantly, this should be done in collaboration with the teens themselves, having teens who are particularly tech-savvy serve as peer mentors for both their neurotypical and neurodivergent peers or leading tech-gearred programs that subtly include online safety and digital citizenship. As found in this study, teens on the spectrum would value sharing these educational sessions with their peers.

Peer mentoring has been shown to be successful for other library programs, including those for teens on the spectrum (Phillips & Anderson, in press); teen participants in this study reflect that idea, and they value learning and working with other teens as well. In this sense, a peer group to support one another in practicing what was learned from school might be a successful approach for public librarians to take in supporting positive digital citizenship. Librarians might reach out to local autism organizations to see if they know of teens who would be interested or find value in attending; however, these library groups should not just be for those who identify on the spectrum. Instead, programs should be designed to meet the needs of all teens as they work to successfully navigate interactions online, with neurodivergent teens invited and included just like neurotypical teens.

It is important to note that the point of this study is not to “other” teens on the spectrum, or to say that they should be the ones to adapt to what might be the neurotypical standard of communication and interaction online. Teens with ASD should not be required to feel that they need to hide so-called “autistic traits” and conform to supposed social standards, and librarians should certainly not create individual classes only to educate teens on the spectrum; this goes against the critical ideas of inclusion and acceptance. Instead, results from this study should be used to provide further support to the idea that even tech-savvy teens on the spectrum are

experiencing severe instances of cyberbullying, and that preventive work and additional research should be done in this area. The results of this study and a greater understanding of the cyberbullying risks for teens with ASD should not be an indication that these teens need to change, but instead that they may benefit from becoming more aware of communicative norms in the online environment around them, which will provide them with a better idea of how to navigate interactions and the ability to know when to remove themselves from harmful and negative situations.

Limitations

While all attempts were made to produce a comprehensive exploration into the cyberbullying experiences of teens with ASD, some limitations must be noted. First, the participants for this study were recruited from an online discussion forum, which is an indication that they are already comfortable in the online environment. Responses from teens recruited offline might generate different responses in regard to their digital lives.

Additionally, the initial recruitment post asked for “teens who use the library.” The researchers were specifically interested in hearing from teens who were already familiar with library services to gain a better understanding of how they might respond to the introduction of digital education within those services. A different call for participation might generate a different sample of teens, and responses about current library use would likely be more varied than the relatively positive responses generated here.

Finally, this study utilized a small sample. Therefore, it is not generalizable or representative of all teens with autism and their online behaviors. Instead, it can be read as an exploratory study that can support and inspire future research and practical approaches.

Conclusion

Results from this study indicate that teens with ASD have rich digital lives and have experience with both sides of cyberbullying. Understanding and interpreting communication online can pose a challenge for anyone, not just those on the autism spectrum. Perhaps the greatest takeaway is that digital citizenship education would be valuable for teens in an inclusive environment, though getting those teens in the door remains the librarian’s challenge.

Librarians wear many hats and function in various roles to support different populations, organizations, and community groups. Before embarking on any additional programming or initiatives, a needs assessment should be completed to determine the specific needs of the communities they serve. If digital citizenship is deemed an important area for education by a public library, such education should be created with the participation of teens themselves. As digital citizenship is important for all teens, not just those on the spectrum, an inclusive approach could also give those with ASD the peer interaction as requested within this study. And, of course, providing pizza never hurts.

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Appendix

Start of Block: Block 1

Q2.1 What do you do online? (Choose all that apply)

- Use social media (1)
- Do work/homework (2)
- Read about things I'm interested in (3)
- Watch streaming TV or videos (4)
- Read/send email (5)
- Instant message/chat (6)
- Play video games (7)
- Listen to music (8)
- Create media (9)
- Other: _____ (10)

Q2.2 Looking at the list above, list in order which three you do the MOST often:

Q2.3 Out of all the things you do online, which is your FAVORITE? (Choose one)

- Use social media (1)
- Work/homework (2)
- Read about things I'm interested in (3)
- Watch streaming TV or videos (4)
- Email (5)
- Instant message/chat (6)
- Play video games (7)
- Listen to music (8)

Create media (9)

Other: _____ (10)

Q2.4 Let's talk about privacy online. Do you use privacy settings on your social media accounts?

Yes (1)

No (2)

I don't know (3)

Q2.5 What's one thing you would you never share online? _____

Q2.6 Do you have any rules in your house about technology?

Yes (1)

No (2)

Skip To: Q2.11 If Do you have any rules in your house about technology? = No

Q2.7 Which rules about technology do you find helpful?

Q2.8 Why do you find those rules about technology to be helpful?

Q2.9 Which rules about technology do you find less helpful?

Q2.10 Why do you find those rules about technology to be less helpful?

Q2.11 If you could make one new technology policy that everyone had to follow, what would it be? _____

Q2.12 Some teens say that they wish they could just unplug. Do you ever feel that way?

Why or why not? _____

Q2.13 Some teens say that they wish that they could get their parents or friends to unplug. Do you ever feel that way? Why or why not?

Q2.14 Do you ever give yourself a break from technology? _____

Q2.15 If you do not ever give yourself a break from technology, what stops you?

Q2.16 Are there any conversations that you would rather have face-to-face instead of online or over texting? _____

Q2.17 What about, are there any conversations that you would rather have online than face-to-face? _____

Q2.18 Do you think social media make the world a better or worse place? Why?

Q2.19 Overall, does time spent on social media generally make you feel better about yourself or worse? Why? _____

Q2.20 Can you fill in the blanks here? My digital life is like _____ because _____.

Q2.21 A lot of adults are worried about how teens use technology. Are their worries legitimate?

Yes (1)

No (2)

Q2.22 Which worries that adults have about how teens use technology are legitimate, and which ones are not? _____

Q2.23 How would you define cyberbullying? _____

Q2.24 What is especially tricky about managing a situation of cyberbullying?

Q2.25 What kinds of digital drama do you see on your newsfeeds or timelines?

Q2.26 Do you feel like you have ever been cyberbullied? Describe this. _____

Q2.27 Do you feel like you have ever been a cyberbully? Describe this. _____

End of Block: Block 1

Start of Block: Block 2

Q3.1 Which topics have you had conversations about at home? Choose all that apply.

Having a balance of online/offline activities (1)

Managing tech distractions (2)

Sharing pictures of myself (3)

Tagging or uploading pictures of other people (4)

Using tech for homework (5)

- Behaving appropriately online (6)
- Downloading movies/music legally (7)
- Understanding creative credit/copyright (8)
- Shopping and buying things online (9)

Q3.2 Which topics have you had conversations about at school? Choose all that apply.

- Having a balance of online/offline activities (1)
- Managing tech distractions (2)
- Sharing pictures of myself (3)
- Tagging or uploading pictures of other people (4)
- Using tech for homework (5)
- Behaving appropriately online (6)
- Downloading movies/music legally (7)
- Understanding creative credit/copyright (8)
- Shopping and buying things online (9)

Q3.3 Which topics have you had conversations about somewhere other than home or school? Choose all that apply.

- Having a balance of online/offline activities (1)
- Managing tech distractions (2)
- Sharing pictures of myself (3)
- Tagging or uploading pictures of other people (4)
- Using tech for homework (5)
- Behaving appropriately online (6)
- Downloading movies/music legally (7)
- Understanding creative credit/copyright (8)
- Shopping and buying things online (9)

Q3.4 In looking back at the previous question, please describe where you had these conversations other than home or school. _____

Q3.5 In the past 12 months, have you visited a public library in person:

- At least once a week (1)
- Several times a month (2)
- At least once a month (3)
- As least once (4)
- Never (5)

Q3.6 In the past 12 months, have you used a public library website or online:

- At least once a week (1)

- Several times a month (2)
- At least once a month (3)
- As least once (4)
- Never (5)

Q3.7 Have you ever visited a public library to:

- borrow books (1)
- get help from a librarian (2)
- just sit and read (3)
- study or watch and listen to media (4)
- attend a class (5)
- attend a social event (6)
- attend a meeting for a group you belong to (7)
- use computers, the internet, or a public Wi-Fi network (8)
- none of those options (9)

Q3.8 Looking at the list above, list in order which three you do the MOST often.

Q3.9 Out of all the things you do at the public library, which is your FAVORITE?

- borrow books (1)
- get help from a librarian (2)
- just sit and read (3)
- study or watch and listen to media (4)
- attend a class (5)
- attend a social event (6)
- attend a meeting for a group you belong to (7)
- use computers, the internet, or a public Wi-Fi network (8)

End of Block: Block 2

Start of Block: Block 3

Q4.1 What concerns you the MOST about today's digital world?

- Too much screen time (1)
- Seeing poor quality or questionable content (2)
- Amount of digital drama and cyberbullying (3)
- Permanence of my online presence, a.k.a., my digital footprint (4)
- Protecting my private information (5)
- Other: _____ (6)

Q4.2 What excites you the MOST about today's digital world?

- Ability to connect with others (1)
- The variety of content—educational, entertainment, etc. (2)
- Anytime, anywhere information (3)
- Ability to create media (4)
- Other: _____ (5)

Q4.3 Are there any topics you wish you had MORE information about and help with?

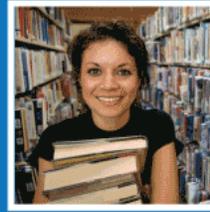
Choose all that apply.

- Managing tech distractions (1)
- Sharing pictures of myself (2)
- Tagging or uploading pictures of other people (3)
- Using tech for homework (4)
- Behaving appropriately online (5)
- Downloading movies/music legally (6)
- Understanding creative credit/copyright (7)
- Shopping and buying things online (8)
- Setting privacy settings (9)
- Choosing passwords (10)
- Creating usernames (11)
- Sharing information online (private versus personal) (12)
- Talking with strangers online (stranger danger) (13)
- Understanding your digital footprint (14)
- Dealing with cyberbullying (15)
- Other: _____ (16)
- No, there are no topics I want more information about or help with. (17)

Q4.4 If the public library offered free programs about any of the above topics, would you be interested in attending? _____

Q4.5 What could the public library do to make you more interested in attending a free program about any of the above topics?

End of Block: Block 3



Teen Social Media Practices and Perceptions of Peers: Implications for Youth Services Providers and Researchers

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Abstract

This paper presents the results of an empirical study examining teen social media practices, which was collaboratively developed, carried out, analyzed, and presented by a team of researchers that included seven teens. This co-designed study characterizes the social media use of thirteen teens through a survey, highlighting their complex relationships to technology and their prioritization of learning when online. Further, the results highlight that some teens' assessment of information shared through social media is socially informed, while others rely on preexisting perceptions and beliefs when deciding what to believe on social media. Through the analysis of these findings, the teen researchers who participated in the project had access to

opportunities for metacognition and literacy skills development. By connecting the co-designed study and the experiences of the teen researchers, this paper contributes an argument that teens have complex perceptions of their relationships with social media and that collaborative research with teens is achievable and valuable, with direct implications discussed for youth services providers in libraries as well as researchers.

Introduction

Digital technology is undoubtedly playing an increasingly important role in the lives of teens, and social media is a key driver of this engagement.ⁱ Research has examined these social media experiences and technologies from a variety of perspectives. Academic performance and experience are consistently prioritized.ⁱⁱ Another significant thread of work focuses on youth experiences of risk and harm.ⁱⁱⁱ Other research, in turn, examines parenting approaches, while youth self-regulation of technology and social media use also play a role.^{iv} This work is all informed by understandings of the biological, cognitive, and social changes that teens experience.^v

While research is engaged with understanding youth experience online, work about the lives and experiences of teens is typically conducted by adults. This raises several potential issues. The more experienced the researcher, the more distanced they are from a direct experience of current youth culture, which has implications for the development of research questions and design of studies. Further, there are inherent power dynamics when an adult engages with youth within the structure of a traditional research study that can make youth participants uncomfortable, limit rapport, and impair data collection.^{vi}

Libraries and youth services providers recognize that direct engagement with youth is key for successful program design, collection development, and services. In *The Future of Library Services for and with Teens: A Call to Action*, the Young Adult Library Services Association (YALSA) envisions increased youth participation in the development, implementation, and evaluation of library programs and services as a priority.^{vii} Similarly, the YALSA National Research Agenda highlights the importance of community engagement, advocating for relationship building and partnerships to develop understanding of the needs of library service communities as well as for research outcomes.^{viii}

The work presented in this paper connects across all of these areas, and centers teens as authorities on youth experience with significant knowledge to contribute to scholarship on youth social media use. Building on this work with teens, which was conducted in a collaborative and participatory manner, we contribute in a variety of ways. We share results of a co-designed research study examining youth social media use and how it relates to learning and information assessment online. We examine how the teen researchers who co-developed our study were impacted by participation in this work, which allowed opportunities for literacy skills development and metacognition. Finally, we discuss the implications this work has for youth services providers in library settings, as well as researchers and LIS faculty who are engaged in work with youth.

Research Questions

In order to connect these areas and deepen understandings of youth social media practices, this paper focuses on the following research questions:

- How do teens engage with social media and the information they encounter through it?
- How do youth describe the impacts of social media on their lives, including their learning in formal and informal settings?
- What questions and perceptions do teens have about their peers' social media use practices?

Literature Review

This work is informed by research in several areas, including scholarship on youth social media use, its connection to libraries, and participatory techniques for involving teens in research broadly construed as well within library and information science (LIS) work.

Youth, Social Media, and Libraries

Early work in this area focused on “social networking sites” and began by characterizing how these services operate and how teens gravitate toward these platforms because of friend relationships.^{ix} This work points out that the persistence, searchability, replicability, and invisible audiences of these sites present difficulties for “both teens and the adults concerned for their well-being and development.”^x The social elements of these technologies are key, which allow

users to view and traverse their connections, view uniquely identifiable profiles, and create and interact with user-generated content.^{xi} The Pew Research Center’s Internet and American Life Project has a strong history of examining youth, technology use, and social media use specifically, sharing nationally representative US statistics about access and use. Going back nearly a decade, their line of work demonstrates growing levels of youth access to mobile devices and social media use, with some of the most recent work highlighting YouTube, Instagram, and Snapchat as the most popular platforms, and indicating that 95% of teens have access to a smartphone.^{xii}

The foundational examination of youth and social networking by danah boyd is built on her in-depth ethnographic work with teens and specifically addresses the concerns of adults who worry about issues like youth privacy, bullying, addiction, and inequality.^{xiii} She argues that “it behooves all of us to move past assumptions about today’s youth. Both adults and youth need to develop media literacy and technological skills to be active participants in our information society.”^{xiv} These skills are developed when youth are able to engage online. Other work in the vein of critiquing myths and popular discourse about youth social media use emphasizes that youth engagement with social media is key for academic engagement, highlighting that interacting with educators and other adults via social media can be beneficial, and that youth both value their privacy online but also use social media for a variety of substantive activities like social development and pursuit of hobbies.^{xv}

Youth engage with their interests via social media and digital technology, and this engagement has become a key element for library service and engagement with youth. In one notable example, the Chicago Public Library’s YOUmedia approach is built on the idea of “hanging out, messing around, and geeking out,” or HOMAGO. This is a concept that comes from Mizuko Ito and colleagues’ work describing their large-scale ethnographic study of youth and their technology practices.^{xvi} This stance recognizes the value of social engagement and digital technologies, setting the stage for library services that support teens’ preferences. Similarly, other research advocates for librarians to understand and embrace youth social networking practices, arguing that using these platforms can help to broaden the reach of library programs and services, enable the library to support teens’ healthy social development, and facilitate opportunities for librarians to model safe online interactions.^{xvii}

Participatory Approaches for Work with Youth

While these studies of youth social networking and social media use may have some levels of youth input, fewer research projects involve youth in the development of the research questions or study designs focused on youth social media practices and perceptions. Various participatory traditions advocate for youth to have deeper involvement in the research on their lives. Critical youth studies scholars and researchers who use participatory action research argue that young people not only have the ability to engage in research in a collective manner, but they also have the “capacity and agency to analyze their social context.”^{xxviii} Participatory approaches are also key in information science and computing communities. Work has engaged youth in design activities for addressing health needs and developing literacy.^{xix} Scholarship has also engaged youth in thinking about online privacy through the design of games and stories.^{xx}

Clearly, involving children and teens via design activities, often to inform technology development, has strong footing. However, despite calls for participatory work with youth for designing library programs and services and research studies, there is less work that engages young people in this manner. YALSA’s emphasis on including teen voices in library service and program development as well as research is a key aim of the organization’s current call to action.^{xxi} LIS scholars have been advocating for including youth in research for a significant period. In her 1999 work advocating for more research about youth and informal interactions with information, Eliza Dresang notes the opportunities inherent in collaborating with youth. This approach yields “closer collaboration with youth themselves as partners in constructing research (rather than as objects of it)” and is an opportunity that shifts “from investigations that assume adults will study children to one in which adults and children learn from each other.”^{xxii} In contrast to the field’s long-standing discussion of young people’s potential roles in scholarship, research has demonstrated that a small amount of the LIS literature on youth includes teen input, finding that only 2% of practice articles and 19% of research articles in a young adult services journal published during 2008 to 2010 shared teen perspectives in any way.^{xxiii} Deeply engaging teens in the design, development, and implementation of research on youth experiences is still an open opportunity.

Literacy, Connected Learning, and Our Approach

Our work operates in this area, employing co-research as an approach to engage youth in the full research process, including the development of research questions, creation of research study design, data collection, analysis, and presentation/publication of findings. By involving teens in the development of a research study, we aimed to root our questions, process, and findings in the perspectives of youth while mitigating power differentials that impact research with young people. Additionally, this study design explicitly connects co-research perspectives with information and digital literacy frameworks that emphasize the importance of developing abilities to seek, find, assess, use, create, and share information.^{xxiv}

The ability to carry out all these literacy tasks is key for critical engagement with information, and we argue that as a corollary, the ability to critically engage with research requires opportunities to engage with the full research process, including creating and sharing it. Our approach was designed to harness the impact of elements of the Connected Learning framework, by connecting teens with peers and invested mentors, engaging them in interest-driven activities, and providing opportunities to build real-world research skills and make connections with local and university audiences.^{xxv} This framework has had significant impact in library communities and conversations, adding credence to the relevance of our approach for library audiences.^{xxvi} This study design has situated our work to allow us to study youth technology-use practices with depth, as well as to examine the impacts of participation on the teen researchers themselves. This allows us to carefully engage with the implications of our work for youth services providers as well as researchers, as shared below.

Methods

Using this co-research structure rooted in literacy perspectives and Connected Learning as the basis for our project, we assembled a team of researchers that included both adults and teens. The adult researchers both have experience as youth services providers (the first author as a public teen services librarian and the second author as a middle school librarian). The adult researchers on this project collaborated with teen researchers from three counties in a geographically dispersed area (the great majority of which is categorized as rural) approximately a two-hour drive from the university campus. Most of these interactions occurred over three full-day events, which we call camps, held at a community college in the teens' local area. During the camps, the

teen researchers received approved ethics training and were introduced to various literatures about youth and technology use, as well as research methods. At the second camp, the teen researchers designed a survey. In between our second and third camps, the teen researchers collected data from their peers. At the third camp, the teens participated in collaborative analysis, which is discussed in more detail below. Our interactions also included an overnight trip to campus during Undergraduate Research Week, which allowed the teen researchers to interact with near-peers who were conducting original research of their own, to learn more about the campus and higher-education opportunities, and to finalize analysis and present their work to an academic audience. All procedures described in this paper were approved by our ethics review board.

Teen Researcher Participants

Seven teens participated in this project as members of the research team and are included as the last seven authors on this paper, listed in alphabetical order. We connected with these individuals by recruiting through 4-H, a positive youth development and mentoring organization that operates throughout the United States, including in all of the counties in our state. These teens joined the project in fall 2016 and completed formal participation in April 2017 with presentations about our work at the adult researchers' university as well as in the teen researchers' home community. These teens included one young woman and six young men, all aged between fourteen and nineteen years old. The teen researchers had a variety of school settings, including two who were home schooled, as well as varying levels of access to technology. Less than half of the teen researchers had their own mobile phone, and one did not have internet access at home. In addition to the rural community environment that the teen researchers all experienced, several of the teens lived on farms and described having animal caretaking and other related jobs in addition to their school experiences. Teen researchers were remunerated a total value of \$80 as well having expenses covered for their overnight trip to campus (all but one attended).

Co-Designed Research Study Procedures

The teen researchers brought significant knowledge of their local community to the research design process. Working together in our early camps, we centered on conducting a survey

focused on the social media practices and perceptions of the teen researchers' peers. Questions focused on assessing what social media platforms were used, how teens think social media impacts social interactions and language use, and how teens make credibility and quality assessments with regard to information shared on social media (more details on the questions are available in the next section). While the adult researchers planned for the co-designed study to operate within the area of youth technology use in order to leverage our areas of research expertise, the teen researchers selected the focus of social media use. Additionally, the teen researchers developed the great majority of the survey questions (with more details in the next section about this process and what the adult researchers contributed). The adult researchers had anticipated running the study with an online format given the geographical distance between participants. However, the teen researchers strongly argued for a paper survey option, and we decided to offer the study in both formats. Ultimately, the response rate to the paper version was higher than the online version, demonstrating how valuable teens' community knowledge can be.

The teen researchers conducted data collection from December 2016 to January 2017. No remuneration was offered for participants in the co-designed study, and no personally identifiable data was collected. While this means that we were not able to collect many specifics about individual demographics, it enabled the teen researchers to conduct data collection, which we saw as a key element of participation in the research process. By not collecting personally identifiable data, we were able to minimize any risks of participating and qualify for a waiver of informed consent, which meant that the teen researchers were not required to obtain permission from parents of participating teens. This would have been an undue burden on the teen researchers because of unequal access to technology and transportation to contact and consent parents. However, the teen researchers used a script to ensure that teen participants gave their permission to participate and understood that they could stop participating or ask questions at any time before they started the survey.

Survey Design

The survey was designed collaboratively during the second camp meeting. This process started with a brainstorming session during which the teen researchers suggested questions, then a session where we refined questions together and tweaked some language by having the teens attempt to answer potential questions and identify potential areas of confusion or difficulty. The

adult researchers encouraged the teen researchers to think carefully about how to describe/define social media, and helped articulate question 15 (Have you heard about STEM or STEAM? If so, where did you hear about it and what do you know about it?), since the way the teens were recruited via 4-H was as a STEM program even though many had not had much exposure to the concept. Before data collection and with permission from the teen researchers, the adult researchers added two broad demographic questions and some specific choices for social media platforms (question 4), and refined language clarity in a few cases. Additional details about this process can also be found in our article on pedagogical considerations of co-research.^{xxvii} Overall, the final survey questions below are very similar to those developed collaboratively with the teen researchers. We recognize that some of these questions have room to improve from a standpoint of traditional survey design, but deeply value the collaborative process and therefore remained as close as possible to the co-developed language of the survey. We further discuss this in the “Implications for Research” section later in the paper. These questions were administered on both paper (returned to the teen researcher conducting data collection in a sealed envelope to protect privacy) and via online survey platform, and participants chose how they participated.

1. What is your age?
2. What is your gender?
3. What types of technology do you use for entertainment?
4. We are interested in social media, which includes websites, apps, and platforms where you can connect with other people and post and interact with media and information. Which of the following social media platforms do you currently use?

- | | | |
|--|---------------------------------------|---|
| <input type="checkbox"/> Instagram | <input type="checkbox"/> Twitter | <input type="checkbox"/> YouTube |
| <input type="checkbox"/> Snapchat | <input type="checkbox"/> Facebook | <input type="checkbox"/> Facebook Messenger |
| <input type="checkbox"/> Reddit | <input type="checkbox"/> After School | <input type="checkbox"/> Tumblr |
| <input type="checkbox"/> DeviantArt | <input type="checkbox"/> Pinterest | <input type="checkbox"/> Yahoo! Answers |
| <input type="checkbox"/> WhatsApp | <input type="checkbox"/> Whisper | <input type="checkbox"/> iMessenger |
| <input type="checkbox"/> Twitch/TwitchTV | <input type="checkbox"/> Ask.fm | <input type="checkbox"/> Wattpad |
| <input type="checkbox"/> Burn Note | <input type="checkbox"/> Skype | <input type="checkbox"/> Facetime |
| <input type="checkbox"/> Google Hangouts | <input type="checkbox"/> Google+ | <input type="checkbox"/> Other: _____ |

Other: _____ Other: _____ Other: _____

5. How often do you check social media?
6. How often do you use social media and/or entertainment when you're also interacting with people face-to-face?
7. How often do you interact with posts and/or people on social media?
8. How do you decide what information to believe on social media?
9. Has social media affected the way you communicate with others verbally or by typing/writing? If so, explain.
10. How does social media affect the types of electronic entertainment that you consume?
11. How does social media affect your personality?
12. Does social media help or hurt your education and why?
13. Are there things you do or did that you learned about on social media? Explain.
14. Have you picked up any slang words from social media? Name up to 3 and explain what they mean.
15. Have you heard about STEM or STEAM? If so, where did you hear about it and what do you know about it?

Participants in the Co-Designed Research Study

Participants in our co-designed research study completed the short survey that examined their social media access, use practices, and perceptions. We were able to collect usable responses from thirteen participants, aged 14–19 years old. Five participants self-identified as female, and eight identified as male. Participants were recruited outside of school settings, and the teen researchers carried out all interactions with their peers. While we were not able to collect specific information like participant addresses, the teen researchers recruited from their local area, which included four counties with no population living in “urbanized areas” and 93% or more identified as White according to the 2010 United States Census.^{xxviii} Individual counties had 60%, 81%, and 100% of the population living in rural areas. One county had 27% living in rural areas, but this county is large; further, the area where we recruited is more than twenty-five miles from the population center of the county, meaning that any potential participants from this area were likely also living in rural settings.

Analysis

We used a collaborative approach to our data that served not only as an analysis technique but also as a learning tool. Working together in a large group over one camp session with further discussion during the trip to the university campus, we reviewed survey responses and conducted a general inductive approach for our open coding.^{xxix} This included cleaning and assessing raw data, close reading of text, creation of categories, and continued revisions and refinement through an iterative process.^{xxx} For this collaborative portion of the analysis, we used a combination of Microsoft Word and Excel to display and manipulate data on a projection screen with handwritten posters to engage with and analyze the data. This process was carried out in a conversational manner, with the teen researchers leading the conceptual focus and discussion, and the adult researchers asking thought-provoking questions and periodically reminding the teen researchers about time constraints and purpose. Ultimately, these conversations resulted in a formal presentation that was shared with public audiences on campus as well as in the teen researchers' community. This analysis and presentation form the basis for our "Findings" discussion below, with some additional analysis from the first author included at the end of this section. This final addition was analyzed independently by the first author, employing a similar inductive coding analysis technique after reviewing audio recordings of camp sessions and the final group presentation and generating handwritten notes and textual data in Microsoft Word.

Findings

The first sections of findings of this study come from the experiences of the participants in the co-designed research study. These center on characterizing teen social media use, understanding how teens describe connections between social media and learning, and how they discuss assessing information on social media. Later discussion of findings from the first author focuses on the responses of the teen researchers to the research process.

Teen Social Media Use

Our first step was to assess whether and what kinds of social media were being used by our participants. Contrary to research identifying teens as stepping away from Facebook,^{xxxi} the teens in our co-designed study used Facebook more than any other platform, with nine out of thirteen users. YouTube and Snapchat were the next most popular platforms, with eight participants

using each. Seven participants identified Instagram as a platform they used. All participants identified as using at least one social media platform. Nine participants indicated that they checked a social media platform once a day or more.

Social Media and Learning

When further exploring the ways social media was used, several themes began to emerge from our analysis process. Many participants perceived social media platforms as places for learning and engagement, for both formal and informal learning objectives. Eleven participants indicated that they experienced this learning about informal topics through interacting on social media. This included areas like “creative DIY,” “hairdos,” and engaging in “the process of running a YouTube channel.” Other participants focused on social relationships, highlighting how they learned “more about my friends and family.”

Social media was also a place where participants could develop a sense of current events: “it keeps me up to date on what is happening in the world”; or as another participant said, “a number of different things about people’s lives and things happening in the world.” Ultimately, there was a strong sense that social media provided learning opportunities: “I think it helps because you can learn some things you wouldn’t learn at school.”

Discussions of the relationship between social media and more formal education settings were more mixed, with participants sharing similar numbers of positive and negative comments. Participants described social media’s impact on education in a positive light, stating that “it helps [my education] by asking my friends for help.” Another highlighted that “it is a quick way to find definitions, answers, and rules/laws.” However, several others described social media as a potential “distraction,” and one participant expressed concern that “if you don’t know what to believe then you might believe something that isn’t true.”

Assessing Information on Social Media

The above comment about belief aligns with a significant concern for the teen researchers, which centered on the ways that participants discussed engagement with information via social media. Multiple participants mentioned using relationships to determine what to believe online. Some focused on the person sharing information: “I look at who posted or shared it,” citing credibility for information from “someone I know and trust.” Others used discussion around the information

as a barometer for belief: “by what others say about it.” For these teens, belief, trust, and credibility in information accessed via social media are rooted in social relationships.

Other teens described the importance of information matching preexisting perception or beliefs. One stated, “I go with my gut,” and another shared, “I just see what I believe is true.” One of the few participants who mentioned research or traditional evaluation standards like examining the publisher when assessing information shared that she believes information “if it is properly researched and is in accordance with my beliefs.” Overall, the teen researchers found their peers’ lack of critical assessment with information shared via social media to be a significant concern.

Teen Researchers’ Responses: Metacognition in Action

In addition to the contributions coming out of the co-designed research study, it is also valuable to examine how participation in the study worked for the teen researchers. Examining the practices of their peers provided the teen researchers with the opportunity to reflect on their own social media experiences. One teen researcher shared:

In a way this project has been an eye opener for me. . . . [I]t has kind of made me realize how much I’m really on social media and it’s kind of made me kind of use it less. . . . I’ve tried to alter the websites I use to go get information to more trustworthy sites that I can actually find information.

Another teen researcher explained:

So I trusted this site before but should I rethink this? I spend this much time on it, should I really spend this much time on it? . . . It can change extremely . . . how you use social [media] and . . . how much time you spend on it.

These reactions demonstrate that the teen researchers made conscious changes to their own critical literacy practices, engaging in thinking about their own credibility assessment processes and describing adjustments to how they engage online. These changes can be framed through the lens of metacognition, which “refers to the processes used to plan, monitor, and assess one’s understanding and performance. Metacognition includes a critical awareness of a) one’s thinking and learning and b) oneself as a thinker and learner.”^{xxxii} Engaging teens in the research process can have significant impact on their critical thinking, highlighting the pedagogical value of this collaborative, participatory approach.

Discussion

Ultimately, the structure of the co-designed research study as well as the teen researchers' responses to it combine to show that teens' perceptions about the impacts of social media—and their relationships to it—are complex and complicated. This contrasts with popular discourse that often frames teens as technologically obsessed or addicted. While many of the teen participants were highly engaged in social media use and saw it as a way to access informal learning opportunities, some discussed concerns about how social media interacted with their formal education.

Participants also described less-than-ideal approaches to assessing the information they encountered through social media. However, the fact that the teen researchers were deeply interested in how their peers decided what to believe online indicates that teens are seriously engaging with concepts like misinformation and disinformation. It is important to note that this study was conducted immediately following the 2016 United States presidential election, which prompted significant public concern with these information issues. The teen researchers demonstrated this same concern. Further, the teen researchers' interest in understanding how social media impacted their peers' education along with the participants' multifaceted descriptions of the relationships between learning and social media demonstrate that teens care about learning (both their own and that of their peers). They prioritize access to both formal and informal learning opportunities, and show concern about how technology may be influencing their experiences. Ultimately, teens demonstrate perceptions of social media that are similar to that of adults, highlighting similar values and fears. Adults including librarians, teachers, parents, and policy makers can see this as an opportunity to further engage youth in managing their technology use through the development of self-regulation techniques and strategies.

The response of the teen researchers to these findings may be the most exciting element of this study. Through interest-driven, socially embedded, and opportunity-oriented Connected Learning that gave them a full experience of the research process, the teen researchers demonstrated metacognition, strong literacy skills, and critical thinking. This shows that engaging youth in these kinds of learning opportunities can have important impacts that can mitigate some of the less critical approaches to information assessment identified in our co-designed study.

Implications for Libraries

In addition to results of our co-designed research study and the demonstrated impacts of participating in the study on the teen researchers, this research also has implications for libraries/library staff and researchers and LIS faculty who are engaged in work with youth. These arise both from the co-designed study and the impacts of our co-research technique. Teens' complex relationships to technology and social media were evidenced by how participants in the co-designed study emphasized learning online but also showed incomplete assessment strategies for engaging with information. The research questions developed by the teen researchers show a deep interest in the impacts of social media and the value of learning. Given these complexities, it follows that libraries and library staff should consider values and perspectives of teens and not simply assume that they have an enthusiasm or skill for technology. While teens may benefit from discussions of risk and support for continued development of critical information literacy skills, they may also benefit from discussion of the opportunities and benefits of technology use and social media engagement. It is also important to remember that geographical location and local population density may inform youths' relationships to and access of technology and social media use, and that the experiences of local teens may not necessarily match national trends.

The co-research process described here demonstrates that teens are capable of high-level engagement with complex tasks over time. This is shown by the teen researchers' engagement in a research process carried out over nine months, even when geographically dispersed. While single programs and events may work well in library settings, there may still be room for more extended engagement with youth, especially when driven by their interests and embedded in social experiences. The YALSA Research Agenda identifies community engagement as a priority area for libraries, and the camp model described in this paper serves as an example of how libraries and researchers can engage teens in this way.^{xxxiii} Further, our approach was designed to apply literacy frameworks to research, building opportunities for teens to access, assess, use, create, and share research. This was certainly the case as the teen researchers showed significant development in their ability to think critically about research, apply it to their own study design, develop new research findings, and share them with an audience. What this study also contributes is that deep engagement in data collection and analysis in a subject area can inform literacy skills *within that area*. In the case of our project, thinking critically about the social media practices of their peers provided opportunities for the teen researchers to adjust their

own practices and engagement. The effectiveness and impact of this approach is relevant for any person interested in developing the learning and literacy of youth. This work shows that community engagement combined with Connected Learning principles can help set the scene for effective long-term interactions that engage teens in high-level literacy practices.

Implications for Research

With regard to research, this work demonstrates that community engagement with teens to structure and design research studies is achievable. Involving teens in the research process from beginning to end results in impacts on research design, interpretation, and presentation. Youth services providers in the field often make the argument that teens have knowledge and expertise to contribute to their peers, their libraries, and their communities at large. The calls to recognize the knowledge and contribution of youth are similarly applicable for research. As recommended by YALSA, this work demonstrates a model for engaging youth in participatory research “in innovative ways that exemplify connected, 21st century learning.”^{xxxiv}

This study employed an approach that explicitly valued the learning of teens by allowing them to lead the design of research questions and survey questions. The adult researchers did encourage refinement of the study protocol through careful questions and asking teen researchers to imagine how they would respond to the survey. However, time constraints limited our ability to fully pilot the design and engage the teen researchers in a significant revision process. One option for this in the future is to formally engage teen researchers in taking their own survey or participating in the study activities they design. This could inform the learning of researchers and provide an opportunity for more extended and in-depth study design, as well as develop a picture of what their perceptions and ideas are before engaging data analysis. While we believe our current research has value and contributes to our understandings of youth social media use, we recognize that there are ways the co-designed study could have been improved, including through more refined survey questions. Future iterations of our work are responsive to the need for teen researchers to have significant time to engage in understanding the structure of research questions, and we encourage other researchers who are engaging with teens in this way to budget a significant amount of time for this process.

This study does have other limitations that we are working to address in future work. This is exploratory work that prompts future research examining the social media perceptions and

practices of youth. This work is not intended to include a representative sample or to contribute generalizable results, though we believe that the major ideas in this paper are likely transferable to other teen populations. The teen members of the research team include one young woman and six young men, mirroring existing lack of representation of women in research endeavors. Recruiting researchers from a variety of non-dominant backgrounds informed by the concept of intersectionality is an opportunity for the future work of our project and the academy at large. The levels of access to technology of some of the research team members are distinct from portraits of technology use at a national scale, which show high levels of access and use.^{xxxv} However, we found that this generated vibrant discussion during the camps, and we believe this can contribute a unique, relevant, and underrepresented perspective to research on teen technology use. The teen researchers and their peer participants come from geographically dispersed, mostly rural areas with significant majority White populations, and as such our results are not representative or generalizable. We are currently identifying partner libraries for future iterations of these co-research camps, ensuring that we have participation from libraries with medium and larger population service sizes and from all the regions of the United States, in order to help ensure that these kinds of activities work for teens from a variety of backgrounds. Ultimately, by connecting with teens from a wide array of areas and backgrounds, we aim to present a model and supporting materials that will be publicly available and relevant to youth service providers, educators, researchers, and teens across the country.

Conclusion

Through collaborative research conducted with teens, this paper makes contributions to understandings of youth social media practices as well as how teens think about and perceive the practices of their peers. This paper presents evidence that teens' assessment decisions about information online can be socially informed and rooted in existing beliefs. This research also shows the rootedness of social media in the learning experiences of teens. Further, this work highlights that teens and adults—including librarians, teachers, parents, and researchers—have similar questions and concerns about the nature of social media engagement and technology use more broadly. We present a promising approach for engaging youth in research and for community engagement that prioritizes Connected Learning and literacy skills development.

While work to refine this approach is ongoing, our first study in this area demonstrates the feasibility and impact of engaging teens in research on youth technology use.

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