

Who said it? Examining misalignments between assistive robots in AAC and lived experiences

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AAC Background and Challenges

What is Augmentative and Alternative Communication (AAC)?

- Many nonspeaking individuals rely on AAC systems to participate in interactions [1]
- AAC supports may be unaided (e.g., gestures, manual signs) or aided (e.g., speech generating devices (see Fig. 1)) [2, 11]
- Used to express wants and needs, share information, and connect with others [3]
- Shapes what can be expressed and how that expression is interpreted [4]

Stakeholders express numerous challenges with AAC devices

- *Lack of personalization*: Static grids, fixed vocabularies, and limited adaptability may not reflect users' identities and lived experiences [5, 6]
- *Transactional focus*: Systems may prioritize basic requests over more abstract socio-emotional communication [7, 8]
- *Communication breakdowns*: Misinterpretation or limited expressive options can disrupt interactions and carry high stakes in AAC-mediated communication [9]
- *Limited platform integration*: Poor integration with communication platforms (e.g., video conferencing) can create participation barriers [10]

These gaps motivate interest in new technological supports, including integration with socially embodied systems (e.g., see Fig. 3)

- Embodied features can supplement existing symbol-based communication [11]
- Interpretation can rely on the user's selection and how the robot embodies it [12]
- Robot role (e.g., peer, teacher, assistant) can shape interaction expectations [13]
- Many social robots rely on fixed behaviors, which can limit personalization and make designers' assumptions more present [13]



Fig. 1: Example of an AAC device in use

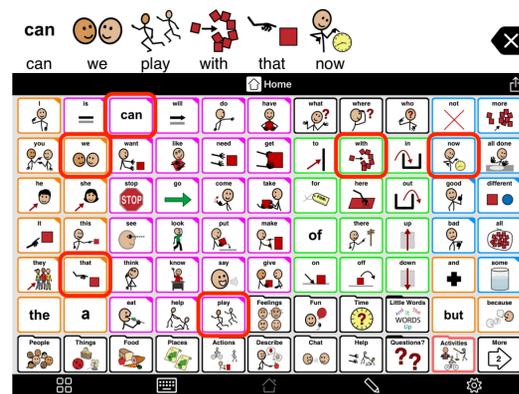


Fig. 2: A static grid-based AAC software [21]

Ethical Questions at the Intersection of Socially Assistive Robots and AAC

How is authorship attributed?

Authorship refers to who communication partners attribute as the source of meaning and intent of a message [14]

- Authorship can be complex - Messages are constructed through symbol selections, system design, and partner interpretation [14]
- Facilitator's influence may be confused for the communicator's original intent [14]
- Predictive or adaptive features may influence what the user can express and how responses are formed [15]
- Robot embodied features (e.g., motion) can add meaning beyond static selections which may complicate attribution [11, 12]
- A robot may act as a facilitator, obfuscating whose intent is being expressed [13]

How might participation and communication norms shift?

- Robot-mediated AAC may change who is treated as an active conversation partner, including who can initiate and whether their contributions are acknowledged [13]
- Participation is about message transmission, as well as being recognized as a partner with chances to initiate and respond on one's own terms
- Long-term use can shift roles and expectations in interactions (e.g., who leads, who responds, who waits) [16, 17]
- Robots can *reinforce* dominant norms by embedding designers' assumptions about what counts as "successful" participation [13]
- Robots can *shift* norms by supporting interaction patterns that better fit diverse communication styles, rather than shaping interactions to match social expectations [18]
- These shifts often emerge through sustained use as authorship and agency are negotiated in everyday interactions [16]

How to preserve AAC users' agency?

Agency refers to who leads and shapes the interaction.

- Stakeholders emphasize avoiding systems that limit communication to requests or clinician-defined goals [4]
- Predictive or personalized systems can trade efficiency for user control over what is expressed [15]
- Robots that prompt or initiate conversation may redistribute control over an interaction [13]
- Short-term scaffolding may support engagement, but may reduce opportunities for AAC users to manage interactions themselves [13]
- Agency shifts may change participation opportunities and interaction norms over time [16]

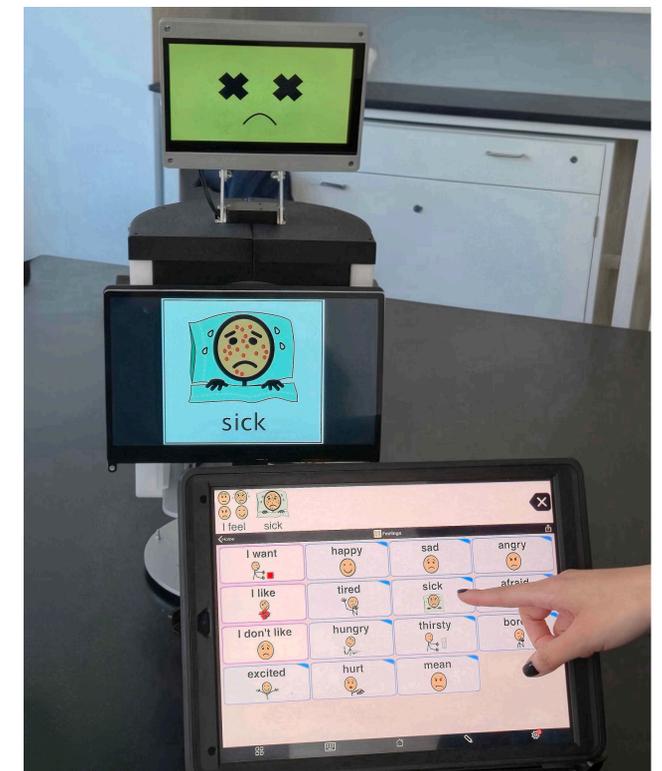


Fig. 3: Example socially embodied AAC support [19, 20]

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