Developing Personas to Aid in AAC Design

Jeff Higginbotham
Katrina Fulcher
Haesik Min
Carly Hanna
Carrie-Anne Kirkland
Neeraja Subrahmanian
Jenn Seale

Center for Excellence in Augmented Communication
Department of Communicative Disorders and Sciences
SUNY Buffalo

Current AAC Design Considerations

As with most technologies, AAC development is based on:
- implicit or explicit models dominant models within the field (e.g., sender-receiver model of communication)
- the legacy of prior device design,
- the values and knowledge of expert programmers, engineers, therapists and scientists regarding the latest technology and perceived needs of the consumer

current design perspectives
- technology-centered – Basic technology features emphasized. Humans must adapt.
- self-centered – Without guidance, designers design for themselves. Most design happens this way.
- user-centered – Technology is adapted to the functional considerations and preferences of humans. Still technology centric.
- human-centered – Issues such as self-image, personal and cultural values, daily practices, personal aesthetics begin to drive technology design.

factors limiting participation of individuals using AAC in technology development

- relative low incidence of a consumer base
- health and physical conditions
- transportation limitations
- performance restrictions
- variability communication performance

> *In the real world however, it is difficult to get everyone working on a product to think about users at all (Pruit & Adlin, 2006).*

In combination, these factors make it difficult to locate and enroll AAC users to as technology testers and/or consultants. For these reasons, the AAC field typically engages consumers in two ways: sometimes as focus group participants, and/or as short term testers at the end of the development process. Focus group results are limited in that they fail to provide coherent portrayals of user practices. By the time that a device is ready to be tested, the design is set in stone and significant changes cannot be made. By not actively engaging consumers throughout the design process, critical design decisions which are often made early on, are made without their valuable input.

human-centered design & the role of personas

> *Typically, consumer input is informal, relegated to providing feedback relatively late in the design process - once technologies are developed (Cooper, et al., 2007).*

The past decade has witnessed a shift in commercial design from user-centered to human-centered design approaches - attesting to growing attention to issues such as self image and culture. Human-centered approaches focus on incorporating user input into early stages of the design process. One important innovation has been the development of "personas" or user personalities. A persona consists of the goals, values and behavior around technology based on the documented behavior patterns of individuals. A persona is a representation of an individual that embodies the characteristics of a target user population (http://Interaction-design.org, 2010). A persona may be developed based on a variety of sources including:

- interviews
- assessments
- observations
- autobiographical and documentary media
- research publications

> *One of the most powerful design tools designers bring to the table is empathy: the ability to feel what others are feeling. … One of the most dangerous practices in product development is isolating designers from users because doing so eliminates empathic knowledge (Cooper, et al, 2007).*

From these data, persona descriptions are produced, which are then "consulted" during the design process by placing the persona in hypothetical scenarios or tasks, then predicting how the persona would behave given what is known about them. Personas are frequently developed for use in technology design, especially for consumer-based technologies and user interfaces. As noted by Cooper (2007), personas are highly informative in initial development work, resulting in informed prototypes that can be tested with real consumers. Because most designers have little direct experience with physical disability or AAC device use, the development of user personas could provide manufacturers with important frame of reference that result in informed product designs.

UB-CEAC's Persona Project

Personas are powerful design tools, which are that much more dangerous if they are grounded in weak methodology (Jacob Nielson, in Pruitt & Adlin, 2006).

University of Buffalo's Signature Center for Excellence in Augmented Communication (UB-CEAC) has initiated a project to explore the usefulness of personas for the design of AAC technologies. Personas present a unique opportunity to insert the "voice" and values of augmented speakers into the design of AAC technologies – *where it counts.*

The current UB-CEAC research team includes:
- a senior AAC researcher with experience in AAC device design
- 4 doctoral students in Communicative Disorders with a focus on AAC
- a masters student in Communicative Disorders with a focus on AAC
- a doctoral student in Industrial Engineering with past professional experience in persona development
- 2 individuals with complex communication needs with expert experience using various AAC approaches
- a personal attendant of one of the AAC experts.

project goals

UB-CEAC has two sets of goals: (1) persona development and (2) researching the development process.

development

- Develop a set of user personas of ALS stakeholders.
- Disseminate these user personas to AAC developers to make communication products specifically for this consumer group.
- Work with commercial developers to maximize the effectiveness of personas in the AAC technology development process.
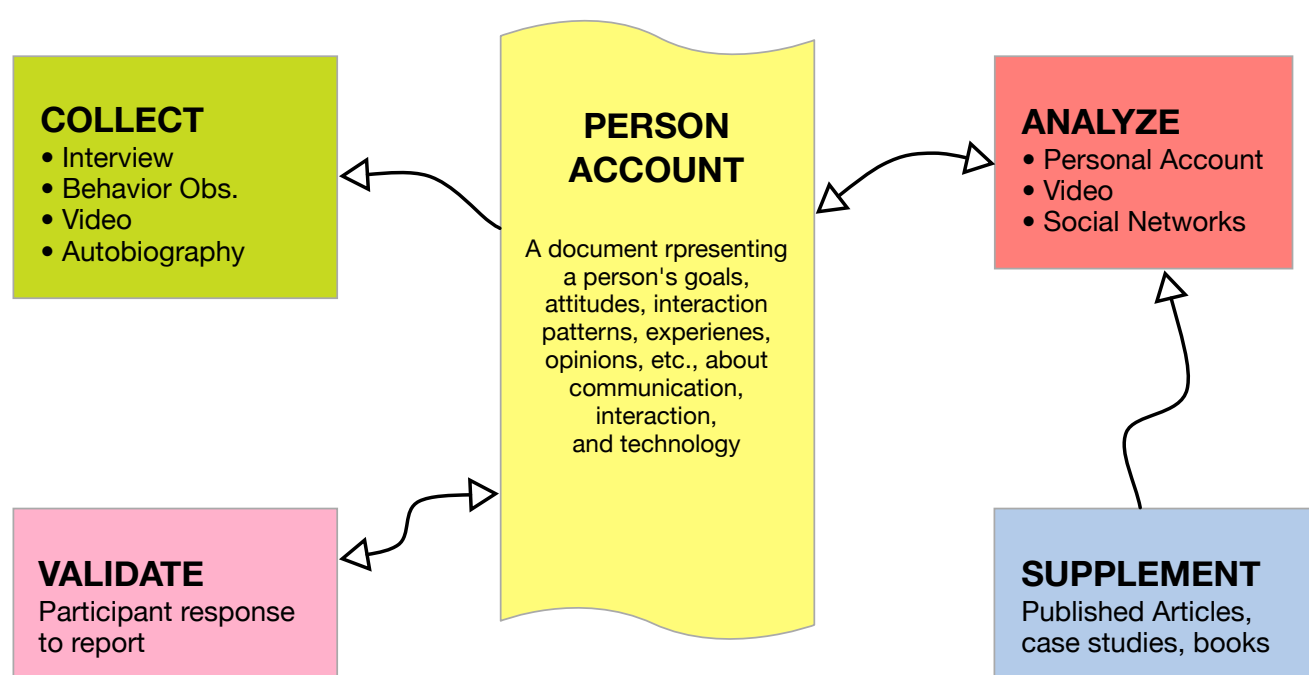
research

While engaged in the development process:
- Determine the potential weaknesses associated with successful persona development.
- Determine the best thematic focus for capturing user goals that are relevant to AAC development.
- Strategize ways of maximizing the involvement from individuals with ALS, who by the characteristics of their disability, may have difficulty providing extensive interview materials.
- Figure out the persona development implications for representing individuals with ALS whose communication and physical abilities – and potentially communication goals - change dramatically over the course of their disease.

developing person accounts

1. Members of team interview participants and family members on multiple occasions.
2. Interview data and videos are shared with team, who discusses the data and generates an affinity diagram.
3. Based on the team meeting, selected team members generate a provisional person account of participant.
4. Through successive interviews and data sessions, the person account refined.
5. Once the team is satisfied with person account, a summary is provided to the participants for their evaluation.

COLLECT
- Interview
- Behavior Obs.
- Video
- Autobiography

PERSON ACCOUNT
A document rpresenting a person's goals, attitudes, interaction patterns, experienes, opinions, etc., about communication, interaction, and technology

ANALYZE
- Personal Account
- Video
- Social Networks

VALIDATE
Participant response to report

SUPPLEMENT
Published Articles, case studies, books

excerpts of collected personal accounts

Device Challenges (Al) - *It (AAC device) worked very well. However, we learned my pinky soon became fatigued; the switch eventually became fatigued too and broke … It was my experience that it took so long to set up that by the time I got the device ready to speak the interlocutors had either left the room of the conversation had moved on. This rendered my utterance long out of date and demanded extra efforts to reestablish the context of my remark.*

Personality. Al is extremely sensitive to being stigmatized as an incompetent person. He wants to be as independent and resourceful as possible, despite his condition Work is his primary means of fulfillment …*What actually happened was that I became a far more productive scholar and a better teacher than I was before my illness. This continues to surprise me…*

Communication Goal – Jack is open to using any form of communication aid to get maintain communication with family and friends. He worries about device failure and hence has back-up communication aids in his car and different parts of his. Communication is crucial to him, the medium is secondary.

Attitude towards Technology - Jim describes himself as a gadget-person. *If it's new, I want it.* Jim is open and flexible in trying out new devices.

Communication Goal - Jim is a gregarious person who loves to talk. He calls himself a "people-person". He prefers to talk rather than use devices that slow the pace of normal conversation. He wishes to "talk better" so that people understand him better and he doesn't have to rely on his wife for translating his speech.

Communication Strategy - Dot tries to clearly word her requests and utterances through writing. When she uses the DynaWrite, she avoids misunderstanding by either repeating her utterance or by letting the conversation partner read off the screen.

Communication Style - Dot hardly talks in public. She says she carries post-it notes and the DynaWrite when she goes to the movies with her friends, but she doesn't use them. She said "she should use the post-its" and that she "almost used the DynaWrite", because it was too loud.
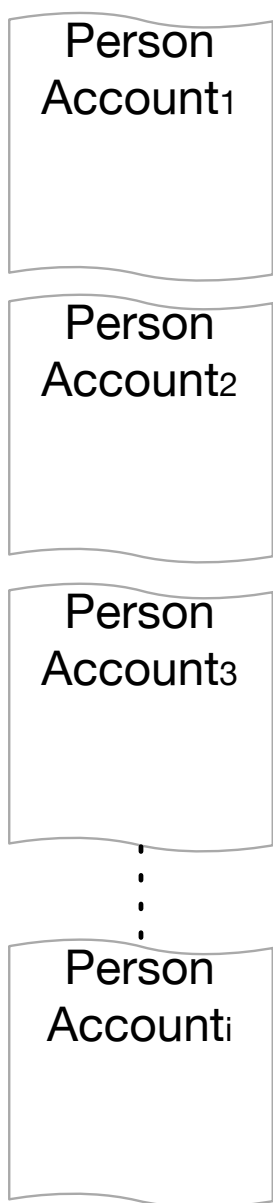
Communication Style - Jack exercises a very good sense of timing in face-face interactions. He is proactive in planning out his messages, anticipating problems and being as prepared as possible to mitigate them, to be able to converse "in time". He takes initiatives by talking about common interests. His interactions are quite fluid with his conversation partners.

Persona Development and Implementation

Generate Person Accounts

Generate Personas and Technical Specifications from Person Accounts

Use Personas to Motivate AAC Design

Person Account1

Person Account2

Person Account3

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Person Accounti

Betty

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strategy & tech specs

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Provisional Persona, Future Plans

JIM
"The Interactionist"

- **Type**: Social Interaction
- **Goal**: Maintain social contacts, family relationships, sustain employment as long as possible.
- **Cognitive Background**: Strong social/professional orientation, uses technology strategically to leverage social closeness.
- **Tools**: Strong multimodal communicator, uses letterboard, voice amplifier, LIghtwriter, DynaVox, email, text messaging, Skype

Jim is passionate about his need to spend time interacting with family, friends and colleagues. He strongly prefers to communicate in "real-time" using his residual speech (with a voice amplifier), gaze and gestures and AAC to engage his communication partners. He finds staring at AAC devices during his interactions disruptive and wants to be able to look at his partners when he is speaking.

When not in face-to-face situations, Jim communicates with a variety of electronic technologies, often joking with his communication partners.

Besides maintaining an active consulting role in his law firm, Jim heads up the fundraising efforts for the local ALS Society.

This persona represents one of several media forms that could be provided to designers. Epitomizing a distinct user personality, each persona is based on the goals, personal values, daily activities and communication strategies of a subset of participants interviewed. Personas are designed to convey these attributes in a coherent, empathic fashion to a design team.

The UB-CEAC persona group plans to develop a set of personas representing some of the personality types of individuals with ALS and their co-participant family members and friends. We intend to introduce these personas to AAC manufacturers and begin a development-research relationship with these groups to maximize the influence of personas on the design and manufacture of AAC technologies. As indicated in the literature, the role of the persona developer extends beyond persona development to the design, manufacturing and marketing of these technologies.

From a research perspective, we plan to incorporate a participatory research framework to help us understand how personas can productively influence new AAC designs and more fully represent consumer needs and interests.

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Acknowledgments

Corresponding author: Jeff Higginbotham (cdsjeff@gmail.com)