

## **Supplemental Material S1. Participant communication.**

The four participants with ASD varied in terms of communication and use of AAC. Deidre and Lexi made use of speech, while Nick and Wayne primarily made use of AAC. Additional details below.

Deidre made use of speech to communicate (1- to 4-word phrases) primarily for purposes of requesting items, responding to others (when prompted to do so), and for immediate and delayed echolalia. Deidre would often repeat excerpts from her favorite commercials or television shows quietly. She made use of gestures (e.g., pointing at/towards an item or immediately accessing a desired activity/item) and would occasionally use natural speech to express a want or need. Deidre rarely used facial expressions to indicate if she was happy or sad. Her teacher reported that she did not typically communicate to express social closeness and most frequently communicated to express her wants and needs. She rarely if ever greeted peers or staff members without prompting.

Lexi made use of speech (1- to 4-word phrases) primarily for purposes of requesting items, responding to others, and for immediate and delayed echolalia. Lexi used speech to echo what was said to her or phrases she was prompted to say (e.g., “...ten minutes until it’s time to go home”). Lexi made use of gestures (e.g., pointing at/towards an item or immediately accessing a desired activity/item) and would occasionally use natural speech to express a want or need. Lexi also used facial expressions to indicate if she was happy or sad. To express her interest in a person or item, she would stand in very close proximity to the person/item. Her teacher reported that she did not typically communicate to express social closeness and most frequently communicated to express her wants and needs.

At the present time, both Deidre and Lexi relied completely upon natural speech—AAC supports had been recommended for both participants in elementary grades but were described as making limited use of the systems. Therefore, therapy was discontinued, as will many individuals with ASD who make frequent use of speech.

Per teacher report, Nick made use of speech primarily for the purposes of requesting items and immediate and delayed echolalia. Nick mostly communicated to express wants and needs using one- to two-word phrases (e.g., “juice”; “juice please”) and would repeat phrases when prompted by staff members (e.g., social etiquette routines such as greetings). He used an iPad with communication apps and a low-tech communication book for requesting. Nick made use of gestures (e.g., pointing at/towards or leading a staff member to a desired activity/item), would laugh and smile when he was happy, and emitted loud vocalizations and crying to express anger and frustration. He was also provided with visual schedules. To express his interest in a person, Nick would touch their hands and request “squeezes” or for his head or back to be scratched. According to Nick’s speech-language pathologist, he responded to his name, engaged in joint attention and made intentional eye contact during activities.

Wayne’s teacher reported that he did not use natural speech to communicate. Wayne primarily used his AAC system to express wants and needs using single words. He also made use of gestures (e.g., pointing at/towards or leading a staff member to a desired activity/item), sign approximations (e.g., go, eat, all done) and made use of an iPad with communication apps and a low-tech communication book for requesting. Typically, Wayne would independently obtain desired items instead of initiating interaction to obtain the item. He also used some vocalizations, gestures, and facial expressions to indicate when he was happy or angry. He also made use of visual schedules. He did not communicate to express social closeness, share information, or

participate in social etiquette routines unless prompted to do so (i.e., told to wave “goodbye” and “hello” to the researcher). Similar to Nick, according to Wayne’s speech-language pathologist, he responded to his name, engaged in joint attention, and made intentional eye contact during activities.

**Table S1.** Participant social validity.

	I like it	I don’t like it	I don’t care
Deidre	X		
Nick	X		
Wayne	X		
Lexi	X		

**Table S2.** Peer Social Validity Questionnaire and Responses: Five-item questionnaire during baseline.

Questionnaire item	Number of responses per category (scale of 1 to 5)				
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
It is important for peer buddies to be able to interact with each other	0	0	0	0	4
It is important for me to be able to communicate effectively with my peer buddy	0	0	0	0	4
I have effective strategies to help my peer buddy understand me.	1	3	0	0	0
My peer buddy has effective strategies to help me understand him/her	2	2	0	0	0
I am able to communicate effectively with my peer buddy	0	4	0	0	0

**Table S3.** Peer Social Validity Questionnaire and Responses: Five-item questionnaire during intervention.

Questionnaire item	Number of responses per category (scale of 1 to 5)				
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
It is important for peer buddies to be able to interact with each other	0	0	0	0	4
It is important for me to be able communicate effectively with my peer buddy	0	0	0	0	4
I have effective strategies to help my peer buddy understand me.	0	0	0	1	3
My peer buddy has effective strategies to help me understand him/her	0	0	0	3	1
I am able to communicative effectively with my peer buddy	0	0	0	1	3

**Table S4.** Peer Social Validity Questionnaire and Responses.

Questionnaire item	Number of responses per category (scale of 1 to 5)				
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
Watching videos with a friend is a preferred activity for me	0	0	1	2	1
I liked the training	0	0	0	1	3
I learned from the training	0	0	0	1	3
My buddy and I communicated more after the training	0	0	0	0	4

The intervention provided an <b>effective</b> way for me to communicate within the activity	0	0	0	0	4
The intervention provided an <b>efficient</b> way for me to communicate within the activity	0	0	0	0	4
The intervention provided an <b>appropriate</b> way for me to communicate within the activity	0	0	0	0	4
The intervention provided an <b>effective</b> way for my peer buddy to communicate within the activity	0	0	0	1	3
The intervention provided an <b>efficient</b> way for my peer buddy to communicate within the activity	0	0	0	2	2
The intervention provided an <b>appropriate</b> way to assist my peer buddy in communicating during the activity	0	0	0	1	3
I <b>enjoyed</b> participating in the activity	0	0	0	0	4
My peer buddy <b>enjoyed</b> participating in the activity	0	0	0	2	2
I would participate in this activity in the future	0	0	0	0	4

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**Table S5.** Peer Social Validity Responses (open response items).

	1 If someone asked you about this intervention, what would you say?	2 What would you say was a major challenge to the intervention?	3 What do you feel was the major benefit of the intervention?	4 Is there anything else you would like to add?
Emma	It was fun. I am so glad I did it. Before this, it was really hard for my buddy and I to communicate, but it has gotten so much better with this.	Getting the hang of using the tablet.	My buddy and I can definitely communicate a lot better. She use to not say anything to me, I didn't think she wanted to talk to me. Now we have a relationship, we are friends.	I was going to ask for a new buddy at the end of this year. I was going to ask for a buddy that could talk, but after this, I am not. I have learned how to talk with my buddy and she has learned how to talk with me.
Sam	Um, I would say that I participated in a Penn State research study with a special ed program, and I was able to communicate effectively with some of my peers in the special ed program.	Um, I think just getting all of the tools down and like making sure that my buddy was comfortable with me. That was my hardest part because I felt like we clicked, but I didn't know if that was gonna happen.	Definitely just getting close with all of the students. Working with each and every single one. I definitely got close, it felt more like an environment that I would love to be in.	No.
Megan	It inspired conversation that wouldn't have happened otherwise.	When [the participant] wasn't feeling well, it was harder to get him to participate. He didn't always seem to enjoy it on those days.	We communicated together. Before this, we didn't talk together.	I would do it again, with different videos! At first, I was really unsure and not confident, but as it went on, it got much better and I felt more confident communicating with my buddy.

Kristin	I would say it was really helpful, and I think me and my buddy both enjoyed it. It was a great way for us to communicate. I know it can be difficult for my buddy to always get engaged. When she seems really engaged in the activity, it was easy to start conversations. Watching the videos, it created a way to communicate and something to communicate about, that both of us were interested in.	A major challenge was a first, whenever we were first watching the videos with no interaction. I know my buddy would sometimes shut down, and honestly fall asleep during it, and she wouldn't be paying attention. She would be off in her own world, but once we started getting engaged, it was better, but I think that the beginning was a little rough, trying to get her to watch the videos.	Being able to communicate and keeping her engaged because at the beginning, it wasn't like that, at all. Then having that engagement and having her have that, forcing her to have those conversations, “what do you want to say about this one?”. Forcing her to think about what she wanted to say, circle it, and say it. That was a big benefit of having the interaction part of it.	I would feel like I would do this in the future, just even on our free time. I think my buddy, loves the nails videos and the food videos. I think, I think she definitely enjoyed it. That is something we would do in the future. I think she loves watching nail videos is what I learned from the experiences.
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**Table S6.** Staff Social Validity Questionnaire and Responses.

Questionnaire item	Number of responses per category (scale of 1 to 5)				
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly agree</i>
It is important for students to have a way to interact with peers	0	0	0	0	4
Learning to communicate with others is an important goal	0	0	0	0	4
Watching videos with peers is an age appropriate activity for the student (s)	0	0	0	0	4
The student's communication skills improved as a result of the intervention during interactions with their peer buddy	0	0	0	2	2

The intervention provided an <b>effective</b> way for the peer to communicate within the activity	0	0	0	1	3
The intervention provided an <b>efficient</b> way for the peer to communicate within the activity	0	0	0	0	4
The intervention provided an <b>appropriate</b> way for the peer in communicating within the activity	0	0	0	0	4
The intervention provided an <b>effective</b> way for the student to communicate within the activity	0	0	0	1	3
The intervention provided an <b>efficient</b> way for the student to communicate within the activity	0	0	0	1	3
The intervention provided an <b>appropriate</b> way to assist the student in communicating during the activity	0	0	0	1	3
The student (s) <b>enjoyed</b> participating in the activity	0	0	0	1	3
I would implement this intervention/suggest it to others in the future	0	0	0	0	4

**Table S7.** Staff Social Validity Responses (open response items)

	1	2	3	4
	If someone asked you about this intervention, what would you say?	What would you say was a major challenge to the intervention?	What do you feel was the major benefit of the intervention?	Is there anything else you would like to add?
Staff 1	It was a great opportunity for our students and for their peers. I feel like they were both learning.	Finding time that works for the student and their peer.	I felt like it brought the students together in a way that they could communicate without it feeling forced. It took a lot of the awkwardness out of the interaction and it really ended up being two friends spending time together.	I really liked the peer training component. That is something we are always looking for more of and looking for ways to help the peers who spend time with our students.
Staff 2	The video aspect made it so that they kind of had a way to interact without having to force it. It was much more natural, much more engaging and motivating. It gave them something to talk about instead of having to come up with things on their own, which is especially challenging for our students.	How to continue in the future after the study is over	It was great to see our students communicating and enjoying their peers company. They were actually enjoying the interaction and answering their peer.	We are always looking for ways to encourage peer interactions and peer relationships and this was exactly what we needed.

<p>Staff 3 I saw the results of slowing things down. Concentrating on making those little steps, so that there could be an interaction, so I saw a good result of that, but also, as an instructor watching it was a good reminder to slow that down and pay attention to those steps, and it's okay. You think maybe we're not doing something big enough when we slow it way down, but actually it's big to slow it down to the basic stuff, so I think that those are the biggest things.</p>	<p>Well, for our students, I think the biggest challenge is finding things that are interesting enough to them, and them adjusting to something new, so making that adjustment and them getting used to this is what we do.</p>	<p>Just seeing that they can adapt to that, and that it does create a nice interaction for them, and that they do seem to enjoy the benefit of like we said in the first question. Slowing it down, to really concentrate on making it an interaction, seeing the benefit of it is the biggest reward because they did seem to enjoy it, and they were interacting as much as they do.</p>	<p>Well, I would have to say at first, I was like what's the big deal. It's just videos, but when you are working with children with difficulty communication needs, and you scale it way back, it is a really big deal. Paying attention to all those details and taking the time to create the interaction, and you come down to really analyzing it, and talking about it, and seeing the results of it was rewarding.</p>
<p>Staff 4 I would say it is an amazing tool that could be used by nonverbal kids to verbal kids as a way of interacting with their peers which is so important at this stage in their lives, period.</p>	<p>To this intervention is having a peer willing to do it. Seeing the need to do it, taking the bull by the horns, and doing it. Learning it but wants to do it. I think it's an amazing tool, and I think if anyone is a best buddy, they're already open to training, new things with these kids so.</p>	<p>I think that helped immensely, and I think it'll open doors for more, and I think these kids would even, if the kids themselves had iPad or had access to iPad, maybe they would sign one out for the weekend, and used it as if they were going to the movies or going to hang out or something.</p>	<p>Just the back and forth communication. I mean it may not mean a whole lot to the real low nonverbal kids, but it still teaches them the back and forth, and I think it means a lot to the best buddy. To be able to connect on some level.</p>