

Voices from a pandemic: Understanding how young adults on the autism spectrum use computer-mediated communication

Autism

1–9

© The Author(s) 2023

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/13623613231170963

journals.sagepub.com/home/aut

Mitzi J Ritzman¹  and Roma Subramanian²

Abstract

This study investigated the benefits and challenges of computer-mediated communication use among a sample of young adults who identify with the autism spectrum via semistructured interviews. The interviews revealed that participants enjoyed using computer-mediated communication technologies (e.g. Discord, Facebook, Steam, and Zoom) to fulfill various social gratifications, as found in previous research. They appreciated that computer-mediated communication supports neurodiversity in social communication by altering the communication environment in various ways, such as the inclusion of asynchronous options and decreased sensory input. However, it is noteworthy that several mentioned that computer-mediated communication could not replace in-person interaction because it makes deep social connection difficult. Participants also discussed negative attributes of computer-mediated communication such as promoting social comparison and instant gratification. The findings are inherently valuable to learning more about young adults' use of technology for social communication. In addition, they provide insight into how to integrate technology into the design of interventions to support the development of social connections among individuals who identify with autism.

Lay abstract

This study investigated the benefits and challenges of online communication use among a sample of young adults who identify on the autism spectrum via semi-structured interviews. The interviews revealed that participants enjoyed using online forms of communication for social purposes. Participants appreciated how this type of communication changes the social environment in ways that support neurodiversity, such as the static nature of the communication context and decreased sensory input. However, some participants noted that online communication could not replace in-person interaction because it makes deep social connection difficult. Participants also discussed negative attributes of online communication such as promoting social comparison and instant gratification. The findings are inherently valuable to learning more about young adults' use of technology for social communication. In addition, this information may provide insight into how to integrate technology into the design of interventions to support the development of social connections among individuals who identify on the autism spectrum.

Keywords

adults, autism spectrum disorders, communication and language, quality of life, qualitative research, technology

Given that challenges in social communication are a hallmark of autism, social skills competency programs prior to the COVID-19 pandemic focused on initiating and maintaining quality *in-person* social interactions. However, in our increasingly digital world, using technology for communication has become commonplace. Furthermore, the physical distancing imperative during the COVID-19 pandemic required that individuals be able to adapt to norms of online communication and navigate the use of

¹Special Education and Communication Disorders, University of Nebraska Omaha, Omaha, NE, USA

²School of Communication, University of Nebraska Omaha, Omaha, NE, USA

Corresponding author:

Mitzi J Ritzman, Special Education and Communication Disorders, University of Nebraska Omaha, Roskens Hall, 512N, Omaha, NE 68182, USA.

Email: mritzman@unomaha.edu

technology in real-time social interactions to establish social connections. There is inherent value in learning more about young adults' use of technology for social communication. There may also be value in applying this new knowledge to the design of social competency-based intervention, when considered alongside the opinions of the autistic young adults who choose to participate in such programming. As a first step toward increasing this understanding, we investigated the benefits and challenges of computer-mediated communication (CMC) use among a sample of young adults who identify with the autism spectrum. The participants in this study have varied opinions about the use of person-first versus identity-first language, that is, some prefer person-first, other prefer identity-first, and others have no preference. The authors acknowledge the importance of honoring a group's preferred approach (American Psychiatric Association [APA], 2021). In this case, there is variability. Notably, as reflected in the participants' quotations, some refer to themselves as "autistic" or "on the autism spectrum." However, the term "disorder" is not reflected in their own descriptions. The authors use the language "identify" to honor all preferences within this participant group and to reflect the participants' own identification of meeting criteria for participating in a project designed to learn more about individuals on the autism spectrum/autistic individuals. The term "Autism Spectrum Disorder (ASD)" is not used to reflect the participants' language and to avoid pathologizing neurodiverse perspectives and experiences. We defined CMC broadly to include various screen-based media such as email, text messaging, social media (e.g. Facebook, chat rooms, dating websites), video games, and television/streaming services (Mazurek et al., 2012).

Previous research on CMC use among individuals on the autism spectrum has found that CMC affords benefits such as "control, clarity, liberation, and empowerment" (Benford, 2008; Burke et al., 2010, p. 4) because it lowers the emotional and time pressures of interpersonal communication. Furthermore, it provides opportunities to engage in communication in a way that may be deemed neurotypical (Jones & Meldal, 2001), and enables identification of others with similar/shared interests (such as fan groups). Adults on the autism spectrum who used Facebook reported more happiness than those who did not use this social media platform (Ward et al., 2018). Other benefits of social media for adults on the autism spectrum include maintaining and seeking new relationships as well as reducing boredom and cultivating hobbies (Wang et al., 2020). However, CMC use is not without its challenges. Individuals on the autism spectrum have reported concerns about cyberbullying (Kowalski & Limber, 2007; Smith et al., 2008) and that interaction via CMC is not as meaningful as in-person interpersonal communication (Cummings et al., 2002). Other challenges include difficulty maintaining online connections; difficulty knowing whom to trust; difficulty determining whether to disclose

potentially stigmatizing personal information, such as an autism diagnosis; and challenges learning social norms specific to various types of new CMC media (Burke et al., 2010). There is also the challenge of maintaining a boundary between one's private and public life and anxiety-provoking interactions such as a friend or message request not being answered right away (Wang et al., 2020).

Most studies on CMC use among individuals on the autism spectrum are based on surveys, which could miss nuanced experiences (Wang et al., 2020) and eclipses the voice of these individuals. Furthermore, there is not much research on how these individuals navigated the predominantly virtual social landscape of the COVID-19 pandemic. We addressed both these gaps in this study by investigating via semi-structured interviews the CMC use patterns of a sample of young adults who identify on the autism spectrum (age 18–34). Our overarching research question for this study was as follows: What are the benefits and challenges of using CMC? Researchers had a desire for greater understanding about the use of CMC to support successful and satisfying communication exchanges. This study aims to contribute toward our understanding of how CMC use in this population can be leveraged for positive outcomes and how the risks associated with CMC use can be reduced.

Method

This study was approved by the Institutional Review Board of a mid-western university in the United States. Semistructured interviews via Zoom were conducted with a sample of individuals who identify with ASD who also participate in a social learning program hosted on the campus of a mid-western university in the United States. Given the age of the participants, coupled with the change in the diagnostic criteria for ASD in the Diagnostic and Statistical Manual, Fifth Edition (APA, 2013), a formal diagnosis of ASD was not required for participation in this study.

Informed consent was obtained from all participants. Participants were recruited via email by the researchers, who were both nonautistic. Specifically, the email indicated that participants were being invited to a Zoom interview during which questions would be asked about their use of computer-mediated/online communication. Participants were also told in the email that the interview would be 45 min to an hour and may involve a follow-up interview or an email with follow-up questions. There were no incentives to either participation or compensation. The interviews were conducted by a nonautistic researcher; it is worthwhile to note that the researcher who conducted all 14 interviews had clinical experience working with individuals with autism and had also interacted with the participants for several years in the context of a social skill learning program.

Some participants were currently attending the program while others had attended in the past. The participants

Table 1. Participant demographics.

Participant	Age	Gender	Race/ethnicity	Education	Employment
1	34	Female	White	Some college	Part-time job
2	26	Female	White	Pursuing bachelor's degree	Unemployed
3	24	Male	White	Completed bachelor's degree	Part-time job
4	21	Male	White	Completed high school	Full-time job
5	19	Male	White, Latino American	Pursuing bachelor's degree	Part-time job
6	19	Male	Did not say	Completed high school	Part-time job
7	24	Female	White	Some college	Part-time job
8	23	Male	White	Book-keeping certificate from community college	Temporary job
9	21	Male	Did not say	Pursuing associate's degree	Part-time job
10	19	Male	White	Completed high school	Unemployed
11	19	Male	White	Currently in community college	Unemployed
12	26	Female	White	Completed bachelor's degree	Part-time job
13	26	Agender	White	Some master's degree	Part-time job
14	19	Female	White	Currently in community college	Unemployed

attend the program by choice, that is, each person must choose to attend on their own accord (vs attend at the recommendation/requirement of a parent, other service provider, etc.). The positive relationship between the researcher and participants served to provide a familiar and supportive context for the interview; the content of the interviews was not determined based on this relationship. To ensure that participants did not feel pressured to consent to this interview, the following sentences were also included in the email:

Please be aware that you do not have to participate in this study, and if you do so, you may opt out at any time without penalty. Participation will have no impact on being in [your participation in the social learning program].

Of the 34 participants in the program, 14 completed the interviews between March 2021 and May 2021. The authors did not feel compelled to recruit more participants as research has found that theoretical saturation (i.e. data redundancy) in qualitative interview-based studies typically occurs within the first 12 interviews (Guest et al., 2006). Finally, sample size for this study was also informed by precedent. Specifically, our study design was similar to that in Wang et al. (2020) who based their findings on interviews with eight adults on the autism spectrum. Interviews ranged in duration from 12 to 40 min; most interviews were 20–30 min long. The interviews included questions such as what types of CMC participants use, for what purpose, and what are the benefits and challenges of using CMC.

Participants were given the topics of the interview questions prior to the interview; however, the flexible nature of semistructured interviews meant that some follow-up questions emerged organically during conversations. Furthermore, during the interviews, the interviewer

gave participants time to reflect on the question posed. Also, if the participant needed more time to think about the answer to a particular question, the interviewer would move on to another question and then revisit the question the interviewee had not answered later in the conversation.

Participants ranged in age from 18 to 34. Eight identified as men, 5 as women, and 1 as “agender.” Most participants identified as Caucasian; 1 as Hispanic. Two did not describe their racial/ethnic identity. Participants had a range of educational backgrounds and employment experiences. See Table 1 for detailed demographic information as reported by the participants.

Interviews were transcribed and transcripts were analyzed using the constant-comparative method (Glaser & Strauss, 1967). The author who did not conduct the interviews analyzed the transcripts. Open coding (Charmaz, 2006) of the transcripts was conducted using an inductive approach, which involved going through the transcripts several times and categorizing similar content into emerging themes. Initial themes include tailoring socialization on CMC to one's needs; preference for face-to-face versus online interaction; safety and privacy online; advantages of CMC; disadvantages of CMC; using social media for different purposes. The themes and the data were compared iteratively to check whether the themes accurately captured the data. In this process, some themes were collapsed and deleted (as per Riessman, 2008).

During the research process, especially during data collection and analysis, the authors had regular meetings during which they engaged in reflective dialog, particularly, about media stereotypes of people with autism and how some participants' behavior challenged those stereotypes. Authors also used each other as sounding boards during

Table 2. Computer-mediated communication used by participants.

Participant	CMC used
1.	Xbox, Virtual Reality headset, Facebook, Zoom, massively multiplayer online role-playing games (MMORPGs), online board games
2.	Facebook, Tumblr, Reddit, comments feature on news stories, Tik Tok, DeviantArt (an online art community), Zoom, FaceTime
3.	Facebook, Instagram, Snapchat, Zoom, Steam account for multiplayer video games, Snapchat, streaming services Hulu, Netflix, DisneyPlus, and Amazon Prime
4.	Texting, FaceTime, Instagram, iFunny, TimeFall on Xbox, Zoom, Skype
5.	Texting, FaceTime, Skype, Zoom, Snapchat, multiplayer video games, chat rooms, dating websites, social media, comments features on new stories or blogs, special interest chat rooms, LinkedIn, Discord, Reddit, streaming services, Line, Tumblr, MySpace, Instagram, Snapchat, Discord, dating platforms: Tinder, Bumble Hinge
6.	Discord; Facebook; Twitter; Streaming services like Disney, Netflix, and Hulu; Twitch; Email; online game Among Us
7.	Texting, Instagram, Facebook, Streaming services like Netflix, Hulu, Vicky; Wii games, computer games like Zoo Tycoon and the Sims
8.	Texting, Snapchat, Facebook, LinkedIn, Snapchat
9.	YouTube comments. Texting. Twitter.
10.	Discord and comments. Texting. Multi-player chat rooms. Video games. TikTok. Instagram. Twitter.
11.	Zoom, YouTube, Facebook, Twitter, Instagram, multi-player video games on Steam, Discord gaming sessions, multi-player games on Nintendo switch and Xbox One, website management for The Autism Society of [Blinded for Review], Slack
12.	Zoom, online video games, Texting, Email, Twitter
13.	Zoom, Meet, Signal, Slack, Discord, Twitter, GitHub, Twitch
14.	Video gaming platforms, Discord, Roll20; fantasy role-playing games like Dragon Age, Skyrim, Elder Scrolls series, Dungeons and Dragons; science fiction role-playing game Traveler Tik Tok, Facebook, Instagram, Tumblr, Zoom

the manuscript writing process to ensure that language used in the article was not inadvertently stigmatizing.

Reliability was established by authors discussing and agreeing upon four overarching themes described in detail below. Quotations have been edited for conciseness and clarity.

Community involvement statement

There was no community involvement in this reported study. We did not conduct a member check. We accept this as a study limitation.

Results

CMC can be used for different gratifications

Participants reported using a range of CMC types. Please see Table 2. They talked about how different social media platforms could be used for different purposes. For example, for Participant 5, the platforms Snapchat, Instagram, and Facebook were mainly for friends and family, but Discord and gaming were to meet new people:

I gotta say like Snapchat, Instagram, I usually just stay talking to the same people most of the time. . . . same thing with Facebook. That's just 'cause I want to orient it around, you know, friends and family and just have them, you know, be able to see my life and for me to see their lives . . . I think that's like the best way to use those platforms. Uh, but Discord

and gaming. I think that's just more in the sense to be able to talk with new people or even play with friends.

Along the same lines, Participant 7 used Facebook and Instagram differently; specifically, she considered the former to be a “more family-based social media app” and more “private compared to Instagram.” She used Facebook to communicate with “family members and relatives” and “Instagram as a platform to raise awareness and acceptance of autism.”

Several participants enjoyed playing games, but they used CMC for gaming in different ways. For example, Participant 6 used “Twitch” because it was “the perfect platform to find any [gaming] communities.” Participant 1 liked massively multiplayer online role-playing games (MMORPG) for socializing. Participant 3, however, did not like playing MMORPGs because he felt that they were “tedious.” Participant 7 also didn't play MMORPGs because she said she didn't know too much about them and preferred playing alone: “I play like Wii games, computer games, uh, such as Zoo Tycoon and the Sims. And I'm just more of a one player kind of person. I like to play the games on my own.”

To cope with social isolation during the pandemic, and for a more “real” experience, Participant 1 engaged with virtual reality:

[The pandemic] got me to buy a VR because I feel alone and I want real physical contact with something, you know. . . . I really enjoy [VR] because it feels real. It's like, I'm really

there. I can dance with the person, feel like they're touching me, and go out and have a drink at a bar on VR, which are not really drinking it, but it kind of feels like I am, you know?

CMC supports neurodiversity in social communication

Several participants talked about the benefits of online interaction, particularly for those with autism, such as time to respond to others, the ability to have a record of an interaction, and a decrease in sensory input. For example, Participant 2 said that she preferred to socialize via text because "it [gave her] time to think of a response instead of having to do it, like, on the fly." Indeed, even if a platform had a video feature, she did not use it. She said: "Mostly because there's not really anybody I would want to talk to on video. I mean, I have Internet friends, but they're not so close that I want to show them my face." Participant 12 also preferred text to video because she "prefer[red] being able to refer back to what [she had] said to someone." Participant 11 also talked about how CMC provides time to respond:

I think social media, if, if they're trained to use it properly, can really benefit those on the autism spectrum. Cause sometimes, I have trouble, trouble figuring out how to respond to people's questions and sometimes I just go silent and my mom calls it possum mode. I just stand still like a possum. However, with communicating online, you don't always have to expect an instant response, like, especially with email.

Participant 14 echoed this point about appreciating the asynchronous nature of online communication:

I enjoy that it's, for the most part, asynchronous. Like you can just post something and you don't expect a reply right away, but people will eventually see what you post and, if they have any comments to make, you will see them. So, you're not expected to reply right away if something gets posted.

For Participant 14, the ability to text and the lack of emphasis on the face-to-face interaction made online communication easier for those with autism. She said that it was hard to know what people meant online:

Tone is not always communicated very well through online platforms. Like people don't always know if you're being serious or sarcastic or not. I notice, however, that people are trying to get better about communicating tone online. Like they'll just put emojis, or they'll say at the end of a post, "By the way—I'm being sarcastic or serious, or this as a joke." . . . but when people don't do that, it's really hard to tell sometimes.

For Participant 12, the norms of online settings, specifically lack of mandatory eye contact, enabled successful

social communication for those with autism and made it easier to fit in:

It's easier to communicate with each other, in part, just since we don't have to feel like we have to make eye contact and we can modify what we're saying, essentially either to blend in with the other people or even just to adjust what we're going to say.

Along the same lines, Participant 11 talked about the "quieter" online world and appreciated that the pandemic reduced the "number of sensory overloading environments." He said,

Up until fifth grade, I went to public school, and I found that I did not fare very well in the environment, because part of my autism is I have hearing problems where I have difficulty filtering the sounds around me. Like if multiple things are going on, I have difficulty trying to know which sound is what I should be paying attention to. So, doing stuff at home through Zoom is much easier because I am automatically in a much quieter environment and . . . And it just works much better for me.

Participant 1 made a similar point about sensory input. She said: "Online is good when you want to socialize, but you don't want to deal with everybody. You want somebody there, but you don't want to deal with all the chaos of trying to figure out what they mean."

A couple of participants noted that using CMC was not only a way to accommodate their autism identity in social interactions but also a platform that helped them affirm and take pride in their identity by helping them identify others with autism. Participant 5 talked about how finding similar others would help him learn what is happening in the autism community, realize how commonplace the condition is, and come to terms/accept his autistic identity. He said:

There's just so many of us. It's a whole community, and I think connecting is a great way to discuss what's going on within the autistic community. . . . And I, I find it interesting just because, I never would expect so many people to have it, and it's interesting to see as a whole and be able to easily access communities like that. It's also drawn me a bit closer to accepting it because I think identity is a big part of anyone who's autistic. I've had issues growing up and even within high school of the difficulty to accept, uh, who I am. And I think that is still an ongoing struggle . . . I think that always happens to anyone who's autistic. So, I believe social media is a great way to connect to people, but also, you know, strengthen them.

Participant 7 also extolled the virtues of social media in finding others with similar communication styles because of the technology's ability to transcend physical distance:

I think [social media is] great . . . because you're able to find people online who you can identify with and get advice from, that you wouldn't be able to get advice from them without social media. Like you wouldn't be able to communicate with them because might be living on the other side of the United States. Like you're not going to find those people without social media.

Despite its advantages, CMC cannot replace in-person interaction

Although participants acknowledged the benefits of CMC, it is striking that several (8/14) participants said they preferred interacting with people face-to-face and/or preferred to use a mix of face-to-face and online interaction, mainly because of the limitations posed by the artificial nature of online communication. It should be noted that during the timeframe of the interviews, most communication was limited to online settings only, in response to the COVID-19 pandemic, which may have influenced the participants' communication preferences.

Participant 3 said he preferred to meet people in person and commented on the "artificial" and "canned" nature of online interaction. Participant 9 also talked about preferring to socialize face-to-face rather than online because he preferred to "go somewhere physically" and meeting someone in person would give him "an idea of what [the] person might be like." He added that when you interact with someone online, "you don't know if it's a lie or not." Participant 12 also talked about social media's lack of authenticity: "how people can hide behind a screen and not always know who they're talking to, or even if someone's telling you the truth about who they are." Echoing this point, Participant 6 said that "sometimes people can act differently online compared to in-person" and that can result in "identity" issues. Participants 6 and 3 also talked about the technological limitations of online interaction. Participant 3 said: "I don't know if a lot of the things that I say or do make much sense when there's kind of like a delay." Participant 6 said,

I prefer face-to-face because I really like the interaction with others. There [are] many things that you can do in person that you can't do virtually. . . . it's a lot harder to do team exercises [virtually], compared to in person where you can actually interact with each other and do team exercises, while learning how people interact with each other in person, rather than on the computer.

Along the same lines, Participant 9 pointed out that the highly structured nature of online group interaction reduced opportunities for communication. Referring to a social group that he attends, he commented on how the pandemic has changed the nature of the social interaction:

[When the group met virtually], we're only there for an hour and a half, and we're only able to talk at specific times,

whereas when we were there physically, we could be there a little earlier and then just have some conversation with each other, and . . . we used to just have little groups playing specific games and that was an opportunity to interact more. Or that was an opportunity for multiple people to talk at the same time.

For Participant 5, although the online world was a great platform for expressing his likes and interests, for deep connections, for example, "relationships, friends, and family," he "always [preferred] talking in person." He said: "I think talking in person is more worth the time than looking at a flat screen of texts and blank emotion. I think having that time to sit down with someone is more worth than anything in the world." Along the same lines, Participant 7 said she liked in-person interactions for close relationships but preferred CMC for others. She said,

A lot of my socializing is face-to-face is with family members and my coworkers, and the people I work with prefer face-to-face. Just because then I can better understand what they are trying to say to me with body language and tone of voice and stuff like that. But when it comes to communicating with other people, people that I don't know as well, I prefer using like social media or texting, something like that, especially if we're just trying to set up a time to meet up or something.

Participant 3 was concerned that social media could have potential negative effects on people with autism because it "distorts reality," promotes social comparison, and can "exacerbate" the problems that people on the spectrum have by making them think that there must be "something really wrong" with them if they are not like the people that they see online. Along the same lines, Participant 5 talked about how the instant gratification that social media provides can lead to severe withdrawal. He appreciated that social media made it easier for him to connect with family and friends, but this affordance of instant and constant communication made the severing of ties even more painful. He said:

I had an ex that I truly liked and it just didn't work out . . . and it's hard for me to look back on her profiles, to see her somewhere else in the world and doing her life. And I think it's also hard when someone, you know, blocks you or just doesn't want to talk to you. And I think that's the biggest deal about it is that the chemical that we get in our brain that gives us [a] great sense of feeling, but at the same time, the sense of dread, just because someone's just not willing to give you the attention.

It is important to navigate safety and privacy online

Most participants (10/14) acknowledged issues with safety and privacy in CMC interactions and discussed strategies for protecting themselves online.

Participants (2, 3, 6, 7, and 10) discussed being very cautious about online interactions and having very stringent thresholds for online trust because they found it challenging to identify trustworthy people. For example, Participant 7 said,

Well, I don't really trust people online unless I know them well. That's something I'm still trying to figure out is how to trust people online or not. I'm generally very cautious about it. On Instagram, after I post like a selfie or something, I generally will get direct messages . . . like they want me to be a sponsor for their brand or something. And I generally don't trust that because it seems fishy to me, but it's just like who's being honest and who's trustworthy and who isn't. So, I try to err on the side of being more cautious.

Participants 2 and 3 also had similar beliefs:

I don't know if there's really anybody other than obviously people I know in real life that I would fully trust online. Cause you don't, you never know who you're really talking to. I mean, they could be Stacy who's 17 and lives in Missouri, or it could be some old guy in Texas. (Participant 2)

Typically, I'd only try to trust someone who I've known in real life. Someone who I know has my best interest at heart. And most of those, it's pretty, pretty small number like close, close family members, and only really my closest of friends are people I would say, I trust implicitly with something. (Participant 3)

Instead of not trusting people at all online, some (Participants 1, 4, and 9) used the strategy of gradually opening to people online. Participant 4 used the approach of sharing non-sensitive information for the first 2–3 weeks of knowing someone, like about “movies,” “hobbies,” “sports” and not sharing information about “your location, or your actual name, until you're comfortable knowing them.” Participant 1 warmed up to people more slowly and said that she had to talk to someone for at least a year before she trusted them.

Some participants used anonymity to safeguard themselves from potentially threatening online interactions. For example, Participant 9 talked about only using their “first name” online and not revealing their birthday. Participant 6 turned their video on only “in groups that [he had] interacted with often,” “specifically with classes or one-on-one interaction and, or basically any activities I did before COVID.” He added that when he used Discord, he did not “turn on [his] video feed, because “Discord is like a global system” and “can sometimes not be the most secure system in the world.”

Along the same lines, participants 11 and 12 talked about using anonymity strategically online:

Most of the time, I usually keep my real name anonymous, I use, I use an alias. I usually, I usually, I share my voice

occasionally, but that's really about it. I have like, I have two different accounts. One is a personal account that I use for my entertainment and any, any content I decide to put out. And I have a business account that uses my real name. And I use that to communicate with people, like the people I work for, like ASN a disability rights group. And that's where I attend most of the PEERS group, like the PEERS group, Zoom calls. (Participant 11)

I feel like I generally think about would I want this to be able to be traced back to me in person? Even if I'm anonymous. And could this hurt me, my family, potentially my friends, or our pets, and even just like my employer type of thing. So I generally share more or less, very little that I feel I could really identify who I am. Like even my online nicknames are very rarely tied to my first name. Like I use the same online nickname for pretty much all Webkinz communication and then like usernames on websites are typically different. So it's hard to chase me across multiple websites. (Participant 12)

Some participants gathered data to investigate the credibility of online platforms. For example, when deciding whether to engage in an online group, Participant 2 examined the group's “rules for communicating” as a litmus test for safe online engagement:

Some groups have strict rules, like, hey, no bullying, no information that could be harmful to somebody, you know, stuff like that. And depending on how strict they are about following the rules, that helps. If, you know, they're willing to go ahead and ban somebody who is doing stuff like that, that's usually a good sign.

Participant 9 relied on reviews or news to evaluate the safety of a platform as well as the platform's popularity. He said,

Well, I really don't know if they're trusted unless they're popular. And I imagine that if a website is popular, that it's probably trusted, unless . . . cause if any popular website turns out to not be trusted, the news usually gets out there. So . . . like let's say Twitter has been around for, I think since 2009, I think. And it's, um, it's still up. So, um, I guess it's an okay site to use.

When they did encounter hostile interactions online, participants navigated them in various ways. For example, Participant 1 said,

People on X-Box can be very rude and mean sometimes I banter with them and just be rude and mean back cause it's online so you can, you never see them again, so it doesn't really matter. And sometimes I block them.

Participant 2 responded to negative online interactions by mainly ignoring them or “if it's something really nasty, . . . ask[ing] for like an administrator to get involved.”

Discussion

As we seek to learn more about individual preferences to support greater understanding of social communication and consider this new knowledge in approaching the design of social competency-based intervention for young adults who identify with the autism spectrum in the current era of the COVID-19 pandemic and beyond, the use of technology must be a consideration.

While the requirement to use only online settings to communicate due to safety concerns has mostly faded, CMC remains a viable option as it affords users the convenience and ability to gather over great distances. To address this need and to approach intervention design from a collaborative approach, instead of using a traditional medical model that may focus on specific social skills training, this study investigated, namely semistructured interviews, how a sample of young adults who identify with autism perceived the benefits and barriers of CMC. The interviews revealed that participants enjoyed using CMC technologies (e.g. Discord, Facebook, Steam, and Zoom) to fulfill various social gratifications, as found in previous research by Mazurek (2013). They appreciated that CMC alters the communication environment in various ways, such as the inclusion of asynchronous options and decreased sensory input, which accommodate neurodiversity in social communication, similar to findings by Burke et al. (2010). However, it is noteworthy that several mentioned that CMC could not replace in-person interaction because of its inherent nature which may make deeper social connection difficult. Participants also discussed negative attributes of CMC such as promoting social comparison and instant gratification. Therefore, instead of approaching CMC as an all or nothing proposition, several discussed a more nuanced and strategic approach to integrating CMC and in-person communication: For example, one said that he liked CMC as it gave him a venue for exploring his likes and interests; however, he liked in-person, face-to-face interaction for cultivating close relationships. Participants' preference for such blended environments is in line with emerging evidence that supports the use of blended online and face-to-face social communication intervention. For example, Wolstencroft et al. (2021) found that CMC benefits for adolescent girls with social communication difficulties included increased accessibility and positive impact on social knowledge and performance. Finally, a majority of the participants seemed alert to the possibility of encountering nefarious elements online and the importance of safeguarding their privacy.

This study's findings provide insight into individual preferences for using technology to support social communication, as well as how to integrate technology into the design of interventions to support the development of social connections among individuals with identify autism. For example, several participants mentioned how CMC

enabled them to be themselves, but others liked CMC for the opportunity to fit in and engage in successful communication interactions. The authors note that when designing social competency-based intervention, it is important to consider the impact of camouflaging, that is, hiding individual characteristics to fit in environments. Research has found that this can result in increased levels of anxiety for individuals on the autism spectrum (Hull et al., 2017). Therefore, while it is important to design supportive, online environments that enhance the reported benefits of using CMC, like less pressure to respond immediately and decreased sensory input, it's important that interventions are empowering, instead of encouraging blending in or invisibility. For example, using breakout rooms on Zoom may serve as a positive enhancement to support individual interactions. While a comprehensive review of the impact of camouflaging is beyond the scope of the current article, the authors acknowledge these harmful effects. Comprehensive consideration of this issue is appropriate for further investigation in future projects.

This study is not without limitations. First, our participants were recruited via convenience sampling and may not be representative of larger populations of those who identify on the autism spectrum. In addition, given the inherent nature of autism as spectrum of characteristics, the perceptions, opinions, and preferences of this group provide information about how to design individualized interventions that support their neurodiversity in social communication but may not be representative of how that intervention should be tailored to another group. Opportunities to support neurodiversity should be individualized based on each participant's needs and preferences. Further, interviews were conducted in the midst of heightened concern about the COVID-19 pandemic. This may have impacted the participants' responses, for example, participants' preference for in-person interaction. Nevertheless, we hypothesize the social environment will remain influenced by COVID-19 for some time and, in turn, the need for exploring alternatives, such as CMC, will remain stable.

Acknowledgements

We would like to thank the young adults who took part in this research.

Declaration of conflicting interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: One of the authors is the director of the social group that study participants were recruited from.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Mitzi J Ritzman  <https://orcid.org/0000-0002-3271-3828>

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).
- American Psychological Association. (2021). *Inclusive language guidelines*. <https://www.apa.org/about/apa/equity-diversity-inclusion/language-guidelines.pdf>
- Benford, P. (2008). *The use of internet-based communication by people with autism* [PhD dissertation]. University of Nottingham.
- Burke, M., Kraut, R., & Williams, D. (2010). Social use of computer-mediated communication by adults on the autism spectrum. In Proceedings of the 2010 ACM conference on computer supported cooperative work. https://thoughtcrumbs.com/publications/Burke_CSCW2010_CMC_and_Autism.pdf
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. SAGE.
- Cummings, J. N., Butler, B., & Kraut, R. (2002). The quality of online social relationships. *Communications of the ACM*, 45, 103–108. <https://doi.org/10.1145/514236.514242>
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded research: Strategies for qualitative research*. Aldine de Gruyter.
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59–82.
- Hull, L., Petrides, K. V., Allison, C., Smith, P., Baron-Cohen, S., Lai, M.-C., & Mandy, W. (2017). “Putting on my best normal”: Social camouflaging in adults with autism spectrum conditions. *Journal of Autism and Developmental Disorders*, 47(8), 2519–2534. <https://doi.org/10.1007/s10803-017-3166-5>
- Jones, R. S., & Meldal, T. O. (2001). Social relationships and Asperger’s syndrome: A qualitative analysis of first-hand accounts. *Journal of Learning Disabilities*, 5(1), 35–41.
- Kowalski, R. M., & Limber, S. P. (2007). Electronic bullying among middle school students. *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine*, 41(6 Suppl. 1), S22–S30. <https://doi.org/10.1016/j.jadohealth.2007.08.017>
- Mazurek, M. O. (2013). Social media use among adults with autism spectrum disorders. *Computers in Human Behavior*, 29(4), 1709–1714.
- Mazurek, M. O., Shattuck, P. T., Wagner, M., & Cooper, B. P. (2012). Prevalence and correlates of screen-based media use among youths with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 42(8), 1757–1767.
- Riessman, C. K. (2008). *Narrative methods for the human sciences*. SAGE.
- Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 49, 376–385. <https://doi.org/10.1111/j.1469-7610.2007.01846.x>
- Wang, T., Garfield, M., Wisniewski, P., & Page, X. (2020). Benefits and challenges for social media users on the autism spectrum. In *Conference companion publication of the 2020 on computer supported cooperative work and social computing*, 419–424. https://stirlab.org/wp-content/uploads/2020_Benefits_Challenges_Autism.pdf
- Ward, D. M., Dill-Shackleford, K. E., & Mazurek, M. O. (2018). Social media use and happiness in adults with autism spectrum disorder. *Cyberpsychology, Behavior, and Social Networking*, 21(3), 206–209.
- Wolstencroft, J., Kerry, E., Denyer, H., Watkins, A., Mandy, W., & Skuse, D. (2021). New approaches to social skills training: Blended group interventions for girls with social communication difficulties. *Autism Research*, 14(5), 1061–1072. <https://doi.org/10.1002/aur.249>