# Perceiving Affordances Differently: The Unintended Consequences When Young Autistic Adults Engage with Social Media

Xinru Page
Department of Computer Science, Brigham Young University, Provo, Utah, United States
xinru@cs.byu.edu

Andrew Capener
Department of Computer Science, Brigham Young University, Provo, Utah, United States
acapene2@byu.edu

Spring Cullen
Department of Computer Science, Brigham Young University, Provo, Utah, United States
springc@byu.edu

Tao Wang
Department of Informatics, University of California Irvine, Irvine, California, United States
taow4@uci.edu

Monica Garfield
Computer Information Systems, Bentley University, Waltham, Massachusetts, United States
mgarfield@bentley.edu

Pamela J. Wisniewski
Department of Computer Science, University of Central Florida, Orlando, Florida, United States
pamela.wisniewski@ucf.edu

## ABSTRACT

Social media can facilitate numerous benefits, ranging from facilitating access to social, instrumental, financial, and other support, to professional development and civic participation. However, these benefits may not be generalizable to all users. Therefore, we conducted an ethnographic case study with eight Autistic young adults, ten staff members, and four parents to understand how Autistic users of social media engage with others, as well as any unintended consequences of use. We leveraged an affordances perspective to understand how Autistic young adults share and consume user-generated content, make connections, and engage in networked interactions with others via social media. We found that they often used a literal interpretation of digital affordances that sometimes led to negative consequences including physical harm, financial loss, social anxiety, feelings of exclusion, and inadvertently damaging their social relationships. We make recommendations for redesigning social media affordances to be more inclusive of neurodiverse users.

## CCS CONCEPTS

• **Human-centered computing** → Collaborative and social computing; Empirical studies in collaborative and social computing.

## KEYWORDS

Social Media, Affordances, Autistic Young Adults

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## 1 INTRODUCTION

The net effect of social media on the lives of young adults, especially across the spectrum of neurodiversity, is unclear. Early work on social networking sites (SNSs) as an emerging technology tended to provide a mostly positive view of social media for young adults. For instance, Ellison et al. [30] found that among college students, sites like Facebook were associated with the creation of online social capital, or resources garnered through being in connection with other people. They explained that the 'affordances' of these social networking sites may be beneficial for young adults, especially those with low self-esteem or low life satisfaction, who may otherwise avoid initiating communication with others that would be beneficial for them. Affordances refer broadly to how people interact with technology, and more specifically, to the relationship between "possibilities for actions" [34] that a user can take with a given technology/object (i.e., a digital affordance). More recent work on the effects of social media on young adults has been generally less positive, but also inconclusive. For instance, Shensa et al. [102] observed how the support young adults receive through social media, rather than through face-to-face interactions, was associated with increased levels of depression. Yet, an eight-year longitudinal study found that social media use during the transition between adolescence and emerging adulthood was not significantly related to depressive symptoms or anxiety levels [25]. Leading social media scholars explain that the outcomes associated with social media use are not absolute and vary based on the different affordances of the social media platform, types of engagement, and characteristics of the individual users [116]. As such, more research is warranted on whether and how the affordances of social media lead to positive or negative outcomes for young adults, particularly those who may disproportionally benefit or be harmed.

Since both users and contexts are dynamic, affordances should therefore be interpreted as a variable framework for possible interaction, rather than as a deterministic outcome. In later work, Ellison and Vitak [31] further unpacked key affordances of SNSs (now more commonly framed as “social media”) that support the process of building social capital. Examples of digital affordances include the persistence and searchability of content, the existence of a user profile, the ability to share information through status updates, or the possibility of making new connections through ‘friending’ other users on these platforms. They explain that these digital affordances can help users form new and maintain existing relationships that may provide tangible resources, information, and emotional support. Yet, ‘may,’ is the operative word when examining the relationship between social media affordances and outcomes for young adults as these actions and outcomes are not always aligned as they were possibly intended. Therefore, we are particularly interested in understanding how the affordances of social media can potentially benefit or harm Autistic[1] young adults. For instance, early work by Mazurek [75] studied social media use of adults with Autism and found that those who used SNSs reported having more close friends, but this use did not reduce their self-reported levels of loneliness. Compared to the general population, people with Autism report higher levels of loneliness [7, 11] and more restricted networks of friends, which results in lower satisfaction within their interpersonal relationships [1]. Thus, the affordances of social media may present a unique opportunity for helping Autistic young adults overcome some of the challenges they face when developing social relationships with others. Since social media’s affordances (e.g., Facebook’s prompt asking, “What’s on your mind?” which explicitly encourages users to share their thoughts with their friends) reduce the need for interpreting nonverbal cues and picking up on implicit social norms, conceivably, social media could be a medium that puts neurotypical users and those on the spectrum on a more uniform playing field for social interaction [82]. Thus, we pose the following over-arching research questions:

> **RQ1:** *How do Autistic young adults interpret and use the primary affordances of social media?*
>
> **RQ2:** *What are some of the benefits and unintended consequences when they interpret these affordances differently than what is considered ‘neurotypical?’*
>
> **RQ3:** *How might we redesign the affordances of social media so that they are more accessible to neurodiverse audiences?*

To answer these research questions, we partnered with two community organizations that offer day programs for Autistic adults to develop social skills and for job training and preparation. We conducted ethnographic field work at these sites and interviewed eight young Autistic adults enrolled in these programs, as well as ten staff members, and four parents of these young Autistic adults. Our participants (i.e., Autistic young adults) were individuals who were verbal but had significant support needs (requiring level 2 support [34]), for which most of their parents still acted as their legal guardians into adulthood. All of our participants were social media users to some extent, with most referencing their experiences with using Facebook. Through field observation and interviews with Autistic adults, parents, and caretakers, this paper presents a list of challenges for Autistic adults to interact with social media using social media’s affordances as a framework.

This work surfaces deep insights from our participants and their communities of support. Overall, we found that our participants frequently engaged with the digital affordances of social media (i.e., sharing and consuming user-generated content, making connections with others, and networked interactions) in ways that increased their social interactions with others. However, they often interpreted these affordances literally (i.e., “should” rather than “could”), which sometimes made others uncomfortable or left them vulnerable to risk. For instance, prompts to share often led to oversharing. Explicit labels, such as connecting with ‘friends,’ caused confusion when people they interacted with did not play that role. Status visibility of their connections being “available” sometimes left our participants feeling anxious and confused as to why their bids for connection online were being ignored when they messaged others who showed as online. Literal interpretation of social media affordances led to detrimental or unintended consequences, such as inadvertently damaging their relationships with others (e.g., being accused of stalking), suffering paralyzing anxiety when they could not understand others’ (non) response to their messages, financial loss, as well more serious consequences of physical and sexual abuse. We unpack how our participants’ differing perceptions of social media affordances as explicit *ways to engage*, rather than *possibilities* for potential action, caused unnecessary stress and led others to hold negative perceptions of these Autistic young adults.

Given the prominence of social media use for a large portion of the population around the world, obtaining design knowledge to improve its inclusivity is critical and timely. Our findings highlight the need to design social media with neurodiversity in mind. By showing how differently perceived affordances have great consequences for subsequent use, particularly for Autistic users, we present a novel approach towards inclusive design. The benefits of connecting with others through social media could potentially address the major gap in social, financial, and physical well-being of Autistic young adults. However, the current drawbacks of using social media can be severe and sometimes do more harm than good. We provide suggestions for designing to support Autistic users and make recommendations for how to consider neurodiversity by design. By recognizing how Autistic individuals perceive the affordances of social media differently, we as a community can work towards more inclusive design so that social media can become a tool for positive influence in neurodiverse users’ lives.

## 2 THEORETICAL FRAMEWORK OF AFFORDANCES

We utilize an affordance perspective to understand how users perceive the capabilities enabled by social media [34]. Affordances refer to how an object/platform can be used (a.k.a., the actions that are supported) in a given environment [43, 82]. Much of the earlier literature on affordances in the field of human-computer interaction emphasized designing products and platforms to convey affordances that are universally understood in order to increase usability for a wider audience [83]. This literature often focused on how to design digital interfaces to convey its affordances to the user such as making a button look like a 3D button does in the offline world in order to convey to the user that it can be pressed. However, the broader scholarship emphasizes how an affordance is a relational property since different people may have different abilities; thus, perceiving how a system could be used in different ways [43, 44]. For example, a door handle can be grasped and pulled by someone strong enough; however, for a baby who has not yet developed the strength or stature to open a door, a door handle may more readily afford the ability to pull oneself up from a crawling to a standing position. Uncovering users' differing perspectives of affordances of a given system allows us to understand the unique problems that can arise for diverse users. Thus, we draw on this theoretical perspective of affordances and investigate how our participants perceived affordances of social media, which in turn strongly shaped how they used it.

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[1] We choose to use the term “Autistic” given the identity preference of the Autistic community. However, when citing original sources, we use person first language, if used in their works. Nonetheless, we refrain from labeling Autism as a disorder, rather than a form of neurodiversity.

Scholars have investigated the impact of a myriad of social media affordances on social phenomena, including social capital [32], knowledge sharing [72], and privacy [118]. For instance, Page et al.'s recent work on how different users perceive the same social media privacy feature (e.g., unfriending, untagging, deleting a post) as either pragmatic tool versus a relational hindrance significantly impacted whether and how they used these privacy features in practice [84]. Those who were concerned that enacting privacy boundaries would harm their relationships were less likely to use these privacy features than those who utilized the privacy features to accomplish a specific task (e.g., removing useless content from their social media feeds). This demonstrates how the same technological feature can offer different affordances for different users. In fact, this example illustrates how technologies are far from neutral tools and affordances can instead "request, demand, allow, encourage, or refuse the user from taking certain actions under different circumstances and contexts" [59]. As such, we focus on a subset of key social media affordances that have been shown to shape a diverse range of social activities. While there are many affordances of social media, there are a key subset of core affordances that align with Boyd, Ellison, and their colleague's foundational definition of SNSs (e.g., a public or semi-public profile, explicit way to connect with others, and a means of traversing this connection-based network [15, 29, 32]) that delineates these platforms from other forms of online media: 1) Consuming User-Generated Content, 2) Sharing User-Generated Content, 3) Connecting with Others, and 4) Networked Interactions.

## 2.1 Sharing User-Generated Content

First and foremost, SNSs afford users the ability to produce and share a range of user-generated content (e.g., text-based status updates, photos, video, media) and share it on their profile and/or newsfeeds [15, 29, 32, 51, 53, 69]. Ellison and Vitak note that this affordance is commonly used to share opinions, knowledge, and/or information in an efficient, one-to-many way [32]. The post, share, reshare, and tag features are all examples of how SNSs facilitate unfettered sharing. De Wolf refers to this affordance as shareability which is key to consider in teen's privacy management practices on social media [82]. Scholars have also focused on more specific sharing affordances. Leonardi & Vaast explain how the affordance of broadcasting user-generated content establishes common ground for forming communities and democratic participation, but also leads to an attention economy since observers are limited in their processing capacity [65].

Many scholars have studied what people share on social media platforms and how they choose to share various user-generated content. Individuals can share a variety of information from political to interest-based content, but self-disclosures have been a topic of particular focus in the literature [121], especially with regards to privacy [41]. Much work focuses on self-disclosure, self-presentation, and impression management [62, 121], often drawing on Goffman's conceptualization of self-presentation as a performance for a given audience. Social media can interfere with one's ability to present a certain way to certain people, by combining multiple audiences who see the same performance (a.k.a., context collapse), or by unwittingly revealing what should have been a backstage performance not meant to be seen by the audience [46, 62, 80, 119]. Indeed, scholars have observed that audience size and diversity do impact what people share [117]. Moreover, social media users tend to share more positive and negative emotions when they have smaller and denser friend networks on social media [16].

Devito et al. emphasizes how having multiple social media platforms allows someone to present themselves differently on each platform and thus have multiple self-presentations [28]. Other scholars have uncovered how some people maintain this separation between their different roles by creating multiple accounts on the same platform [110]. These different techniques are attempts to control the audience of the user's posts and avoid context collapse [74] where different audiences are all able to see the same content. Much research identifies how people usually do not understand who is actually viewing their content and typically have a certain audience in mind (e.g., family, potential dog sitters) when they share on social media, even though technically the post is reaching a much broader audience [3, 67, 68]. As a result, users often modify their sharing practices in an attempt to reconstruct the boundaries that typically exist in offline sharing [118]. Sometimes this might consist of self-censorship or only disclosing information that would be appropriate for the lowest common denominator in such a diverse audience or other times it may involve using privacy features to adjust who sees the post [117].

## 2.2 Consuming User-Generated Content

While more passive than creating and sharing user-generated content, social media also promotes the ability to consume various forms of user-generated content [15]. For instance, seeing content in one's feed or on another's profile provides a wealth of consumable information [29]. This affordance is widely used for staying updated on people, news, acquiring knowledge, and finding information [32, 57]. Kim & Ellison explain how the social media affordance of observing can even lead to increased offline political participation [59]. On the other hand, Leonardi and Vaast warn how such social transparency can lead to increased herding and decreased privacy as people can see so much information about others [65]. Fox & Moreland point to how the affordances of visibility and accessibility of content enables people to monitor others' activity without their awareness and to do so from almost anywhere and anytime [37]. Much scholarship has also focused on a specific type of consuming, triggered attending, where an algorithmic trigger will alert the user to content for them to consume [82]. This can notify users of comments and reactions to their posts or bring their attention to content that might be interesting or relevant. While this type of consumption helps focus the user's attention, it can also lead to consuming content without historical context and with little socialization to the communicative norms of an online community [72].

Research has also focused on understanding how and why people consume information. Burke et al. find that directed messages from friends increases social capital [17]. They also show that while passively consuming broadcast information does not increase social capital, it does help those with lower social fluency get value from their social connections. Other research has investigated echo chambers where the user is exposed only to a certain point of view and whether this normalizes those views for the user [27, 40]. Still other scholars point out how social media is akin to "leaky pipes" where knowledge sharing can be supported because information can be seen by more than the people to which the post was originally directed [64]. This affordance of social media is best exposed by the "threads" or "feeds" that social media platforms employ. Finally, social media often is designed to supply endless amounts of content for users to consume. This includes photos, videos, text posts, and interest-based content, as well as content from network connections. Features such as infinite scroll have proven to be extremely effective in accomplishing this intended affordance [58].

## 2.3 Connecting with Others

Connecting with others is integral to boyd and Ellison's canonical definition of SNSs. They and many scholars focus on how social media is a way to connect [15], often with a diverse range of people with whom one would not ordinarily be able to encounter [26, 65, 101, 113, 114]. They explicitly call out the ability to add people to one's Friend list and the Followers lists as affording connections. Indeed, researchers emphasize that the ability to connect is one of the most influential affordances of social networking sites [113, 115]. Thus, features relevant to making and breaking connections include initiating/accepting/rejecting friend or follower requests, as well as unfriending/blocking people. The literature has coined many terms to describe the affordance of connecting such as networked-informed associating [72], network articulation [65], association [59, 113, 114], and connectivity [37]. Features such as "People You May Know" on Facebook and Instagram also encourage users to form new connections [82]. Additionally, there are ways to view one's connection count, track the number of connections as analytics, and view each current connection. However, these connections are characterized by network translucence – while the networked connections between people can be observed, there is no indication about why the connection exists or the strength and nature of the tie [65]. Thus, there can be issues of people being influenced by, e.g., those labeled as friends of their Facebook friends, but based on faulty assumptions about the nature of the relationship [72, 115].

Commonly this affordance is used for relationship maintenance, to reconnect with people, to keep in touch with individuals that one knows from different life spheres (e.g., colleagues, family, acquaintances, high school classmates) or to connect with others who have similar interests or who might provide social capital [32]. Research has shown that for those in minority groups associating with similar others can increase a sense of belonging [37, 82]. Social media have become networked publics that afford the ability for people to be connected in a virtual space even though they are physically disperse [14]. Wellman and Rainie introduce the concept of networked individualism and explain how social media enables its users to reach a much wider range of weak ties as well as strong ties [91]. Indeed, scholars point out how we now are going beyond the observed offline maximum number of relationships that a person can maintain (a.k.a., historically Dunbar's number, 150, marks the upper bounds on the number of relationships a person can maintain at once), to social media where people can be connected to thousands [109]. However, scholars continue to investigate the nature of those relationships and the quality of those relationships [90].

## 2.4 Networked Interactions

While sharing and consuming user-generated content are unidirectional affordances that focus on just sharing or just consuming, many social media scholars have emphasized the importance of the bidirectional affordance of networked interactions. Being able to react to or expand on someone's content allows people to make an exchange and maintain an ongoing narrative. Boyd and Ellison specifically point out how comments and private messaging enable interaction between users [15]. Kane et al. further include one-click reactions such as "Likes" as a common way to react in their updated definition of modern social media networks [57]. Thus, features such as comments, direct or private messaging, and reactions such as likes or emojis afford interactions between users [16]. Some scholars focus on the importance of reacting to others' content, describing it as the affordance of metavoicing [72] or giving social feedback [37]. Indeed, Lu & Hampton illustrate how social media increases perceived social support by enabling people to be aware of whether others are attentive to their posts [70]. This is in contrast to just sharing content with no insight into what others think or their reactions to the content.

The affordance of networked interactions is often used for topic discussions, online dating, support, collaboration, or requesting information, advice, or resources [32]. Scissors et al. emphasized the importance of receiving social affirmation through lightweight interactions, specifically the importance of receiving enough "Likes" which serve as a cue of social acceptance. This is even more important for those with lower self-esteem and higher levels of self-monitoring [99]. Indeed, research has shown that people can develop relationships and build trust over time through online interactions, as well as become vulnerable to privacy infractions [88, 120]. Other research points to how the importance of these different types of interactions differ depending on the user's life stage and social environment [85].

Scholars have also investigated the nature of how people interact on social media. Seo et al. emphasize how perceived social support can increase with frequent interaction and fast feedback [100]. Teevan et al. found that whether someone receives a response varies depending on how a question is asked [111] and marketing research points out how the type of content is important for the level of

**Table 1: Social Media Affordances and Examples of Supporting Platform Features**

| Social Media Affordances | Examples of Supporting Platform Features |
|---|---|
| Sharing User-Generated Content | Posting/Sharing to Timelines/Profiles |
| Consuming User-Generated Content | Reading Newsfeeds, Following Hashtags or Special Interest Groups |
| Connecting with Others | Friending, Unfriending, Blocking |
| Networked Interactions | Liking, Commenting, Chatting |

engagement [63]. Burke & Develin observed how hearing about a friend's troubles on Facebook leads users to reply with more emotional and supportive comments. While networked interactions can be a way to create consensus and generate empathy, it can also lead to promoting inaccurate information or negative emotions through a bandwagon effect [72, 82].

Table 1 summarizes the key social media affordances examined within this paper and provides some examples of social media features that supports each of these affordances. While we acknowledge that many of these features and affordances share overlap and can be seen as reciprocal in nature, this framework was useful for surfacing the main themes that emerged from our data. Next, we review the literature on Autism and social media.

## 3 RELATED WORKS

Our research focuses on Autistic social media users. Thus, we first introduce Autism as a form of neurodiversity and then summarize the work that has been done in the area of Autism and social media.

### 3.1 Autism and Neurodiversity

Similar to other neurological or developmental conditions (e.g., ADHD, learning disabilities), Autism can be viewed as a form of neurodiversity, rather than as a deficit, disease, or disorder. Given that all people have neurological differences, inclusive language around neurodiversity is important in promoting self-advocacy and empowerment of Autistic individuals [79, 106]. At the same time, Autism is considered a disability that poses challenges to the individual. According to the CDC [19, 20, 22], Autism can cause significant communication, social, and behavioral challenges associated with developmental brain differences, presenting a spectrum of differing abilities among Autistic individuals. While some people find functional or binary labels (e.g., low or high-functioning Autism) useful, others find them harmful and ableist [132]. Instead, it is a better practice (though still not a perfect one) to follow CDC's Diagnostic and Statistical Manual (DSM-5) [21] of the levels of support (1 = Requiring Support, 2 = Requiring Substantial Support, and 3 = Requiring Very Substantial Support) needed by Autistic individuals [66]. Meanwhile, it is important to remember that all Autistic individuals are unique [36], just as we all are, and should be treated with respect.

Critical disability studies is a growing and vibrant field within Human-Computer Interaction (HCI) comprised of neurotypical and neurodiverse researchers conducting important work on assistive technologies, accessibility, and inclusive design [54, 73, 107]. A common theme of this body of research has been to actively involve people in research about them. For instance, Zolyomi et al. [128] interviewed Autistic adults to understand their experience with video calling compared to face-to-face interactions. They found that Autistic users had more difficulty interpreting both verbal and non-verbal cues, resulting in higher stress levels and cognitive load. This led the researchers to develop a neurodiverse-sensitive model of computer-mediated communications to support the cognitive, sensory, and social needs of Autistic adults. Similarly, we aim to contribute to this extant literature by understanding the experiences of Autistic young adults when using social media. Importantly, our research is a design critique of social media in terms of the assumptions around how users should perceive and engage with different social media affordances, rather than a critique of the Autistic individuals who participated in our study. Next, we synthesize the existing literature on social media use by Autistic users.

### 3.2 Social Media Use by Autistic Users

Social media has been found to play a role in improving self-confidence and well-being [112]; Nonetheless, research has also found that certain personal dispositions or usage patterns can lead to negative outcomes, such as increased loneliness or decreased well-being [4–6, 18, 56]. Studies have also identified online safety risks for maintaining boundaries about what to share and how to interact with strangers online [9]. Indeed, there are challenges to using social media among neurotypical populations, including harassment and overuse (c.f., [11, 12, 52, 60, 105]), which could be even more problematic for Autistic users given that they experience more on- and offline harassment than neurotypical populations [24, 38] and have been shown to overuse other screen-based media [48, 75, 77]. For instance, Macmillan et al. [71] surveyed parents and found that Autistic children experienced significantly more online risks than non-Autistic children. As such, the HCI literature on social media use of Autistic individuals has largely focused on supporting the social-emotional needs and online safety of Autistic children [71, 94, 95]. For instance, Ringland et al. [94, 95] studied the appropriation of Minecraft as an assistive technology is supporting (and re-conceptualizing) the social needs of Autistic children. Outside of HCI, clinical researchers have studied social media as a tool to improve social and behavioral skills for Autistic children (e.g., [48]). However, when the daily routine of high school ends, many Autistic young adults transition to a particularly vulnerable state with drastically decreased social and structural support [13].

The move towards independence may involve searching for work and finding activities to fill their day [133]. Overall, there is very little research on how to support this transition and young Autistic adults' needs throughout adulthood (for a review see [55]). Yet, quality of life for Autistic adults is significantly connected to having a supportive social network [92]. Related research on computer-mediated communication, more generally, points to how

Autistic individuals leverage interest-based online communities and find supportive relationships [18]. However, that same research points out how issues around trust, disclosure, rigid thinking, and perspective-taking make it difficult to maintain relationships.

While social media could potentially provide additional social and functional support for Autistic young adults, the scant scholarship on social media use of Autistic individuals focuses on children [71, 94, 95], teens (e.g., [49]), or young adults who are relatively independent, often those who are attending college (e.g., [66]). Further, a critique of some of this literature is that many studies use deficit-based framing [35] that focuses on the deficits of the Autistic individual, rather than their differences or strengths. For instance, some studies of Autistic teens point out how they have unhealthy social media practices that lead to physiological, cognitive, social, emotional, legal, and safety issues [49]. Scholars are mixed in their assessment of whether Autistic teen's high engagement with social media (spending an average of 7.5 hours a day, 7 days a week using these tools; [93]) has a negative impact or presents an opportunity to positively engage them through social media [126]. Another study of Autistic adolescents showed how those with lower anxiety had better friendship quality with greater social media utility, however this effect was not seen for those with higher anxiety [97]. This speaks to how Autism is a spectrum and certain characteristics are important to consider.

Moreover, the research on the benefits of social technology use among Autistic adults [45] has largely been survey-based and inconclusive. Whereas some research has found a correlation between social media use and social well-being for Autistic adults [123], other work suggests this may not be a causal relationship [75]. Yet other studies show that mediated social communications leads to lower life satisfaction [1, 2]. Research has also correlated social media usage by Autistic individuals with wellness indicators such as happiness [122], friendship quality [97], and closeness [76]. Interestingly, the correlation is not always straightforward – happiness has been found to correlate with social media use, but then decrease after a certain threshold of usage [122]. A few studies have leveraged case studies to understand social media use, including one that suggests how certain practices helped an Autistic user leverage Facebook to increase the quantity and quality of their social ties [98].

Specialized social networking platforms have also been developed to connect individuals on the spectrum with one another [134, 135]. One study also looks at support groups for Autistic individuals on Facebook and uncovers how group members preferred commenting to Likes and tagging [127]. While platforms and groups that connect Autistic users can provide a targeted type of social connection, they do not allow individuals to interact and make connections with neurotypical family, friends, and coworkers. These connections are a crucial component of a healthy support network and recent research reveals that a key reason to use social media is to connect to these wider audiences [103]. Furthermore, even though social media can be used for developing new relationships, Autistic users have reported mainly using social media for maintaining social connections [76]. Yet, Autistic individuals still experience greater barriers to digital inclusion [23] than others, even more than, for example, those who must overcome speech/language impairment, learning disabilities, and intellectual disabilities in order to use social media [77]. That is why social media movements, such as #ActuallyAutistic [129], a platform where Autistic adults push back on ableist social norms, are so critical to the Autistic community in terms of being able to share their personal – often painful – experiences of exclusion and to sense-make how to interact with society and better understand themselves. In summary, it is imperative to understand how we can better support Autistic young adults in their use of social media, so that they can reap the benefits and mitigate the risks associated with engaging with others online through these platforms.

Given the many contradictory findings from prior studies of social media, and that they are mostly correlational data, we take a qualitative approach that allows us to gain a more nuanced understanding of how Autistic young adults use social media. Furthermore, we focus on a different subpopulation of Autistic adults than prior research to be able to understand the experience of those who are more in need of offline support and thus likely to have greater challenges online.

## 4 METHODS

### 4.1 Study Overview: Ethnographic Field Work

We partnered with two community organizations located in a metropolitan area in the Northeastern United States (which we refer to as "Alpha" and "Beta") to conduct ethnographic field work and interviews. These organizations provide day services, such as job training, life skills, and social enrichment for Autistic adults. To be eligible to receive services from Alpha or Beta, clients must be formally diagnosed with Autism. Alpha serves Autistic individuals with an IQ over 70, and Beta serves those with an IQ below 70. We conducted field work at these sites and recruited interview participants through these organizations starting Fall 2018 and concluding Fall 2019. The first author immersed herself in the research context and target population by visiting and participating in various programs offered by the organizations, as well as ones offered by other local organizations serving Autistic clients. The researcher interacted informally with Autistic individuals, parents, staff, and other allies to gain a better understanding of their social context. Furthermore, the researcher was invited to present trainings on online safety and engaged with the audiences during the presentations, as well as spoke with Autistic individuals, parents, and staff afterwards to understand their challenges related to technology use and online safety. Social media concerns often came up in these discussions and, thus, our ethnographic field work was used to contextualize and reinforce findings from our interviews.

To recruit our interview participants, our community partners advertised the study to their clients, staff, and families through email lists and word-of-mouth. Because prior work has shown that Autistic young adults and their caregivers often have shared responsibilities in managing social media accounts [89], parents and case workers were also interviewed. We conducted 22 interviews in total, consisting of eight Autistic adults (referred to as "participants" or "social media users" throughout this paper), four parents (referred to as "parents"), and ten social service providers (referred to as "staff") who worked directly with the participants and parents. Our inclusion criteria for Autistic participants were that they were

**Table 2: Descriptive Characteristics of Interview Participants**

| ID | Gender | Org | Description/Title |
|---|---|---|---|
| Participant1 | M | Beta | Uses Facebook; Part-time job at a grocery chain |
| Participant2 | F | Beta | Uses Facebook, Instagram; Participates in group work programs |
| Participant3 | F | Beta | Uses Facebook, Instagram; Participates in group work programs, Part-time job at hotel chain |
| Participant4 | M | Beta | Uses Facebook, Instagram; Participates in group work programs |
| Participant5 | M | Alpha | Uses Facebook, Instagram, Twitter, Snapchat, Badoo; Part-time job at grocery chain |
| Participant6 | F | Alpha | Uses Facebook, Instagram, Snapchat, Dating Websites; Recently lost part-time job at grocery chain, looking for work |
| Participant7 | M | Alpha | Uses Facebook, Twitter, Snapchat, MeetMe |
| Participant8 | M | Alpha | Uses Facebook, Twitter, Reddit, Instagram, Snapchat |
| Parent1 | F | Alpha | Mother of a client at Alpha |
| Parent2 | F | Beta | Mother of a client at Beta |
| Parent3 | F | Alpha | Mother of a client at Alpha |
| Parent4 | M | Beta | Father of a client at Beta |
| Staff1 | F | Alpha | Program Coordinator |
| Staff2 | M | Alpha | Program Director – oversees staff and programming, works with clients |
| Staff3 | F | Alpha | Adult Support Coordinator, Case Manager |
| Staff4 | M | Beta | Case Manager – plans, runs, teaches day programs, works at group-supported employment sites |
| Staff5 | F | Beta | Case Manager |
| Staff6 | F | Beta | Case Manager, Job Coach |
| Staff7 | F | Beta | Case Manager |
| Staff8 | F | Beta | Case Manager |
| Staff9 | F | Beta | Assessment Manager and Job coordinator – helps with job placement |
| Staff10 | M | Beta | Program Manager at a residential home affiliated with Beta – oversee staff and work with individuals |

actively enrolled in social services from these organizations (meaning they were formally diagnosed with Autism) and 18-years-old or older. Furthermore, they had to either use social media or have used it in the past. The inclusion criteria for parents and staff were that they were 18 years old or older and either parents or staff members who cared for or worked with the Autistic adults.

Our interview questions centered generally on social media use. However, it turned out that while all participants used various social media platforms, they spent most of their time and focus on Facebook, and particularly Messenger. The problems and benefits they discussed around using social technologies were also centered on interactions with Facebook, Messenger, as well as texting. Most participants were employed part-time or had limits on how many hours or how much they could get paid because they would permanently lose their government-sponsored benefits if they surpassed their earnings limit (even if they were to drop below the income threshold in the future). This contributed to their having much more time on their hands, fueling a need to find things to occupy them. This was especially true of the participants enrolled in Beta – many spent every day enrolled in Beta's day programs and they all knew one another. The participants at Alpha attended programs much less frequently and did not necessarily all know one another. One of them even had worked for years to finally earn a driver's license which was very unusual in these organizations. Our participants all lived at home with their parents with few transportation options and needed substantial support, which is why they sought support from these organizations. Descriptive characteristics of our sample are shown in Table 2.

All but one interview with Autistic participants occurred onsite, where a staff member of Alpha or Beta was present in case assistance was needed (though none was needed). Written consent to participate was obtained ahead of interviews. Autistic individuals who were their own guardians gave their own informed consent; otherwise, we received parental consent and participant assent. One participant interview was conducted over video conference with their parent present for their convenience. Parents and staff gave their own consent. Interviews with parents and staff members were conducted either in person or over the phone, based on preference. At the beginning of each interview, we verbally confirmed consent again. All interviews were conducted by the first author, with the fifth author present at interviews that took place onsite at Beta to take notes and assist in asking follow-up questions. The study was IRB approved.

## 4.2 Semi-Structured Interviews and Data Analysis Approach

We conducted semi-structured interviews with our Autistic participants regarding their social media use, as well as challenges and benefits of use. We asked for concrete examples of these challenges and benefits and probed on specific details of how they came

**Table 3: Codebook for Affordances**

| Affordances | Actions Perceived/Taken | Quotation |
|---|---|---|
| Sharing User-Generated Content | Assume Single Audience | “send me inappropriate naked pictures.” and she “posted ‘em” on Facebook.” –Participant4 |
| | Assume Single Purpose | “There was a client we had a couple years ago...he wrote a story, like a movie script and it involved people in the high school dying and he posted it... No one believed there was any intent to follow through [but] he didn’t get the connection” – Staff2 |
| | Oversharing Information About Others | “make references to [his] sister...something about his sister and she wouldn’t like that.” – Parent1 |
| | Following Sharing Prompts at Face Value | I had to do that [share my phone number] because when I made my account it said phone number or email” – Participant3 |
| Consuming User-Generated Content | Interest-based Immersion | “Facebook Groups, those are a really big benefit. . . I’m in a lot of sports groups.” – Participant8 |
| | Constant Consumption | “She feels like when she can she’s supposed to always be on social media... like she’s missing something.” – Parent2 |
| | Trusting Content at Face Value | “It was definitely really difficult for him to kind of process that just because someone posted that picture doesn’t mean that’s what they really look like.” – Staff10 |
| | Visceral Reaction | “I get really stressed out sometimes” from seeing “drama” |
| Connecting with Others | Maintaining Social Connection | “I can contact family members that live far from me. Family that I don’t usually see. They live far. Too far for me to even go visit.” - Participant3 |
| | Labels Reify Relationships | “I thought I was her friend, but she said, ‘You’re not because we don’t know each other well enough.”’ – Participant1 |
| | Relationships Require All Access | “When you get blocked, mentally sometimes it messes with you and you ask, ‘Is it about me? Did I do something wrong?”’ – Participant7 |
| | Single Rule-based Connections | Accept all friend requests from females and deny all requests from males – Participant3 |
| Networked Interactions | Social Engagement | “They come here every day, they hang out with the same people every day, and then they go home and they might not have much of a social life outside of the people they know here. So being able to have a way to connect with people [is important].” – Staff8 |
| | Expectation of Immediate Feedback | “I’ll put something on Facebook and I’ll say, ‘Well why hasn’t this person responded?”’ – Participant7 |
| | Direct Responses | lacked a “filter” and was often “messaging inappropriate things or saying not nice things.” – Parent2 |
| | Difficulty Interpreting Emotion and Intention | “Sarcasm, joking, they sometimes can pick it up in person. But I think if they read it, they would not.” – Staff3 |

about. Clients are not allowed to use their mobile devices on site at Beta, but at Alpha we were able to ask participants to look at their social media accounts in answering questions and see their screens when they volunteered to show us. For parents and staff, we asked about their experiences and observations of social media usage by their Autistic adult children/clients. The semi-structured interviews were centered around three main inquiries: 1) benefits and/or motivations for using social media, 2) dislikes and challenges with using social media, 3) and improvements that Autistic participants, parents, and service providers would like to see on social media platforms to maximize these benefits and minimize these challenges for users within the Autism community. Interviews were audio recorded and transcribed afterward.

We conducted an iterative open-coding process [108] to take a bottom-up approach to address our research questions. The fourth and fifth authors initially coded the interviews to identify benefits and challenges of social media use, but what soon emerged was that the challenges were tied to how our participants perceived the affordances of social media. Thus, in a second round of analysis, we grounded our findings in the literature on the primary affordances of social media and the second and third authors each coded all the transcripts for these affordances of social media and identified the unintended consequences and benefits that resulted from users acting on these affordances. The coders consulted with one another on a near-daily basis and the advising authors on a regular basis throughout the coding process. They reconciled any differences in coding to form a consensus on the final codes. In Table 3 below, we present our final codebook, which identifies four major affordances of social media and how these affordances were differently perceived/utilized by our Autistic participants.

**Table 4: Codebook for Unintended Negative Consequences**

| Unintended Consequences | Type | Quotation |
|---|---|---|
| Negative | Risk of Harm | "Another client was fighting with somebody. And then they tagged that they were somewhere, and then the other person showed up there" – Staff8 |
| | Relational Damage | "Sometimes people. . . come back on and say, 'Why did you message me so many times?' And then. . . it's awkward, it's like, 'I don't know what to say to this."' – Participant7 |
| | Social Anxiety | "We're comparing ourselves to others. It is. It's judging. Judging yourself and others. For him, I can say it's made him miserable, it's fueled his anxiety." – Parent1 |

Additionally, the unintended negative consequences of how participants interpreted and used the affordances of social media were identified and are presented in Table 4. Note that consequences arose from a variety of affordances – there were few one-to-one mappings. Thus, we present them as a separate and flat list. Examples of these consequences are presented throughout the results section.

Now we turn to the results of this research to present a richer description of these perceived affordances and the unintended consequences that followed.

## 5 RESULTS

Our overall findings reveal how our Autistic participants, who often take a very literal interpretation of conversations and events in the offline world, also take a very literal interpretation of social media affordances. Rather than perceiving these affordances as possible actions that they *could* perform given the appropriate context, they often treated them as actions that they *should* perform. This manifested in many ways. In this section, we describe how the key affordances of social media (sharing and consuming user-generated content, connecting with others, and networked interaction) were perceived by our participants and led to modes of interaction that resulted in unintended consequences. While many consequences tended to be negative, we also highlight some positive consequences that resulted from these differently perceived affordances.

### 5.1 Sharing User-Generated Content

A key affordance of social media platforms is asynchronously sharing information to a wide audience. For example, social media profiles invite users to broadcast information about themselves such as contact information, age, what schools they attended, their career, relationship status, or political and religious affiliations. Update-style features such as Facebook posts or Twitter tweets encourage users to share timely information with pithy prompts such as "What's on your mind?" (Facebook prompt). Social media feeds are populated by what other users share, implicitly representing a norm of sharing information. We found that our Autistic participants interpreted this affordance differently than what has been portrayed in the literature, which led to challenges.

*5.1.1 Assume Single Audience.* Social media platforms promote information sharing to enhance relationships and our participants often used it for this purpose. However, we observed extreme consequences of context collapse where Autistic young adults would often have a very specific audience and purpose for sharing in mind and post content with the expectation that it would reach that specific audience for that purpose, despite the broader audience that could actually see it and the broader purposes for which the content could be (mis)used. For example, one interviewee shared that his ex-girlfriend (who was also Autistic) would often "*send me inappropriate naked pictures*." (Participant4) Even though she stated she only sent pictures to him, she "*posted 'em" on Facebook*" which broadcast this content to a wider audience than she intended.

Allies corroborated this tendency to assume a specific audience. One parent explained how her daughter would post on Facebook but *"sometimes she'll just not even expect me to respond. And then if I do respond, she's like, 'Oh, why did you respond to that?' 'Well, why did you put it on Facebook in the first place?' If you don't want me to respond, then don't put it out there."* (Parent3) Her daughter would post with certain people in mind and be caught off guard when her mother responded to the post. This is another example of how participants often assumed that social media afforded them the ability to share with specific others, even in semi-public or public forms.

*5.1.2 Assume Single Purpose.* Autistic young adults also held narrow assumptions about the reasons for sharing content without realizing how it could be interpreted as being posted for a different purpose. For instance, one staff member shared how *"there was a client we had a couple years ago...he wrote a story, like a movie script and it involved people in the high school dying and he posted it... No one believed there was any intent to follow through, but he was like, the characters that died were names of people in his high school and some of them died in a violent fashion."* (Staff2) The client's intention was to share an artistic masterpiece that he had created, and even though he gave his characters the names of real-life students, he had no intention to threaten them or express any ill-will towards them. The school administration, students, and parents did not see it that way which resulted in his expulsion. The program director had to explain to the young adult how others could interpret it that way since *"he didn't get the connection. . . What would appear obvious... he didn't understand the negative consequences of that. So I think that probably happens more often than not when people post stuff. Even in conversation in real life [they say things that can seem inappropriate to others]. So that might come across on social media"* (Staff2).

Along similar lines, one interviewee shared a post "for a fundraiser for the hospital that was helping my cousin try to recover, and stuff" which contained his street address so people could contribute funds to the cause. (Participant4) Despite his mother and brother subsequently telling him that he shouldn't share his address, he explained to us that he left it there so "if they wanna give money to give to the hospital to help my cousin," they could mail it there. This illustrates how Autistic young adults often have in mind a certain audience (people who want to help) and purpose (to donate money) that shapes their behavior despite what others may say. Parent3 reinforced how this behavior was typical in offline scenarios as well:

> *People used to take advantage of her. When she was driving, they would say, "Come pick me up and we'll go get a pizza. . . She'd go, and she'd find out that oh yeah, they were going to get a pizza, but they were clearly expecting [her] to pay because they knew [she] had the money. So, they'd get to the place, they'd say, "Oh, we don't have the money." So obviously, [she] would just pay. I mean, people took advantage of her a lot. And she did not ever pick up on it. – Parent3*

Here we see that the purported motivation was to go out and get pizza to be with her friends. An ulterior motivation to take advantage of her financially never occurred to her despite repeated occurrences.

Parents and staff members emphasized how location sharing was of particular concern. One staff member relayed how in one instance "*another client was fighting with somebody. And then they tagged that they were somewhere, and then the other person showed up there*" (Staff8). In this example, the Autistic young adult tags a location for an unrelated reason, but the perpetrator used that information to show up and confront the individual. Fortunately, this specific episode did not lead to physical harm, as the altercation was "*verbal.*" However, the staff member went on to share concerns about another client saying, "*She'll talk to these men online and then be like, 'Oh, I'm going out to eat,' and tags herself there and it's like, what if those guys, <exacerbated look>, you know what I mean?*" (Staff8). Other young Autistic adults experienced egregious examples of this disconnect between wanting to get to know a new online acquaintance and ulterior motives. A staff member recounted how one of their clients had "*been taken advantage of*" (Staff6) when she posted an invitation to meet up in person. Despite being sexually assaulted, our young Autistic adult participants did not draw the connection between the original purpose for which they were sharing and the potential different offline consequences. The staff member noted that for this individual, "*she still does it, which is very sad.*" (Staff6) Another interviewee likewise did not connect the sharing of her address with her subsequent assault. Instead, she explained the reason she stopped sharing information on Facebook was at her parents' request: "*I was just told by family members not to post stuff on Facebook, and I just haven't since*" (Participant6).

Parents and staff also frequently expressed concern at having seen participants and other clients fall prey to deliberate attempts of stealing and/or misusing their personal information. One staff member shared that some of his clients would share their home addresses and "*think [they were] sending it to some sort of online dating, but really it's someone trying to steal [their] information.*" (Staff10) Staff members commonly described their Autistic clients as very trusting; and thus, susceptible. Interestingly, parents and staff members often put the onus of blame on the Autistic individuals, rather than the ease in which social media affordances made sharing personal information inappropriately.

*5.1.3 Oversharing Information About Others.* Our participants explained to us that it was inappropriate to talk about someone on social media or to share someone else's personal information without their consent. One tactic that several interviewees took to avoid this faux pas was *vaguebooking*, where they would talk about someone but not directly mention someone by name in their posts. Yet, this rule-based approach to netiquette proved inadequate at times, as their audience could often still infer the individual being discussed and read between the lines of their posts. One participant recalled this happening with another peer at Alpha: "*It was one of those posts where it was about somebody, but your name wasn't there, but 'you know who it was' kind of thing.*" (Participant6) In this instance, despite following the rule to not talk about a specific person, the poster still over-shared because the audience had enough offline knowledge to connect the dots. Unfortunately, social media magnified opportunities to do this and, as Staff8 explains, "a lot of the time what we find for bullying is online. It is here, but a lot of it is they go home" and do it.

Parents and staff members added that participants sometimes did not attempt to obfuscate the personal information of others and were unaware of the damage sharing could cause. One parent described how her Autistic son would, "*make references to [his] sister...something about his sister and she wouldn't like that.*" (Parent1) The parent went on to explain how one situation had particularly strained the relationship between her children. She remembered her daughter complaining, "*I don't want people reading I'm homesick. They might interpret that as something else.*" (Parent1) By sharing a detail about his sister that may have seemed to her son to be relatively harmless, it infringed on his sister's ability to manage her self-presentation on social media and damaged the trust between siblings.

Some caregivers also observed participants purposefully sharing information about others on social media out of anger or as a form of revenge. One staff member, whose brother is Autistic, gave the following example: "*Him and his friends fight all the time so they'll write bad stuff about each other...they can write horrible things about each other online and then be best friends.*" (Staff6) It was not uncommon for participants to express their negative emotions towards others on social media, but then be friends again. Social media afforded them the ability to post impulsively in a way that they could cause reputational harm to the person or people they were angry at. While social media easily afforded this type of vengeful interaction, it did little to help participants resolve their conflicts with others. It was often the affordance of being able to publicly post to cause immediate harm that got them in trouble.

*5.1.4 Following Sharing Prompts at Face Value.* Finally, we observed that young Autistic adults took prompts to share information at face value and followed these suggestions as directives. For example, Participant3 explains the reason for sharing her contact information on her profile: *"I had to do that because when I made my* *account it said phone number or email."* Rather than give a personal reason for doing so, her justification was that she was asked to provide information. Similarly, a staff member begrudged how clients felt like they should constantly share what they are thinking. This could be an unintended outcome of having the Facebook prompt, "What's on your mind?" for the status entry field. One staff member shared how participants inadvertently jeopardized their jobs by posting their negative feelings about the job on social media: "*I've got clients that are writing horrible threats to... They're going onto Facebook at night and, 'I hate my job,' and, 'I hate this person.'* (Staff9). Following a directive to share what they are feeling could lead to disastrous consequences. One staff member explained how "*they don't truly understand the ramifications [of] what they're saying.*" (Staff4) Their posts are shared in isolation of understanding how it might be received by others.

## 5.2 Consuming User-Generated Content

Social media platforms are designed to facilitate consumption of content shared by others. However, we found that our Autistic interviewees perceived the affordances of information consumption differently than might be expected of a neurotypical audience and thus, ran into both unexpected benefits and challenges. We explain below the ways in which our users engaged in consuming information on social media.

*5.2.1 Interest-Based Immersion.* One of the clearest benefits of social media was the opportunity for Autistic young adults to indulge their passions and interests. Social media features such as Facebook groups and following celebrities on Instagram or Twitter turned out to be a great fit for Autistic users to immerse themselves in the topic and hyper focus on their fascinations. When asked about his favorite aspect of social media, one interviewee responded: *"Facebook Groups, those are a really big benefit [since] I'm in a lot of sports groups."* (Participant8) Whether it was sports, movies, or music, interviewees spent a lot of their time consuming the content and learning about the topic. The norm of these groups is to focus on one topic and go in depth which led users to receive positive affirmation in response to their on-topic communications: *"They like it every time I talk about the Patriots."* (Participant1) These specialized groups provided a formal setting for Autistic individuals to enjoy investigating their passions for as long and as much as they wanted with others who shared their interest.

Caregivers also appreciated the important role that interest groups play for Autistic individuals. One staff member asserted that his clients *"love to connect and find people that like the same things they do,"* making groups an ideal match. (Staff2) Parents were grateful that their adult children had found an outlet where they could spend their time on their passion and never run out of information to learn about the topic nor people who want to discuss the topic. One parent shared about her daughter's passion: *"She could recite Disney back to you, because she's done all that homework from reading and social media."* (Parent2) Boredom and filling time was a big concern for parents and this was a positive outlet. So, while interest groups provide utility to all people, people with autism may disproportionately benefit from having a dedicated forum for their specific interests, something that they do not have offline.

*5.2.2 Constant Consumption.* Because social media gave participants a constant window into the lives of others, they wanted to make sure that they did not miss anything. One client shared that his anxiety spiked significantly when he had just broken up with his girlfriend. He explained that he checked her page constantly throughout the day because he "*was trying to make sure she wasn't saying anything bad about [him].*" (Participant5) This affordance ended up being detrimental since he spent so much time on social media that he neglected his duties at work and lost his job. Other participants also reported all-consuming social media use patterns grounded in the fear that if they were not always checking their feeds, they would miss out on something important. One mother observed Fear of Missing Out (FOMO) driving her daughter's behaviors, remarking, "*She feels like when she can she's supposed to always be on social media... like she's missing something.*" (Parent2) Many participants echoed this anxiety. While FOMO is a phenomenon observed in some other social media user populations, given the characteristics of this user group, it may have emerged from a different cause – namely, the expectation that if something can be consumed, it should be consumed.

*5.2.3 Trusting Content at Face Value.* Caretakers observed that Autistic participants often took what they saw on social media as a complete and accurate picture of people's lives. They would often compare themselves to highly edited, unrealistic representations of other people on social media, leading them to feel anxious and bad about themselves. Social media affords selective self-presentation without the viewer being able to tell whether it was highly curated. One parent discussed her son's experience saying, "*We're comparing ourselves to others. It is. It's judging. Judging yourself and others. For him, I can say it's made him miserable, it's fueled his anxiety.*" (Parent1) She continues to emphasize the image constructing that occurs on social media: "*I think for him, being on Facebook, seeing everybody having a seemingly wonderful social life, nobody posts the fight that went on before the family photo.*" (Parent1) Staff members also shared that they thought individuals with autism sometimes had difficulty seeing through the "*seemingly wonderful life*" so often portrayed on social media. However, the affordances of social media that enable privacy management and allow users to carefully craft what they present ends up giving a skewed view to Autistic users with no indication of how images were created. This may disproportionately affect this population since they are much more prone to anxiety and literal interpretations of what they see than the average person.

This face value trust also extended to what others told them. For example, one caregiver explained how an Autistic individual might overlook phishing attempts that a neurotypical person would consider suspect: *"If someone messaged this individual saying something like, 'Oh, I think you're really cute. I live here. If you send me money we could go on a date. Here's my account information.'... [For] the general population a red flag would probably go off pretty quickly."* (Staff10) Another example of taking someone's words at face value involved romantic interests: "We had some issues with that... [Him] saying, "Oh, this is my girlfriend," and he would show us an online account of someone that looked like a model and seemed very false... You know, kind of like the classic giveaways. *And you know, it was definitely really difficult for him to kind of process that just* *because someone posted that picture doesn't mean that's what they really look like."* (Staff10) This readiness to take others' words at face value led to some of the most heart-breaking crimes. A parent recounted how her daughter had been abused because *"she didn't realize that the person that she was talking to really wasn't the person that he was"* (Parent3).

*5.2.4 Visceral Reaction.* Autistic young adults had a very visceral reaction to any content they saw. In fact, interviewees were deeply upset by just observing others in conflict on social media – it was the most common response to what they disliked most about social media. When discussing what he referred to as "*drama*", one client shared the effect "*drama*" has on him by saying, "*I get too anxious. I got really bad anxiety...I get really stressed out sometimes.*" When asked if this "*drama*" was ever directed at him, he shared, "*Nothing to me, no. . . The stress is mainly from just reading other peoples' posts that are mean.*" (Participant8) Just witnessing other people fighting or being mean to one another was stressful and internalized by our interviewees. Autistic users reported negative emotions when observing conflict online, even if it was between friends or in a public forum between strangers. Witnessing online drama, arguments, or contention in any form was usually a severe, negative experience for our interviewees.

## 5.3 Connecting with Others

One of the key affordances of social media is the ability to initiate, maintain, and sever digital social connections. This is accomplished through features such as becoming "friends" in a reciprocal relationship, following or being followed by someone in a one-way relationship, or being connected to others in interest-based groups. We identified several ways in which these features were used in a way that led to unintended consequences.

*5.3.1 Maintaining Social Connections.* An aspect of social media that proved especially meaningful for our users was its ability to keep them connected to people who had moved away. They remained in their hometown and did not have the prospect of job opportunities that would bring them elsewhere, nor did they have the opportunity to move away from home to attend college. Thus, participants had few options to be able to stay in touch with their high school friends and adult siblings who had moved away geographically as part of moving onto the next life phase (e.g., college, the workforce). Many interviewees expressed being able to keep in touch as a key benefit of social media: *"Getting to talk to friends that [I haven't] seen in a long time"* (Participant4) was the largest benefit for this user. Several maintained close relationships and frequent contact (daily or weekly) with siblings who otherwise would not be able to stay connected with them.

The staff reinforced that *"being able to have a way to connect with people that maybe they went to school with, or they knew like [earlier] in their lives [is important]."* (Staff8) Staff members described this as a "social precipice" where young Autistic adults transition from the sociability of high school to the relative isolation of adulthood. Many directly attributed to this phenomenon the importance of social media as a tool for connection in the lives of young Autistic adults. This was also why, despite all of the negative unintended consequences, caretakers were extremely hesitant to keep clients from using social media. The magnitude of the few benefits are so great for this particular population that caretakers weren't sure it outweighed the risks.

*5.3.2 Labels Reify Relationships.* Participants described significant anxiety arising from their efforts to manage connections on social media platforms. One major source of anxiety arose from failed attempts to initiate new connections. Some users reported reaching out to new people online only to be rebuffed. For example, one man recounted what happened when he sent a friend request to someone on Facebook: "*I thought I was her friend, but she said, 'You're not because we don't know each other well enough.'*" (Participant1) Along similar lines, he explained why he sent another person a friend request, saying, "*I thought that I could become his best friend, but he said, 'I don't want that right now, because I'm just on here because I was fighting with my girlfriend.'*" A common problem among participants is that they believed that platforms like Facebook were designed to connect and make new friends, so they were frustrated when their attempts to do so failed. Many did not realize that some people mostly use social media to connect with people they already knew in the real world. Instead, they assumed that all social media users saw the affordance of connecting with and becoming actual friends with new people as an inherent part of being on social media. To them, sending a request meant that they wanted to be friends, and accepting a request meant the other person was open to that friendship. Unfortunately, the people they interacted with tended to interpret this affordance of social media differently. In some cases, this translated to participants trying to rationalize why unknown social media users rebuffed their requests: "*Well there's gotta be a million people that are on Facebook and what have you, but the other thing is that they don't wanna become your friends because they know that you'll fight anyway, and that the more that you do it the more forever problem you're gonna have.*" (Participant1) Here the participant reveals how he perceives the ability to send friend requests to Facebooks' millions of users as opportunities to become friends, however blames their unwillingness on other factors such as wanting to avoid conflict.

This affordance also led many users to trusting and treating strangers as friends as soon as they were connected on social media. This became very evident as participants asserted that they were only connected with friends on their social media, yet through subsequent probing and looking at their actual friend lists, it became apparent that many connections were people they did not know. They often explained that these connections had sent them a friend request out of the blue, or that they had only met in online groups. Several staff confirmed the willingness to friend strangers based on their experience with clients asking them to assist with (social) issues on social media and showing staff their accounts. This also manifest in behaviors such as sending Facebook friend requests based solely on the recommendation of the "People You May Know" feature. One user replied that he had sent "*a bunch of 'em.*" (Participant4) The wording of this feature encouraged the participant to send out invitations to connect with these people, whether or not they actually knew the person.

This misplaced trust introduced physical and financial risks since users shared information and interacted with their social media friends the same way they would a trusted friend. One staff observed how Autistic individuals have *"a hard time telling the difference between Facebook friend and real friend. So you're friends on Facebook, you're friends. When that's not really what it is."* (Staff6) The naming of the Facebook Friend feature suggests the affordance of being able to have relationship intimacy which led our interviewees to extend invitations to potentially dangerous individuals.

Along similar lines, staff recalled experiences where users were frustrated and confused when they couldn't participate in certain groups hosted on social media platforms. One staff member recounted a situation where an individual was temporarily banned from a group for Autistic individuals. The individual approached the staff member asking, *"I don't understand why [I was blocked]. I have special needs, and these people do, and now I'm getting banned from a place that I should be able to talk."* (Staff3) This Autistic young adult perceived the affordance of a group topic to be an indication of who should be included. When this perceived affordance was violated, it left him in a state of confusion. This triggered a cycle of anxious questioning and self-doubt for the individual. Similar frustrations arose when users were excluded from group chat features: *"Group chats seem to be an issue, because people think it's them getting cut out from something."* (Staff1) The perceived affordance is that if the user can then they should be added to the conversation and part of the group. When that doesn't happen, users feel purposely excluded from a group of friends.

*5.3.3 Relationships Require All Access.* A feature that often came up was that of blocking someone from being connected on social media. Users commonly expressed anxiety and confusion about being blocked. For example, one user lamented, *"You know what I hate, though? When someone friend requests you, then you find out they blocked you."* (Participant3) Another interviewee elaborated, "*When you get blocked, mentally sometimes it messes with you and you ask, 'Is it about me? Did I do something wrong?'*" (Participant7) This participant's comments reveals the anxious self-talk that can occur as a result of being blocked on social media. The perceived affordance of getting blocked without explanation often left users spending an enormous amount of time retracing their steps to try to pinpoint what they did, sometimes seeking input from staff or other allies such as siblings to try to compensate for the lack of an explanation. An ally described one common scenario:

> *She's an artist, she likes to draw dancers, she can tell you about every ballet. But that medium of social media took her to the point where she was commenting on a page and then it got shut off or someone shut her off and it precipitated like, it affected her whole life. Her anxiety around that, that she did something wrong, "Do they think I'm a creep? Why would people take my post wrong?" I mean it drove her...it was debilitating over the course of a couple months, because they're just, you know perseverated on it to the point where it took over her life. You know, took a couple months. – Staff2*

We heard many instances of debilitating anxiety over having inadvertently hurt someone on social media. It often led to withdrawal from everyday life and required a lot of parental and ally support to help these young adults get back on track.

Not only did being blocked trigger anxiety, users were uncomfortable blocking others even when a neurotypical person might feel it is justified. This pattern of quickly moving from being on good to bad to good relationship terms led several users to block someone in anger and then add them back again in a matter of a couple weeks. The explanation was typically that they had to do so to be friends again – the perceived affordance of being connected was a strong driving force that caused users to behave this way. One staff member recalled being confused that many of the clients at Beta unblocked a specific client who was known for being aggressive toward others: *"I find a lot of times that they unblock her. Then I'm like why is she unblocked?"* (Staff5) Another staff member recalled trying to convince a user to use the blocking feature to no avail *"because he was worried that like, you know, 'I don't want these people to see that they're being blocked.'"* (Staff2) The symbolic nature of being blocked was so great that interviewees would sacrifice their own comfort and mental well-being not to block others. When asking users why they didn't block someone, a common answer was that the person was their friend.

Many participants also assumed "friendship" on social media meant access to the other person's information, including contact information and posts. One participant recounted trying to view a 'friend's' photos on Facebook only to find that he was blocked from doing so. He shared the ensuing conversation: "*Well I... said, 'Hey, why aren't you letting me look at your posts?' 'Because' they said 'it's strictly for family.'*" (Participant1) This individual was not able to view his friend's photos because the friend had elected to only share photos with family members. However, initially seeing that he was not able to view his friend's photos made him assume that there must have been some kind of rift in the relationship. This participant reported feeling intense anxiety over this situation. One staff member shared their observations of how anxiety over feeling excluded on social media made Autistic clients feel left out. They explained that many of their clients would see pictures of friends out together and immediately think, "*They must all hate me if I'm not out with them right now.*" The staff member went on to report that such interpretations "*bring problems into [the care facility].*" (Staff8) These examples illustrate how the perceived affordance of allowing people to connect led to Autistic users expecting to be connected if they are on good terms with someone. This left them feeling excluded when that didn't happen. This is unique to social media in that social media requires an explicit labeled connection "friend" or "follower", whereas offline there would be no such label. Furthermore, social media enables people to see others activity and to know they missed out – in real life they may be less likely to see others out if they are not with them.

*5.3.4 Single Rule-based Connections.* Being able to discern who to connect with can be difficult. As a result, some users relied on simple rules to help them make decisions. For example, one young lady decided that she would accept all Facebook friend requests from females and deny all requests from males because she already has *"a boyfriend."* (Participant3) By stating this justification, the user reveals that connecting with males would be inappropriate or unnecessary since she already has a male companion and does not need other solicitations. While this could indirectly keep her from falling prey to those trying to lure her as a potential suitor, it still exposes this individual to any bad actors who might look to pose as a well-meaning female. A young man similarly had a simple rule for accepting Facebook friend requests: *"I wanna see if they have any friends of mine that I know. And... if they have friends of mine, fine. But if they don't have any friends, then I'm not gonna accept it."* (Participant6) This rule also has the fatal flaw of assuming that all of his friends' connections are trusted by those friends. It could potentially expose this individual to any bad actors who might have penetrated the social networks of his friends, or who are not very well-known to the friend. Because social media affords being able to initiate connections without having to present any true information, Autistic users were left with nothing to indicate the true nature of these potential connections. We observed individuals being put in harm's way by relying on these insufficient rules.

Sometimes this resulted in allowing complete strangers the opportunity to ingratiate themselves early on. One individual, wary about being contacted by a stranger, responded to a friend request, *"Who are you?"* She was soon placated and convinced that *"they just wanted to be [her] friend."* (Participant2) Her process for determining whether or not to engage in a relationship with strangers online was as follows: *"I get to know them first and then if I don't know them, then I don't add them."* Several interviewees took this approach which was enabled by an online setting where deception is so easy.

## 5.4 Networked Interactions

Social media provides various means to facilitate interaction, both between close friends, distant acquaintances, and even strangers. This functionality is supported by features such as comments, one-click reactions to content, group messages, direct messages, calling features, and forums. Our study reveals how these features were leveraged by our Autistic interviewees.

*5.4.1 Social engagement.* Interviewees were cognizant of the role social media played in helping them fill up their time. Participant 2 talked about using social media *"just to have something to do."* Similarly, Participant 5 readily responded to a hypothetical prompt of how much it would be worth to give up social media for a month: *"No! I wouldn't deal. I would give up the thousand dollars for the social media. I'd be bored. I think that's what it is. I think I'd just be really bored."* Most of the clients that we interviewed, and the ones served by Alpha and Beta, cannot drive and do not have a ready mode of transportation – many relied on Alpha and Beta to transport them to day services or group job sites, or needed parents and other allies to give them rides. This meant that they could not even visit those who lived in the same town. Social media was the only way to interact outside of day programs.

Caretakers provided additional insight into why this connection may be so much more vital for young Autistic adults than for the general population. One staff member explained, "*They come here every day, they hang out with the same people every day, and then they go home and they might not have much of a social life outside of the people they know here.*" (Staff8) Another staff member elaborated:

> *"A lot of our clients aren't out doing things as much as we are in our everyday lives. They're kind of a lot more restricted because they either live in a group home or with their families. They don't have the freedom to go and drive somewhere, go out with their friends whenever they want. It has to be scheduled and it's restricting, and that sucks. It's nice for them to be able to reach out and be able to have someone to talk to even if you are stuck at home for the day."* – Staff7

Moreover, a parent asserted: *"These guys seem to me to be always looking for things to hold them together. As we all do. It's a little bit more [for them] because of the anxiety and I think the way they interpret the world. It's always, like they really clutch onto things."* (Parent1) The affordance of being able to interact with others was such a big benefit for this population, perhaps more so than for a neurotypical user.

*5.4.2 Expectation of Immediate Feedback.* Frequently, interviewees questioned the health of their relationship when they initiated interaction on social media but received no immediate response: *"I'll put something on Facebook and I'll say, 'Well why hasn't this person responded?'"* (Participant7) This sentiment of uncertainty and frustration was shared by many users. Caretakers were also painfully aware of this expectation. One staff member described how one of her clients frequently calls people several times in a row in an attempt to get a response. The staff member explained that people *"might be doing something, ...might be not feeling well, ...might not be on the phone."* (Staff7) Her client did not agree with this rationale and instead drew on the perceived affordance that non-response was a purposeful action and concluded that people simply didn't want to be her friend. Another staff member remembered a client calling her boyfriend 27 times, because *"she was nervous that he wasn't interested"* only to find out later that he had been asleep. This frequent communication often strained their relationships: *"Sometimes people. . . come back on and say, 'Why did you message me so many times?' And then. . . it's awkward, it's like, 'I don't know what to say to this.'"* (Participant7) Furthermore, even though some of the participants recognized their own tendency to do this, they explained that in the moment they don't see it that way and then after-the-fact, it's too late.

Caretakers further explained that this behavior occurred on other digital technologies as well. One parent described how her son *"would email someone today if he had a question about a trip that may... or may not be happening in July."* (Parent1) This need to get an answer right away often motivated their behavior. However, some staff members did express the difficulty of being on the receiving end of this behavior. One staffer described her interactions with an Autistic individual in her personal life saying, "*She texts me incessantly. It's heartbreaking because I've struggled to set boundaries with her.*" (Staff9) The affordance of not having to respond or make your reaction known right away ended up triggering much anxiety for Autistic social media users.

*5.4.3 Direct Responses.* Staff and parents characterized several user's communications as straightforward and (brutally) honest. A staff member gave examples such as commenting on someone being fat or replying with rude comments on others' posts. One parent described how her daughter lacked a *"filter"* and was often "*messaging inappropriate things or saying not nice things.*" (Parent2) This straightforward communication could also make others uncomfortable by seeking more emotional intimacy than is wanted. One staff member shared how her Autistic brother would frequently reach out to girls and simply say, *"Hey, be my girlfriend"* (Staff6) and was confused why he wasn't getting a positive reply back. One of the parents described how her son was infatuated with a family friend: *"He would write her all these things. These texts and on and on and on. Inappropriate, not like, sexual in content, but more like, sweet talk."* (Parent1) The parent went on to remark how this behavior could not only damage one's relationship, but when directed to someone not as understanding it could result in a restraining order. Along similar lines, Staff3 described a former client of Beta who was a major fan of ballet and constantly commenting and asking questions on her favorite ballerina's posts. When the questions became personal, the ballerina felt unsafe and blocked her which triggered anxiety, remorse, and was made worse since the client was unable to apologize.

The perceived affordance of being able to respond in any way, enabled the interviewees to share their thoughts unchecked. This led to user confusion about why they were blocked or why someone did not want to interact with them anymore. The affordance enabled this behavior without any deterrent.

*5.4.4 Difficulty Interpreting Emotion and Intent.* When deciding how to react and respond to social media content, users were anxious when they did not understand the emotions and intentions around what another had said on social media. One staff member described how one of her clients frequently asked for her help deciphering messages: *"Is that mean?"* or *"Is that not mean?"* (Staff8) She struggled to interpret the connotations behind messages received or sent on social media. Another staff member felt that this difficulty for Autistic users stemmed from how difficult it was to understand nuance, especially without nonverbal cues: *"Sarcasm, joking, they sometimes can pick it up in person. But I think if they read it, they would not."* (Staff3) The staff member suggested that more explicit indicators like emojis could be helpful, but that they also end up becoming a source of confusion at times and interpreted literally rather than as an emotion or indication of intention.

In fact, even when there were cues to assist users, they used a rigid interpretation so that these features still did not end up helping them understand intangibles. For example, several users understood Facebook Messenger's green availability indicator to mean that the person was there. In fact, one Autistic user talked about how they preferred using Messenger to texting because it was *"faster."* (Participant1) When the green showed up, he interpreted that he could message with the person at that moment and expected a reply. This feature oversimplified the reality, misleading our social media users.

# 6 DISCUSSION AND DESIGN RECOMMENDATIONS

We now discuss our findings in context of our original research questions. First, we summarize how our participants perceived the affordances of social media differently than what might be considered socially normative by neurotypical users. Then, we explain how this differing perception of how social media translated, at times, into benefits, but often into unintended consequences of use. Finally, we conclude with recommendations for making social media more inclusive of neurodiverse users by design and point to areas of future work related to this end.

## 6.1 Young Autistic Adults Perceive Social Media Affordances Differently (RQ1)

Overall, our Autistic young adult participants took a very literal, black and white interpretation of social media features and how they were described and/or labeled in the SNS interface. Because of this, labels such as "friend" took on a definitional importance, where accepted connections *were* friends – there was no space for ambiguity or nuanced types of friends. Furthermore, features such as "blocking" fell outside of what one would do to a friend and led to cognitive dissonance and distress when a "friend" would take such action against them. Furthermore, if someone was "online" or "available," that meant they should reply when interacted with; otherwise, it would be rude. This tendency to make literal, face value interpretations also affected who the Autistic user felt was the audience for a given message or post. Users assumed that content they saw was directed to them (and no one else). This led to them taking messages personally or being upset when there was a posted picture that they saw and yet they were not present in the pictured activity. On the flip side, they did not realize that there were people beyond their intended audience viewing their posts. They also interpreted feature descriptions such as "people you may know," "what's happening?," "what's on your mind?," and "write a comment," as a direct statement to themselves to act upon.

This straightforward, non-equivocal interpretation of social media affordances subsequently influenced what our participants chose to share, how they understood others' posts, what they thought it meant to connect or disconnect on social media, as well as how they responded to (non) interaction on SNS platforms. At face value, this finding makes a lot of sense, given that literal interpretations is considered a hallmark of Autism [81], as well as difficulties in interpreting implicit social norms (especially when they involve nuance), negotiating social reciprocity, and navigating the complexities of social relationships, in general [21]. On one hand, our participants liked what they saw to be the more explicit social norms of social media (as compared to the unwritten social norms of face-to-face interaction) as the black and white rule-following was something that our Autistic young adult participants preferred to more abstract decision-making. On the other hand, because SNS platforms often choose to use more liberal interpretations of everyday social constructs (e.g., friends, liking, connections, being available), this caused unintentional confusion and relational tensions that could have otherwise been avoided, if more clearly explained. Similar to Ringland et al.'s [94, 95] work that studied how Autistic children redefined and practiced sociality on Autcraft, a Minecraft community for Autistic children and their allies, by appropriating and re-conceptualizing communication channels in a way that shaped community-level social norms – our participants actively engaged with social media and attempted to abide within the social norms of the platform as they understood them. Yet, since the neurotypical norms of social media were often complex, hidden, conflicting, and changed based on the individuals within one's network, our participants struggled to get it "right" and kept making (what others perceived as) social fax paus. Further, the literal interpretation of prompts that were consistently biased towards engaging with others also facilitated increased online safety concerns as the analogous warning to not engage with unsafe others is often not made explicit within SNS interfaces. In summary, the literal interpretation of social media affordances, at best, led to unintended misinterpretations of many social interactions and, at worst, led to situations that put our participants at risk of emotional or physical harm.

This perceived affordance differs from the recent work that identifies perceived affordances of social media privacy features in a general population [84]. While Page et al. focused more narrowly on privacy features, comparing the high-level findings does suggest a trend which should be investigated more. Their results suggest that people either take a more pragmatic/utilitarian view of privacy features (i.e., valuing them for the outcome that they produce), versus those who view privacy features as a hindrance to personal relationships (i.e., capable of being interpreted as offensive to others). However, our study reveals that Autistic social media users may take a third view of social media features. First and foremost, they focus on the feature as a directive that they should carry out rather than think about the outcome of using the feature or how others would feel. One exception was that they did appear concerned about unfriending others, but it was not always clear whether this was because that violated the definition of being a friend, or if they were more concerned about how others would interpret this action. This suggests a key difference in how neurotypical users perceive affordances is that they focus more on the side effects or subsequent consequences of using a feature, while Autistic users tend to focus on the immediate feature itself.

Next, we unpack the benefits and unintended consequences experienced by our participants in more detail.

## 6.2 Benefits and Unintended Consequences When Affordances Are Perceived Differently (RQ2)

The caregivers in our study emphasized what a fragile time of life it was for Autistic young adults to try to figure out how to be independent, despite many not being able to fully do so, while navigating adult relationships, including romantic partnerships. This was particularly difficult with all of their social network almost vanishing overnight when they graduated from high school. Caregivers also reiterated how social support was critical to their overall success. Yet, the opportunities for new connections are more limited for this population and the need great to make and keep social connections. The ability to connect with others, and especially despite not being co-located, was an extremely important function of social media for our participants. While many parents were tempted to limit access to social media because of the risks and possible missteps, our study highlights how social media can fill several major needs for this population. For instance, the special interest groups and interest-themed social media provided an outlet for Autistic young adults to explore their current interests that might be considered "abnormal in intensity or focus" to most neurotypical people, but has a mainstream following with the rise of digital fandom [87] and online communities that have become a large part of our individual identities and provide a sense of belonging in an increasingly technology-mediated world [47]. Encouraging Autistic social media users to join mainstream platforms, such as Pinterest, or engage in interaction in relevant groups and Autistic community forums (e.g., Wrong Planet [135]) may be beneficial and enriching, as well as encouraging them to be content producers, rather than just consumers. Further, online groups exist for young autistic adults to seek advice and support on important topics that affect them, such as dating within the Autistic/ADHD neurodiverse community [136] or dating within neurodiverse-neurotypical (ND-NT) relationships [137]. However, our research revealed that there are still some issues to address around understanding community communication norms for such groups. Prior work shows the importance of understanding both the group member's perceived affordances, but also affordances used by the moderators in order to identify disconnects to address between the two [39, 104].

Given the importance of social media for addressing the social support needs of these Autistic young adults, the dilemma is that social media also introduced several risks. We identified risk of physical, financial, and social harm as real consequences of social media use experienced by our participants. Our findings regarding literal interpretation of social media affordances may shed insight as to why prior research, such as that of MacMillan et al. [71] also found that Autistic users (in their case children) were more susceptible to certain online safety risks than neurotypical users. They found that Autistic children were more likely to buy online goods or services, which aligns our literal interpretation of affordances given the internet is a haven for direct marketing. Yet, their explanation for why Autistic children were less susceptible to cyberbullying and sexual solicitations was that Autistic children may engage in social media less often than their neurotypical counterparts. In our case, our Autistic young adult participants were actively engaging on social media; thus, this is likely why we saw higher instances of these social risks occurring in our study.

We found that even small decisions, mishaps, and misinterpretations negatively impacted our Autistic participants a great deal. After what they perceived as a major misstep on social media (e.g., inadvertently offending someone), some participants took drastic measure, including avoiding all service programs or isolating themselves at home for weeks. This reaction compounded the social isolation that was already difficult to overcome for these individuals. Since social anxiety is a frequently co-occurring symptom of being on the Autism spectrum [125], the constant connectivity of being on social media was too much for some of our participants who chose to disengage after a negative experience. This then resulted in *social disenfranchisement* [86], a phenomenon that has recently been defined as a lose-lose situation, where social media users leave social media to avoid negative consequences but experience more negative consequences because they disengage. As social media becomes increasingly pivotal for societal integration, some people (not just Autistic people) find themselves facing social challenges whether they are on or off these technologies. Thus, it is crucial to prioritize designing social media to be able to mitigate the risks for the general population, but in particular for those who are even more vulnerable. We discuss design recommendations for alleviating these social tensions and safety concerns in the following section.

## 6.3 Implications for Supporting Neurodiversity through Inclusive Design (RQ3)

By understanding how Autistic young adults perceived the key affordances of social media, we uncovered common themes about the underlying causes of these differences in perceived affordances and how we might better design for them. As such, designers should take care to identify the many aspects of a social media interface that could lead to a misinterpreted or ambiguous affordance. Below, we provide three recommendations towards inclusive design for neurodiverse Autistic users.

*6.3.1 Be More Direct. Remove Ambiguity.* Because Autistic individuals do not understand nor give off social cues in the same way as neurotypical individuals, designers must realize that they may also interpret the features and thus affordances of social media differently. To address the issues that arise from these misunderstandings, we recommend aligning the wording of features to what they actually represent – or at least provide subtext that clarifies what something is or is not. For example, rather than using the term "friend," it might be better to use a label that makes no assumption about who this person might be. Connection requests could initially arrive in a "People to be classified" bucket and their level of connection could be determined by a more tangible criteria, such as whether they have met this person in real life or how they know them. Alternatively, if the term "friend" is utilized, subtext could be provided that states something like, "Remember that a friend that you connect with on this platform is not the same as a friend in real life. Please be careful when interacting with people online as they may not be who they say they are." Design efforts could leverage the Design Map approach introduced by Zolyomi & Snyder to better represent the types of relationships relevant for this audience [130].

Similarly, "What is on your mind?" type prompts for posts could be changed to convey that the user does not need to answer the question, be contingent on a given social threshold, and make note of the intended audience (e.g., "Do you have something important you want to say to your entire network? If so, post it here."). Designers could also make it much clearer exactly who the audience is for a given post – the literature shows that neurotypical individuals also struggle with determining audience [68, 117]. Therefore, for Autistic individuals needing significant support (i.e., Level 2), it is even more vital to be able to clearly distinguish exactly who will see a post and whether a given post is actually speaking to the user. Social media platforms could also provide additional information (when clicked) on what types of posts may be considered socially appropriate. A trade-off of this design recommendation is that some social media users may find this additional information unnecessary as they implicitly understand the social norms of the platform. In this case, it might be beneficial to provide a profile setting where users can turn on or off this feature, depending on whether they prefer the more explicitly explained version of the interface or the more implicit one.

*6.3.2 Provide Realtime Social Guidance.* Prior research posits that online socialization may help Autistic individuals with their offline social interactions [95]. However, to make this a reality, social media platforms will need to employ affordances for scaffolded social learning [131] that provide ways for Autistic individuals to engage with mentors, encourage feedback, and integrate appropriate social curriculum to intentionally teach online communication as a learned skill. For instance, rather than designing social media with a requirement to be able to make complex and abstract decisions in-the-moment, designers could consider assisting Autistic users with more of a structured approach, such as decision trees that are used frequently in educational contexts [96]. Breaking down a complex decision into smaller, well-defined steps may allow Autistic users to tackle abstract problems in a more tangible and manageable way.

More research on exactly what types of questions should be broken down and how (e.g., "Should I accept this request to connect with someone?") will be crucial to supporting decision-making for Autistic social media users. Given the recent advancements in recommender systems and artificial intelligence, we suggest that future research be forward-thinking in how these technologies may be leveraged to build assistive technologies that help Autistic social media users navigate the social world. Alternatively, we also argue that social guidance could be provided to neurotypical users of social media, so that they are more well-versed in neurodiverse patterns of communication. More specifically, correcting inaccurate neurotypical communication is the prevalent social norm for our society, but it does not mean it is better than Autistic communication norms [50]. Instead, we should strive to be accepting, or at least tolerant of differing modes and levels of sociality.

*6.3.3 Design with Safety in Mind.* Parents and caregivers in our study tended to express more concerns about online safety than our participants themselves, who were more inclined to describe the instances where online risk experiences caused them significant distress. In both cases, this points to the need for more safety precautions embedded within social media platforms, especially for vulnerable users, which has generally been a recommendation of the online safety literature for children and adolescents (e.g., [8, 10, 78, 124]). Yet, we make this recommendation with a word of caution as designs for online safety often lead to privacy-invasive parental controls that put tension on the parent-child relationship [42]. Thus, it is important to move away from restrictive modes of surveillance to design safety affordances that are developmentally appropriate and empower the end-user [7]. For example, Autistic young adults might benefit from social media affordances that give warnings or prompts when they may be sending inappropriate content to an unintended audience (e.g., a nude picture to one's entire social network). Such affordances would promote self-regulation, rather than relying on the direct supervision and oversight of parents and caregivers, which has been highlighted in the privacy and boundary regulation literature as a complicated negotiation process for all families [33, 61, 88], not just those with a loved one on the spectrum. It would be especially informative to understand what it means for parents to be long-term privacy stewards for their adult Autistic children, and how that role evolves over time [61]. Future work should explore whether Autistic young adults value their privacy on social media (similar to neurotypical youth) or welcome the assistance of their parents, caregivers, and/or allies.

## 6.4 Limitations and Future Work

Designing for neurodiversity will be a challenge, but the benefits are enormous for a large population of society. This was an ethnographic case study that focused on two organizations in a metropolitan area of the Northeastern United States. Future work should be conducted with additional study sites to see if additional perceived affordances or consequences are uncovered. Importantly, researchers should focus on design efforts to be able to overcome these unintended negative consequences of use, leveraging the design recommendations provided in this paper. However, if the design is to be a technology that supports both neurotypical and neurodiverse users, it will be important to study exactly how the perceived affordances differ between the two groups by getting feedback and input on a new design from both groups. Getting design feedback from Autistic users will require user testing tools and methods different from those used for neurotypical populations. This is because certain perceived affordances, such as literal interpretation, is likely to carry over to their interaction with a prototype and design sketches. Understanding the population under study is key to being able to communicate about the design successfully.

## 7 CONCLUSION

This work investigates the affordances of social media for young Autistic adults. It identifies the shortcomings of social media that lead to high risks for its users, but also uncovers the enormous benefit that can come from social connection. By advocating for design change in social media to address the many harmful perceived affordances of social media for Autistic users, this work aims to empower individuals on the spectrum as they transition from youth to adulthood and seek independence. Social media could help them overcome barriers to social connection and well-being (due to, e.g., stigma, lack of transportation, geographically disparate family and friends) and support financial independence (e.g., applying for jobs now often requires the use of social networking sites, text messaging, and other historically social technologies). This work takes a first step towards this by identifying the perceived affordances of social media for Autistic young adults and recommending ways forward so that social media can support neurodiverse users.

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