

AAC for Aphasia: A Review of Visual Scenes Display Project  
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Dr. Beukelman: Hello, today we're going to be talking about our work: trying to provide augmentative communication services to people with severe aphasia. This is being sponsored by the Rehabilitation Engineering Research Center in Communication Enhancement or the AAC-RERC.

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Dr. Beukelman: Today, I'm going to be interviewing several people. I'm going to begin with Karen Hux. Dr. Hux is a specialist in aphasia.

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Dr. Beukelman: She has been with us on this project from the beginning, and provides her expertise in aphasia as well as in the research aspects of this project.

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Dr. Beukelman: We'd also like to acknowledge Carl Olson. Carl's picture is shown here and he is a man with aphasia who helped us during the early months and years of this project and we really appreciate his support. He has subsequently died of cancer so he can't join us today and be apart of this broadcast.

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Dr. Beukelman: Karen, let's talk a little bit about, before we start talking about our research, let's talk a little bit about aphasia, can you? What is aphasia, for those who aren't familiar with it on a daily basis?

Dr. Hux: Okay. Aphasia is a language formulation and comprehension problem that usually follows strokes. It's usually following damage to the language dominate hemisphere.

Dr. Beukelman: And it can be in elderly people or it can be in younger people, although the bigger percentage of these tend to be elderly people, right?

Dr. Hux: Right. The majority are elderly. Usually it's a hemorrhagic stroke or a bleed in younger populations.

Dr. Beukelman: And then you'll notice that as the other people talk today, I've noticed, that they will talk about apraxia as well. What is that?

Dr. Hux: Well aphasia often doesn't occur by itself. Often times you also have apraxia along with it. Apraxia is a motor speech disorder that has to do with problems sequencing the sounds in a word. Whereas aphasia is a language impairment, the problem is understanding what other people are saying or understanding the meanings of words or finding words or sentence structures to produce language. So one is a speech problem, and one is a language problem.

Dr. Beukelman: And when they come together, that can really cause a significant limitation for someone.

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Dr. Beukelman: When a person has a stroke and has aphasia, they have different residual capabilities. Would you talk a little bit about those because we work with those in AAC.

Dr. Hux: The aphasia affects the person's language processing, but there are a lot of other skills, cognitive skills, that support communication that still remain intact for people with aphasia.

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Dr. Hux: So skills like just general intellectual ability, and attention, and memory, and visual processing. These skills tend to still remain intact, and we can use those to support the challenge areas that the person has in language.

Dr. Beukelman: What really makes these people unique is that they have this life of historical information and knowledge of people and former roles, and that usually is all retained. Yet, they must try to face going forward in their lives with this limited communication ability. So it isn't just putting a few needs, and wants, and greetings on their system and calling it a day, it's trying to give them the content that they need to maintain their social network and to recapture some social roles. And you'll see that later on as well.

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Dr. Beukelman: Let's talk about the range of severity that we deal with here.

Dr. Hux: Aphasia comes in all varieties. You can have a very, very mild aphasia that really the person himself or herself might be aware of but other people don't notice it very much as a problem; to very very severe/profound communication impairments because of the aphasia where the person has no means of communicating, and the degree of severity can be anywhere along that spectrum, and it does change as the person recovers. Some individuals start out with a relatively significant impairment, but with treatment and time, they improve so that they don't need a lot of external support. There are other individuals however, who remain severely impaired because of their aphasia and for years after the injury, in fact for the rest of their lives, they will be living with aphasia and need some way to compensate for that.

Dr. Beukelman: Okay, and I assume then that the intervention strategies are a bit

different depending on how severe you are and what your pattern is.

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Dr. Hux: Right. Traditional aphasia therapy has focused on trying to restore language capabilities, and that is very effective for people in the early stages of recovery and again for people with mild aphasia, it is very, very effective. But for people with more severe and more chronic forms of aphasia, we really need to supplement that by giving them compensatory strategies as well as attempting to restore as much language functioning as possible.

Dr. Beukelman: So in other words, we're trying to change/reduce the limitations that they experience in language, but then we're also in many cases trying to support them in a way that allows them to communicate more effectively and so on. Augmentative communication has played a role, is playing an increasing role in aphasia. Although because of the language problem, we have needed to work hard to figure out ways that these individuals can interact with technology and so on.

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Dr. Beukelman: Sometimes the listener plays a huge role, don't they? Like with written choice communication. Let's just talk about that just a bit .

Dr. Hux: Very often the listener has to play a more active role in the conversation when they are interacting with a person with aphasia than they would in other conversations, simply because they need to provide possible answers, or they need to provide possible interpretations of what...

Dr. Beukelman: Or clarify. So in other words they are almost co-constructing the message; working together to get a message that is...

Dr. Hux: That is the correct intent.

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Dr. Beukelman: In written choice, sometimes you'll just provide several choices to the person and write them down and let the person pick the one they want. It's that active a role.

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Dr. Beukelman: At other times, John Lyons has written about drawing. At other times we have communication books, and we'll be having a segment about that in this presentation, and then increasingly there has been a role of high-tech systems. Often those systems are designed to support specific communication activities. Do you want to just highlight a few of those?

Dr. Hux: Right. The AAC devices and systems that have been used with people with aphasia so far have primarily served specific purposes. So it's been to answer the telephone, or to deliver a speech at a certain meeting. It doesn't cover the wide array of

conversational interactions that people encounter everyday.

Dr. Beukelman: Or to ask for help, or to do a prayer, or to do those very important activities, I'm not belittling their importance, but it's more to accomplish a specific kind of activity.

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Dr. Beukelman: One of the things that we're trying to do in this project is to explore ways to provide a more complete interaction/level of interaction support for these individuals. We're implementing it on an experimental note/developmental basis, using the tablet such as this. We would like to acknowledge the support of the Dynavox Company in our efforts to develop these interfaces. And now we'll go and speak with the folks who are working day in, day out on these projects and we'll talk a little bit more about the specific interfaces.

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Dr. Beukelman: Now we're going to have a segment in which we introduce the visual scene display interface that we've been working on. And to help us with this, we've invited Michelle McKelvey. Michelle is a speech-language pathologist who has worked with persons with aphasia for quite a number of years and is currently a doctoral student at the University of Nebraska. And, she is managing several of the people's experiences in the project, doing the programming for them and collecting the data from them and so on. And, so thanks for joining us today.

Michelle: You're welcome.

Dr. Beukelman: Let's put up a slide here. Who are these people?

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Michelle: This is Rita and her husband Ray. Rita is the person with aphasia. She is 85-years-old and had her stroke about three years ago.

Dr. Beukelman: I see, and talk a little bit about her aphasia.

Michelle: She's largely non-verbal. She has some automatic phrases. Mainly, before we gave her system, used gestures and pointing to get what she needed.

Dr. Beukelman: So in other words verbally, if she had to carry the conversation verbally, would she get much out?

Michelle: No. Not spontaneously.

Dr. Beukelman: Her living situation?

Miechelle: She lives at home with her husband and housekeeper.

Dr. Beukelman: Okay, and then she has a daughter living fairly close doesn't she?

Miechelle: Yes. She has a daughter that lives in town about 10 blocks away from her house.

Dr. Beukelman: And has she been involved with you in kind of developing the system?

Miechelle: Yes, she is our primary informant for the system.

Dr. Beukelman: Oh, she is. So she's sort of the AAC facilitator for the system.

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Dr. Beukelman: Now we're looking at the page of the interface, and the interface kind of starts and stops anywhere. One of Rita's real issues was that she had trouble navigating through a communication book. She was one of these people that really was a linear kind of search person, wasn't she? She would start on a page and go through in a communication book. And so, we had to give her some way to navigate to find the content she wanted and then once she's there to represent her messages, those two ideas. Talk about the way you've got the pictures organized around the edge of the screen here. What's that about?

Miechelle: Well, starting with the Hello button and going all the way around, those are her themes that she is able to use and navigate, her own system. They represent different categories for her and are stable throughout her system, so no matter which page of her system that she's on, those themes are presented to her on each and every page.

Dr. Beukelman: So in other words, if she decides she wants to go somewhere, she just looks around the navigation information and goes to that place no matter where she is in her system. And some of the people that we'll talk about a little later on in the presentation will be people who use mega themes, we call them large themes, but she just uses a straight-forward theme. So, tell me a little bit about this first page.

Miechelle: This is her introduction page. This is kind of her way to introduce herself and her husband if he's with her, and her disability and what her system is used for.

Dr. Beukelman: Okay, now I see a family picture there, and then I see some print, and then I see these red buttons on the side. What about that?

Miechelle: The red buttons have a speak symbol on them, and anything that is colored red on Rita's device will speak. She needed that additional cue to use those buttons. Initially, we had just the symbols and that wasn't enough to cue her to use those. So we added the color coding and that's enough of a cue for her to be able to use those speak buttons.

Dr. Beukelman: All right.

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Dr. Beukelman: Now, you'll see there that the red arrow is pointing to the button that we're going to next which is the Hello button. So tell me a little bit about this Hello page.

Miechelle: This is her page to kind of get in and out of a conversation, sort of a small talk page. She has some responses to initiate on the purple side, and then on the blue side is her goodbye screens, ways for her to end a conversation, or to get out of a conversation.

Dr. Beukelman: Okay, and this one is a little unique in that she has these red speak buttons over here on the sides as well doesn't she? So she has buttons on both sides of the screen related to print.

Miechelle: We started her system that way, and she really doesn't have any trouble going from either side as long as the color-coding is there and represents the symbol. Then, she doesn't have a problem switching from left to right.

Dr. Beukelman: And then we have that number bar across the bottom, and that's just her rating scale for any kind of content that the listener proposes to her, "What kind of day do you think it is today? What kind of job did your housecleaner do?" Just about anything like that. Okay, then moving on, oh, on the bottom there you've got a green box that says "Hello to group."

Miechelle: She participates in an aphasia group at a local university, and that's her specific page to greet members of that particular group.

Dr. Beukelman: Okay. So she doesn't have that mixed up with the generic greetings. Right. And then the plus button next to that.

Miechelle: The plus button navigates to more information, and that's one symbol that seems to have pretty automatic meaning to her. She didn't have trouble initially going with that symbol, and it goes to additional information.

Dr. Beukelman: So really then she can navigate in two ways. She can navigate the themes by going around the outside of the page, and then with the plus button she goes deeper about a specific topic.

Miechelle: Right, and those are located within the scenes. We don't have any plus buttons located on the outside of her system because those aren't themes for her

Dr. Beukelman: It's only within a theme. Okay. Now you see the red button is pointed to the picture of she and her husband, is that the right?

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Dr. Beukelman: Okay, here we have her family page. You want to talk about any specific features there that are interesting?

Miechelle: Again you'll notice that there are the navigation plus signs on either side. The two pictures that are in the middle are of stories about her husband and more additional information about her family. She can talk about her children, and you'll notice where the red arrow points right here, that's to go to their family.

Dr. Beukelman: It's kind of interesting. What you're starting to see now in this is the amount context that's here. So in other words, it isn't just a picture of Ray with a nice tie and white shirt and a suit on standing in a portrait pose, but rather you got him beside a what, 1930 something car? And then you've also got him in Hawaii, because he served in the military. And we really go for that, we try to get in each picture, we try to get, oh, I always kind of say we're going for four or five bits of information so at least you can have four or five turns, even if you can't go to another picture. Even though Ray is there, so if she needs to say, "This is my husband Ray" or to communicate that she can.

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Dr. Beukelman: We're going to pursue that plus arrow down here now, the one with the red there. Okay, and what that does is bring up her...

Miechelle: Her children. She has four children, and each child is represented by a picture. And then the plus sign indicates that you can go to more information about that child.

Dr. Beukelman: And that's what the red arrow over here on the left side indicates, that we're going to get more information about that particular daughter and her husband.

Miechelle: Yes, about the daughter and her husband.

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Miechelle: So you go to that page, There's a few bits of information, just biographical about the husband and where they live and then their children, so she can talk about her grandchildren.

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Dr. Beukelman: Okay, so then we go down to another plus there and that gives more about that family, so we're going deeper and deeper and deeper about that daughter's family. Okay, now you've got a little blue there, what's that about?

Miechelle: Those are questions that she can ask her listener. We have those coded with blue and the question mark to give them additional meaning. Originally, when we had them in the system with no blue color-coding, she didn't know when to insert those into a conversation. So she'd just go down the row of her device and probably ask the question

at inappropriate times. After we put the color-coding those, it was easier for her to identify those and then she could put them in there more appropriately in the conversation.

Dr. Beukelman: It's kind of interesting the question mark wasn't enough for her, was it? (Miechelle: No). I think of all our people that are in the project right now, don't you think she is the most color sensitive? (Miechelle: Yes). She needs it the most to do quick navigation and quick movement and quick decision making in the conversation.

Miechelle: It's just the symbol alone was not enough, she needed that additional cue.

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Dr Beukelman: Now, we're back to that original picture of again Ray. And now the plus arrow is pointing to more about Ray in the military.

Miechelle: Right, they spent the first two years of their marriage actually in Hawaii.

Dr Beukelman: I see, interesting. It's interesting, older people tend to establish a social connection often by shared experience. So, in a project we did here once, there was a lot of talk about the Aleutian Islands, because a lot of the people in the National Guard during the Second World War were assigned to the Aleutian Islands. So people would get together and often in their first conversation they would ask each other whether or not they had been part of the Aleutian Islands group. And what we find is for him, or for her rather, one of the ways to establish connection is this military experience. Second World War I assume, right?

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Miechelle: Yes, well it is a very common shared experience, and it is one of the topics that they often bring up with close family and friends.

Dr Beukelman: And here you see more WWII pictures (Miechelle: Right) more context there. And then the plus arrow takes you deeper.

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Dr. Beukelman: So now we're getting very specific information. Now, she's got print there. Can she read?

Miechelle: Yes, she can read single words. But the largest addition of the print, the reason that we did that, was because she did not like having just the speak symbol and the red button (Dr. Beukelman: Oh, I see), she wanted to know what was coming out, or a cue of what was coming out. So, the text on the button doesn't represent everything that will come out on the speech button, but it's enough information to let her know what the topic is or to let her know what the button is going to talk about.

Dr. Beukelman: Okay, is that just her, or are we seeing that in the project with many of the people with aphasia?



Miechelle: No. A lot of our folks prefer that, we originally just had the speak buttons on there, and most of them indicated that they didn't like that, they didn't like to push something and not know what it was going to say.

Dr. Beukelman: I think the other thing about it is that that kind of information really helps the listener too because it means that I have some idea, if I'm going to ask her a question, I have some idea of the zone of content that I should be in, and I probably shouldn't be talking about 'What did you do last weekend?' because she may not be prepared to handle that even though her system is set up so that she can do some of that current stuff. Yet, it means that the listener has some guidance, and they aren't out there all by themselves, just trying to come up with something to say.

Miechelle: Well, and they can also refer to that text, to a date that's on it or a name that's on it for additional information.

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Dr. Beukelman: Now we've moved onto the phone, I guess. Talk a little bit about that one.

Miechelle: Rita does answer the phone in her home, so what we've designed this to do is these are the responses that she can use to, actually, when she answers the phone or talks to people on the phone.

Dr. Beukelman: These are things she can say; "Hello, fine, how are you, do you want to talk to Ray" I assume if she's going to hand the phone off, "Okay, just a minute, goodbye" and then "I love you," parting comment I suspect or whenever she wants to use it. But there is a plus here, now let's go to that. What's this about?

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Miechelle: Well, one of the issues was that when she answered the phone, she couldn't tell if somebody was there, she couldn't tell them who had called, so these buttons are to enable her to say well "These people called" or "This daughter called" and it's represented by a picture. When we had those two side-by-side in text form, she was having difficulty switching between the two.

Dr. Beukelman: I see. So in other words, when you had her telephone talk over, say on the left hand side, and who called on the right hand side, that was too confusing for her.

Miechelle: Yes, she needed more context to back that up.

Dr. Beukelman: And now that we've put it on a go deeper/plus page, she handles that.

Miechelle: She's a little more familiar with that format.

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Dr. Beukelman: Here is an interesting segment, and I think it really illustrates what we're trying to do with the project. Why don't you introduce this to us first.

Miechelle: This is her red hat group. The red hat society is a group that a lot of different senior citizens belong to a group such as this, it's more of a social activity. And this was one that she and her daughter started. So this series of pictures tells about her experience in that group, a little bit about what it's about, and then her activities in it.

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Dr. Beukelman: Okay, and so let's go to the plus button, and go further. Okay, what do we have going on here?

Miechelle: Before her stroke, she did a lot of crafts and this kind of gets back to that. She's allowed to tell people about this crafting project that she had done and the pins she had made for this particular group.

Dr. Beukelman: Oh, so she made pins for all the other women in the red hat group. So now, through these photos she can explain that to folks and that's what she's done.

Miechelle: She's passing them out in the pictures and showing the ladies them.

Dr. Beukelman: Now was she part of Red Hat before the stroke?

Miechelle: No. This is a new thing. Her daughters wanted to do something for her so that she could have an additional social outlet and sort of give her an opportunity to get back out and in the midst of things.

Dr. Beukelman: And I think that she also started this after she had the communication device (Miechelle: Yes), because before that, she would have really struggled to try to communicate to strangers or even people that she knew in that kind of setting.

Miechelle: With such a limited verbal vocabulary.

Dr. Beukelman: Yeah, right, we really see that, that the social network of people with severe aphasia following stroke just gets so narrowed down and when you can stabilize it and maybe in this case even expand it. I mean, it's a real contribution. And she loves it. I mean, you look at those pictures closely and she gets it. Oh, here's another picture, lots of activity. Once again, heavy on context. Okay.

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Dr. Beukelman: Now the red arrow is pointing to the UNK, that's the University of Nebraska at Kearney, and that's where she's in the aphasia group is that right?

Miechelle: Yes, and this particular section is designed for specific group activities for her to participate in. And so depending on what the group activity was, she'd indicate the

plus arrow and go to the screens for that activity.

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Dr. Beukelman: And what do we have on this page here?

Miechelle: We're going to do some famous people. This was an activity set up by the students there.

Dr. Beukelman: So in other words she can talk about her brothers and sisters, or her marriage, or her children, or her grandchildren, or her anniversary, or famous people. And we see that the red arrow now is pointing to famous people, so she would simply hit that and we would then go to...okay, this is fun.

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Miechelle: Each person was asked to talk about their favorite actor or actress. And so these were the ones that she chose, and she was very clear about which ones that she wanted.

Dr. Beukelman: And so John Wayne and Clark Gable, and then the blue?

Miechelle: The blue question's so that she can interact within the group, she can ask other group members questions or the clinicians.

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Dr. Beukelman: Clue 1, clue 2, clue 3, clue 4. What's this about?

Miechelle: Each person was to have a picture of a famous person and they were to give clues to the other group. So, this was a situation where she didn't want the text on her screen because she didn't want anybody looking at her answers so (Dr. Beukelman: So they would cheat). Right, so she gave her clues in order and the other people guessed at who her famous person was. And then when she wanted to show them, she just turned the screen around so that they could see the picture.

Dr. Beukelman: So they could see who was Lucy and Desi. Okay, I noticed on the screen, there up on top, you see a red border around the dog I guess, and then over on the side you see a red border around some pills. Now, what does that mean?

Miechelle: Well, at the beginning we talked about anything red on Rita's screens talks. These are immediate needs. She has a dog that's around the house and she always wanted to know where the dog was, so instead of putting that in a theme where she had to go deeper to get that, she can just press that button, "Where's the dog?"

Dr. Beukelman: So the dog has his own theme, a one-item theme, "Where is the dog now?"

Miechelle: A one-item theme. And another thing that she was really concerned about

was when her medications needed to be refilled, and she wanted that immediately. When her daughter came in she could tell her right away “I need my pills refilled.”

Dr. Beukelman: So in other words, while I’m thinking about it, I’m going to ask you. So we accommodated her by not burying it within another theme, like a personal care theme or something. Okay, oh my, we’ve had a red arrow to flowers, and here we go.

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Miechelle: This is her garden, another thing that was very attached to her. So we took pictures of the things that are most important to her, her favorite flowers, her favorite roses, and then, got the story for those.

Dr. Beukelman: And you’re using digital photography so they pop right in to the computer and you go from there. Later on we’ll be talking about how to organize context and so on with themes. Oh my, has a very complicated...how do you pronounce that fourth one there? (Miechelle: Mandevilla). Mandevilla, and that’s what?

Miechelle: It’s a pretty flower.

Dr. Beukelman: It’s a kind of a flower, okay.

Miechelle: It’s an unusual creeping vine that she has on her house.

Dr. Beukelman: And I suppose that somebody who knows anything about flowers would understand this (Miechelle: Yes). Okay, but it would be something that she could talk to me about obviously and she could.

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Dr. Beukelman: And then if we go further we see the golden shower (Miechelle: Yes). Once again, fairly high-level context in here, isn’t it there?

Miechelle: Right, and it leads to interesting conversations about your house and how long you’ve lived in the house so it supports more than...

Dr. Beukelman: More than just a discussion of that’s a golden shower rose, right (Miechelle: Right). How long has the golden shower rose been there?

Miechelle: I believe that one has been there 30 years.

Dr. Beukelman: Oh, it has. Oh I see, what you’re saying now. Okay.

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Dr. Beukelman: Oh my, here’s more.

Miechelle: And, you can change the pictures in the system according to what’s blooming. So, we did some later things for her, you know, fall flowers that bloom.

Dr. Beukelman: It almost strikes me like my mother with her picture album. I mean she has a picture album with pictures in it, and what's current is what you get dosed with when you go talk to her. And, that's kind of what she's doing only it's all electronic and supports other things as well.

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Dr Beukelman: Okay, and now we're going on to her house.

Miechelle: And these are features that, you know, kind of a needs-base system as far as did she want to go out to eat, what grocery list do we make. But one of the more important things was they do have a cleaning person, and she needed a way to express to this lady what she wanted done that day. Apparently, it's different. They didn't have a schedule, where the lady did stuff on different days. So she was able to sort of reclaim that role in directing this person who worked for her.

Dr. Beukelman: If I'm not mistaken, while you were working with her you told me the story, that she had some real reservations as did one of her children about whether or not going in this direction was really where they wanted to go. And even though she started working with you, it was still kind of, "I'm not really sure where this is going" until the day came when she realized that she could tell the cleaning person what to do with this device.

Miechelle: This was kind of her breakthrough moment. We had been, you know, been doing all the family themes and stuff, and it really wasn't until she could use it to direct this person.

Dr. Beukelman: And to reclaim a role, and then all of a sudden she said to herself, she must have said to herself, "Ah, I see some real future in this."

Miechelle: Right.

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Dr. Beukelman: Okay, that's interesting. And what do we have here?

Miechelle: This is the picture of her and the cleaning lady and she can tell her what she would like done that day.

Dr. Beukelman: Oh so, on the previous page she has, on other pages, she has pictures of rooms, and then on this one she has pictures of activities of various kinds, and what she wants stressed and what maybe wasn't done quite as well last time as it could have been.

Miechelle: And with the going deeper page she can say, "I know you did this yesterday but I'd like it done again." She can sort of manipulate that and make her wishes known.

Dr Beukelman: I think that one thing we ought to point out here, is that we're just

showing you a just a few of the pages that we have here. So, okay, well thank you very much for introducing this, I appreciate it, and I personally really appreciate the work that you and Rita have done together to teach us how to do this.

Miechelle: Thanks.

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Dr Beukelman: Now I'd like to introduce you to Aimee Dietz. Aimee is an experienced clinician, speech pathologist, who has worked with adults with aphasia and motor speech disorders. Also she is a doctoral student right now at the University of Nebraska. Prior to this we've been talking about the features of the visual scene display interface, and Aimee is going to talk with us a little bit today about how she develops the content for two people. They're somewhat different, and so we'll start out by introducing you to each of them.

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Dr. Beukelman: First of all, this is Ron. Why don't you just give us a little bit about Ron?

Aimee: Ron is a very independent person who really works hard to maintain the roles that he had before his stroke.

Dr. Beukelman: Okay, and then the next one is Pat, and we'll talk about her first more extensively.

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Dr. Beukelman: Talk with us a little, what is that above her head?

Aimee: That's a cow. She's very into collecting cows. She has ceramic cows in her garden, and stuffed animal cows all over the house, and just cows everywhere. So where you see Pat you see a cow.

Dr. Beukelman: One of the big themes in Pat's system are these cows, and that was one of the things that she really, really wanted in her system. I think this really illustrates a point of the visual scenes, in that we try to be really, heavily contextual here, so that these individuals, we try when we can to get pictures that show context. Talk to me a little bit about her aphasia. How severe it is, what type it is.

Aimee: She's got a severe expressive aphasia; her comprehension is fairly intact, especially if you talk a little slower and give her some time, but I think that's really been the benefit for the visual scenes, because she understands a lot. And, she has some apraxia too that limits her verbal output.

Dr. Beukelman: How much verbal output does she have?

Aimee: Essentially it's just perseverations, just Pat Pat Pat Pat.

Dr. Beukelman: Just stereotypic. So she really doesn't communicate very much through her natural speech, does she? (Aimee: No). Okay, and tell me a little bit about her social situation, her social network. Let's start with where she was at the beginning of the project.

Aimee: At the beginning of the project, she was typically at home with the family and that was it. And she does live at home with her adult daughter, and her son-in-law, and two grandchildren. As we've progressed she's gotten more comfortable with her device and using it, she's actually gone out a few times, and to a social gathering like a women's club type thing, so she's starting to go out into the community a little more than she was in the past.

Dr. Beukelman: So this is someone whose social network has really shrunk in response to the aphasia (Aimee: Yes), and that's not uncommon is it (Aimee: No), that these individuals struggle socially, struggle to communicate and so their social network just kind of gets smaller and smaller and smaller.

Slide 41

Dr. Beukelman: Okay, well, oh my what do we have here? Lots of pictures.

Aimee: This is what we do when we first get a batch of pictures. That the families have the digital cameras, and in Pat's case her family takes most of the pictures. And, when I go to develop a theme for Pat I sit down with the family and we go through the pictures and they name everyone in the picture, and kind of tell me who's who, and then they tell me their version of the story.

Dr. Beukelman: So Pat's family are your informants here (Aimee: Yes). Okay, and she really, then what's her role?

Aimee: Her role is after I meet with the family and get the story, I take it and I put it into the device and lay out the story as I interpret it from the family. And when that's done I meet with the family one more time and have them make sure there's no obvious errors. And then once they okay it I sit down with Pat and we go through page by page. And she'll, she's very good at pointing out what she doesn't like, it may not always be clear what it is she wants changed, and that's usually a process, and it might be over a couple weeks before someone realizes what it was that she wanted in there changed. So she does have the final say over it but the family gives the information.

Dr. Beukelman: So in other words, in this picture that we have up now, that's on a computer screen, a big flat screen computer, and so you can have a lot of slides (Aimee: Oh yes), of pictures up on that screen. And then as you select in on what's that, say four or five or ten seminal pictures are for that theme then you can begin to bring them up individually (Aimee: Correct) and really talk them through with people. So that's

generally the sequence that you use. So in other words the theme development then is on a separate computer at this point, for someone who's as complicated as Pat.

Aimee: Right, it's on a PC Editor, and then we just go through the pictures and they tell me which ones they want to toss, and which ones they want to keep, and we try to narrow it down.

Dr. Beukelman: Okay, so lets go through a sequence of pictures here. Give us just a thumbnail of the content.

Slide 42

All right, this is a picture of a celebrity I guess, I see that.

Aimee: Yes, that's Don Ho, and this is one of Pat's favorite singers of all time and she got to meet him on a cruise with her and her husband, they were on a trip to Hawaii.

Dr. Beukelman: And this, how long ago do you think this happened?

Aimee: This was pre-stroke, so I would say more than five years ago.

Dr. Beukelman: Right, but this is a very important part of her system. Yeah, okay, next.

Slide 43

Aimee: And this is the other picture of her and her husband on the cruise ship, and you can see in front of them there it shows the Honolulu, Hawaii. It gives the listener or their communication partner some more context about where they're at, you've got the ocean in the background.

Dr. Beukelman: And this is a good example, a kind of example isn't it? Where what we have here is that the kind of situation where the context is added by the picture, rather than just a portrait of two people standing there. We try for that. I always say we like to have three or four or five bits of information in every picture so it isn't just the two people. Okay, then next.

Slide 44

Aimee: And then here, this is where I've taken the information from the family and turned it into a story. And you've got the top picture where they're standing here on the deck of the cruise ship, and then here on the right you can see the text.

Dr. Beukelman: All right. And then you do some color-coding too in this?

Aimee: Yes, and for Pat I simply color-code the questions blue, and that signals to her that she's not making a statement, that she's actually asking a question.

Dr. Beukelman: And we build the questions right in just like we did for Rita, so that it isn't just a dialogue that is a recitation of comments, but that she can ask people things.



Aimee: I try to get her to pull in the listener so that they can feel like they are apart of the conversation.

Dr. Beukelman: Okay, good. And then there is a plus down on the bottom of the screen. Here, and what's that?

Aimee: That's going to go to the next page, that's going to go deeper into that page.

Dr. Beukelman: So, that's the deeper strategy, right, okay.

Aimee: Right. For her, she had no trouble with the symbol plus, for going deeper.

Dr. Beukelman: So, she didn't need the word more or anything like that. And then there's the numbers across the bottom, and that's just a rating scale so one through ten. That's "How well did you like it? What was the weather like?" all these kinds of things. Okay, all right, then next.

Slide 45

Dr, Beukelman: There we have the famous Don Ho picture again.

Aimee: Yes and notice the whole page is devoted to Don Ho. You know she's very excited that she had her picture taken and she can't imagine anyone else having a better time than she did with Don Ho here.

Dr Beukelman: And this picture is the signature picture for navigation, in other words that's the one that represents this whole mega theme for her. Now she's a little different than Rita. Rita needed to have all of those themes around the edge of the screen to help her navigate. But Pat can use a home page and kind of a table of contents page and so she's gone to that because she has more and more content in her system. Okay, lets talk a little bit about Pat then. I went on to Ron's, and I'll go back to Pat here. What other themes does she, lets just talk bit about how broad her system is.

Aimee: Okay, the majority of her themes are in the family theme. Gatherings for Christmas. Halloween is a big thing because one of her grandsons decorates the basement and has a big party, so there tends to be the majority of everything in her family theme. She does have a theme for her hobbies, which includes the cows and she collects salt and peppershakers and other things like that so she's got some hobbies that she likes to share.

Dr. Beukelman: Okay, any other themes?

Aimee: She has another theme that is more wants and needs things around the house (Dr. Beukelman: Just kind of basic things that you would expect). Basic needs that she can't communicate otherwise because she would just point and her family gets agitated because they don't know what she wants.

Dr. Beukelman: And that was a big theme in this family wasn't it? Was having her find ways to communicate so they could understand her to reduce the stress level of having her live in their home and then not knowing what she wanted and that kind of thing.

Aimee: And in those themes, it's not just "I want this, I want that." There's pictures of her doing laundry, there's pictures of her cooking. So we try to make it contextual so that she could just point to the picture and the family will know it has something to do with do with the laundry.

Slide 46

Dr Beukelman: Well, let's go on now and talk about Ron. Tell me a little bit about Ron, in terms of his aphasia to start with, and his ability to communicate.

Aimee: Ron is very different than Pat. He has a lot of output, a lot of verbal expression, but there's not often a lot of content there. In order to understand what he's telling you, he has to use a lot of props. He'll bring newspaper articles, he'll bring pictures, and he'll bring all kinds of things to support that. So in combination with his output and what he's able to do with his low-tech system, you eventually get the message.

Dr. Beukelman: And he has a lot of output. He really tires his listeners out if he's struggling because he continues to talk and talk and talk and go over the same content.

Aimee: Yes, and he tends to have a lot of disability talk.

Dr. Beukelman: What does that mean?

Aimee: When he has a hard time, he goes back to "Oh, I'm sorry I have this problem" and then it goes on to this long spiel about how he has a hard time and why.

Dr. Beukelman: And none of it relates to the topic. Social situation?

Aimee: He lives at home. He still drives even though he has right hemiparesis. He's very active, very independent. I mean, he still drives to Colorado for vacations. He camps out in the back of his little SUV that he has. He's a very active person. He does not stop.

Slide 47

Dr. Beukelman: Okay, now his situation is different than Rita's and Pat's in that, when you and... Here's a picture of the two of you sitting in front of your flat screen TV, or computer screen rather, and he really provides what percentage of the content for his own themes? Now, sometimes it's a long struggle to get that done.

Aimee: I'd say for all but one theme, he's provided all the information. Yes, it has been a process and there is one theme were some friends provided some information, and we'll talk about that.

Dr Beukelman: But in other words, he can eventually can get the content to you, it's just that that process is too cumbersome for listeners to put up with, and that's why he's gone to this system a little bit more.

Slide 48

Dr. Beukelman: So here's the two of you sitting looking at the screen then, as you do otherwise you bring up an individual picture. First of all, when you've got them all on the screen you've kind of pick out what are the salient pictures to convey a theme, then you bring up an individual picture.

Aimee: Yes. And he's actually very particular because he used to be a photographer. And so, he has a very hard time with the digital camera and the quality. So he's very particular about getting rid of the poorer quality pictures, and so that's a first with Ron. And then we can go on to the story.

Dr. Beukelman: Okay. So in other words, photographic qualities is the first cut, and then after that it's "Does it tell a story?" Well that's interesting, that's unique isn't it?

Slide 49

Dr. Beukelman: And then you begin to build them into a sequence like this that might convey the story. Is that right? We're still on a computer screen.

Aimee: Yeah, we're still on a computer screen.

Slide 50

Aimee: And these are actually pictures that his friends had emailed us, they had seen this device, and they got very interested and they wanted this old canoeing trip from the 1980s. So his friends sent us these pictures and we downloaded them .

Slide 51

Aimee: And, he told us a bit about the story, but when I sat with Ron, Ron had brought in the journal and all kinds of other things (Dr. Beukelman: Oh, that he had made from that trip, okay). Yes. A typed up journal, the paper was all yellowed, and he helped me fill in some of the gaps and details that the friends didn't. And so he was very excited to see those pictures.

Dr. Beukelman: And we're kind of progressing to some of those pictures as you talk there. Rich in context. His friends are apart of it.

Slide 52

Dr. Beukelman: And then, at this point you now are getting it set up in the visual scene display interface. So you're providing specific questions to engage in conversation, you're providing specific messages, and so on. I was talking about context, they're rich in context because not only does it provides a picture of the friends, but it provides where they were, what they were doing, and some notion about how hard they were working, and that kind of thing.

Aimee: And another thing with Ron and his friends here is that when I make Ron's stories, when he is able to get a sentence or phrase out, I try to capture that and put it in to the tablet. Because he gets hung up on things if I put it in my words, he says, "I wouldn't have said it that way." And so it becomes...

Dr. Beukelman: He's just a much more precise personality.

Aimee: It's an ownership thing, you know? You want it to sound like you. So I try to do that.

Dr. Beukelman: Well you know it's interesting I see Ron at a coffee shop that I stop by sometimes on my way to work, and I'll see him sitting with his device on the desk. And, I'll see him with a friend or two, you know the guys having coffee in the afternoon or the morning. And him talking about one of his themes. I remember the Louis and Clark theme was a huge theme. Why don't you talk just briefly about that one?

Slide 53

Aimee: Well it was last summer and he went to I believe it was in Western Nebraska, in North Platt, this Lewis and Clark exhibit, and he just had tons of pictures from that. All the, from how the natives used to live with their teepees, and how they built the teepees, to how they cooked food and how they hunted food. And it was a very lengthy theme that he brought back probably 150 pictures from.

Dr. Beukelman: And how many pictures do you think you built in to that theme?

Aimee: Probably about 15.

Dr. Beukelman: Okay. Because I'd see him sitting there with different groups of people talking about the Louis and Clark exhibit and trying to convince them that they should go see it. And giving content about it, and I just realized how difficult that interaction would have been for him had he just been sitting there with a cup of coffee, and nothing to help. Okay. Let's review a little bit about the other themes that he has in there.

Aimee: Okay. One of the predominant themes is his vacations.

Dr. Beukelman: So he has mega themes. He's organized them a little differently than Rita was. Instead of having just individual themes scattered around the edges, he has mega themes. So he'll have a vacation mega theme and then he selects that and then under that he'll have five or six vacation scenarios.

Aimee: Yes, and then he selects that vacation he wants to talk about and then he's only in that. To get to another theme he has to push home and go back to the main page.

Dr. Beukelman: And then, so he's got a set of vacation themes. What else does he have?

Aimee: He has another very big theme for him is his friends. He has a very large social network of friends that he's known since the 70s. Very close network of friends, they've really been there for him so there's a lot on that. There's also within the friends theme there's a neighbors sub-theme because he walks around his neighborhood and takes pictures (Dr. Beukelman: And catches people in embarrassing situations). In the garden, you know, so he's a very social person.

Dr. Beukelman: Okay, so then he's got that and then he has a Christmas tree, part of holiday theme or something.

Aimee: Yeah, it's from a holiday theme that this was a newer one that we had been working on. I haven't quite figured out where he wants me to put it in his system but it was a theme about how he had a tree in his yard that was too big, so he had his friend cut it down and he used it as a Christmas tree. And so, that's probably almost a friend theme.

Dr. Beukelman: Yeah, right. Because then he'll tell the story, and then he'll go over to the content about that friend and tell you all about that friend. I mean, that's kind of his way of moving through the interface. Okay. So he has that. Any other major themes that he has?

Aimee: Other themes that aren't really contextual per se, but things that we've taken from his low-tech, like he has a pocket calendar with all kinds of things in it, and I've turned that into a theme. That way instead than getting all these things out and trying to find where this calendar is, he could just go right on the device and talk about years. It's very important for him to say when things happened, and how long ago and so on.

Dr. Beukelman: So it's calendars, it's years, it's maps, it's days of the week, its specific people who do specific things, so we transferred some of that content over.

Dr. Beukelman: Okay, well thanks for your time. I appreciate it. You're kind of illustrating I think that it's one thing to design an interface, I think it's another thing to try to figure out how you're going to develop the themes and program the themes, and get the content that you want and reflect their individual capabilities, and in his case obvious preferences. So thanks a lot.

Aimee: Sure.

#### UNIVERSITY OF NEBRASKA VIDEO 4

Slide 54:

Dr. Beukelman: Now I would like to introduce you to Kristy Weissling. Kristy is a clinical faculty member here in our department and specializes in the area of aphasia. It supports us in this visual scenes project as we try to prepare first slide here. People to become ready to use the visual scene display technology. In addition, she also has come up with a lot of ways of incorporating aspects that we have or features that we have used in the visual scene display into more low tech options realizing that a lot of individuals

will use low tech options some of the time or nearly all of the time. In addition, Kristy is an ongoing doctoral student at Nova University in Florida and she is in the middle of her dissertation there right?

Kristy: That's correct.

Dr. Beukelman: Well thanks for being willing to talk with us today.

Kristy: Sure.

Dr. Beukelman: What I'd like to do today is just kind of talk first about how you tend to get people ready to utilize the features that we have in the visual scene displays in their low tech options and in their...and then get them ready for the technology. So going to this first slide here.

Slide 55

Dr. Beukelman: Why don't you talk a little bit about that. What are we doing here?

Kristy: Well, usually the first step is that we try to incorporate augmentative communication into the context of the therapy session itself and use the therapy session as the context. In this particular slide we're showing how we are introduce rating scales and the person with aphasia is telling us how they felt about today's session, what they thought about the pictures or the stimuli we used because sometimes people with aphasia have definite preferences or ideas about the pictures and whether or not they seemed clear to them. So we introduce early then the idea of a rating scale by actually having them talk about what's happening to them in the here and now.

Dr. Beukelman: And we use the rating scale in the visual scenes technology as well. That's kind of interesting that you have the ability to use the rating scale established early and then that allows them even if they have really limited communication ability from a spoken point of view. But, it allows them to tell you about their preferences and about how well they think something represents an idea or a concept or a person.

Slide 56

Dr. Beukelman: In the next slide we have some other context in therapy materials here.

Kristy: Right. In this slide we're trying to get the person with aphasia to tell us or control what's happening in their environment. So they can tell us that they like to stop this particular therapy procedure at this time. They want to keep going, they need some pause time, or they need a drink of water. This particular visual was used with a person who had aphasia and apraxia and so they were doing some kind of intense apraxia therapy and we wanted to give them the opportunity to tell us if they needed to stop, it was getting a little too many repetitions versus no they wanted to keep going, they felt they wanted to push forward with it. And so this was a way to introduce the idea of using alternative communication to control what is happening around you.

Dr. Beukelman: It's interesting. I hadn't thought that much about that before. The whole idea that someone who participates in therapy, someone with aphasia who participates in therapy, they have a role there and the person who is helping them has a role. And what we're doing here is we're really helping them manage their role a little better by getting their preferences and their desires regarding how a session is being managed out on the table and so on and so on. Okay and of course they can use this in other settings too I'm sure.

Slide 57

Dr. Beukelman: This looks a little something like we might have on one of the visual scenes displays. What do we have here?

Kristy: We used this particular visual with a person with aphasia who is in a traditional kind of semantic treatment approach where we are using some semantics fill in the blanks, that most aphasia therapists are very familiar with; you know "I sleep in a \_\_\_\_" and you fill in the blanks. In this case we took that approach and we individualized it to her preferences and so we had her family and her choose or tell us restaurants that they frequented in the area and we put together this visual for her to use and then within the therapy we actually used the fill in the blanks. "I want to eat at.... Let's go to... Are we eating at..." as stimuli then to bring in the pictures that we have on the visual.

Dr. Beukelman: So this is really one of the benefits of increasing the contextualization of the therapy. In that you can use appropriate personal contextual information in the therapy activities that you would in traditional aphasia therapy. In addition, then, you've got those very images ready to go in to the communication book or into a high tech device later on if that's what is necessary or if they get to that point and what they are doing is that they are learning about real life preferences that they might wish to use later on. Where did you get the images?

Kristy: We took some of these images off of the Internet and some of them we had to scan in because they were local establishments that weren't on the Internet. So, we took them out of the phone book or wherever we could find them.

Dr. Beukelman: Much the same way that we do in other areas and once you have done it, we can just use them. That's nice.

Kristy: Yes.

Slide 58

Dr. Beukelman: Now we have a communication book. It looks a little bigger than the one we have here. What are you illustrating here?

Kristy: I'm really trying to show how this particular person is using a tab system to get through the notebook and many times therapists will put together a communication notebook and they'll use some kind of tabs too for the person with the aphasia to

navigate. In this case we have done something a little different with the tabs so if you go to the next slide.

Slide 59

Kristy: We can see that we have used real pictures on the tabs so that the person can see a more representative picture of what the information will be under that tab.

Dr. Beukelman: Why don't you talk a little bit about the problem of navigation. I always, I look at the people with aphasia with a couple of issues. One, how do they symbolize the messages that they want to communicate and then the other, is how do they find them. And it seems that persons with severe aphasia struggle more to find the messages or the representations of their messages than to use the messages themselves. So why don't you talk a little bit about the navigational difficulties of someone with truly severe aphasia has when they are facing a communication book.

Kristy: Well often times they will either randomly open the book and start to page forward missing all the information at the beginning of the book. Or, some persons will go to the front of the book and just start and go page by page, which is very inefficient. And, often times because they are trying to kind of move themselves through the book they won't really be able to use recognition because they keep scanning more quickly without going through every item. So it's really inefficient and often times they end up not finding what they needed to find anyway.

Dr. Beukelman: We've had quite a number of people who have participated in the visual scenes project who have been linear scanners from their navigations. So, they start with page one or they start wherever the book happens to be and then they just go page by page by page until they happen to recognize the right thing if they're fortunate, often they don't. And, it just seems like their language system doesn't support them the categorical organization of information. Is that common? Or do people kind of divide; some people handle the categorization pretty well? Some people struggle with that.

Kristy: I think that is very, very common that persons struggle with navigating through the information. Even persons that have more language abilities will struggle with the categorization because it's so semantically loaded.

Dr. Beukelman: Boy that is a pretty high-level language activity, isn't it? It's ironic that we sort of use that high level of language activity as a way of augmenting people who struggle and that's one of the reasons that we go on to the visual spatial system which we're using. An example here of where we have picture tabs on the side of these pages and if you sit down you can look across them and you can see the one that relates to follow up on the example here, the food, or the restaurants. By a signature image that represents a whole category of things, I think you talk about that a little bit later on.

Slide 60

Dr. Beukelman: Here you have a lot people in different situations.



Kristy: Right. Well in this case what we've tried to do is to approach what the pages within the notebook look like, so that they look a little different probably than a traditional notebook. In this case, we've set up this page to represent a person in the life of the person with aphasia. So, this person has a son, who is Justin, and we have put together a series of pictures about the son that represent favorite activities or recent activities that are of importance. So instead of just listing, you know, "I have a son, he is 10 years old, and his name is Justin," we've put together kind of a collage of information about him so that more conversation can occur with a partner. So the partner might look at the picture and say, "Oh that looks like a big dog that you have there," and so that more transfer and more information and social interaction can occur than would occur with just "I have a son, his name is Justin, he is ten years old," and the listener is sitting there going "Oh well does he play sports, does he...?" They have to kind of guess, in this way you can see that Justin plays basketball, and he must like to swim, and he goes fishing, and you already, the listener already has a lot of information to kind of communicate with the person with aphasia.

Dr. Beukelman: A couple of things that strike me here. One is that you're beginning to go heavily into personal context. And this can be used in traditional therapy, it can be used in a communication book, it can be used in an electronic device. So that's one thing that I've noticed here. And the other is that it really guides the listener and you always talk to me about that, "Be sure that you include content on these pages so that the listener is helped out." Do you want to talk a little bit more about how a page like this or some other page might be used to help the listener?

Kristy: Well one of the things that happens in a traditional communication book set up, is that it seems like the clinicians create a book that is very centered on the person with aphasia and doesn't always take into consideration how would a person who had never seen anything like this before use this to actually communicate. And so we try to put in place very natural kinds of pictures that would get a person, a listener, to look at this information and ask a really natural question. So we try to pick pictures that are action based if we can rather than like portraits where what are you going to say about a portrait other than "Who's that, who's that, who's that." In this case if we look at these pictures the first picture we have Justin driving the jet ski with someone else behind him. So, it's an action kind of picture where we're going to get probably more questions "Wow, he's driving, he's awfully young, where were you?" That kind of thing rather than if we just had Justin standing there we wouldn't have as many things to talk about. So we're trying to also play upon very natural interactions that the listener would have, that the listener would look and naturally ask.

Dr. Beukelman: One of the other things, it keeps you as a listener from going off into a territory to which the person with aphasia can't respond, so it keeps them from talking about snowmobiling, or soccer, or those kinds of things. Which they might just inadvertently go into if they don't know what else to talk about. That's when we see a lot of difficulty happening in interactions with aphasia, is when the person who's the listener doesn't know what to do, they know they're carrying an additional burden to this conversation, and so what they do is they just flip something out to see if it works. "Did

you go to the movie last night” or “Did you see, I saw Cinderella Man this weekend” so you get this person into that conversation, and they have no ability to really talk about it, and this kind of keeps you in a topic. Okay, anything else about this that you would like to talk about before we close out, there’s a lot of content there.

Kristy: Well just expanding on what you were saying, for example, when you brought up soccer. It made me think about the idea that in this case the listener naturally probably wouldn’t launch into that, because they’re not searching for something to say. They’re able to say “Oh, he plays basketball.” And there’s a lot more chance that the person with aphasia is going to be able to respond to some of those questions because this is an action shot, so there’s a chance to talk about a lot of different things that are going on in the picture.

Dr. Beukelman: I think the other thing about it is it lets traditional aphasia therapy focus on content that’s important to the person rather than content that happens to be in the therapy materials, and so on. And it’s personalized.

Kristy: Once you’ve gathered these types of pictures or photographs they can be used to do very traditional kinds of things. Picture descriptions, or naming, or any of those things that would become very naturally to an aphasia therapist. And instead of pulling out picture cards that are randomly, you know, put together for everyone. This makes it much more personalized and probably increases the chance that you’ll generalize something that is going to be functional.

Dr. Beukelman: I think it’s such a different approach than doing traditional aphasia therapy, and then if that isn’t going too well than suddenly saying “Okay now we’re going to do augmentative communication” and it’s as though they are two different activities. But what we’re trying to do is come closer and closer to kind of making them an integrated activity.

Kristy: Right. And it’s kind of a nice way to think of it is you’re developing/integrating together a back up system. If the person ends up saying it great, if the person doesn’t end up saying it they have another way to communicate it. And so you’ve kind of got this idea of, you know, you have their back there.

Dr. Beukelman: And that’s accepting AAC for a person with aphasia, or for their family, is not often easy. In other words, it’s kind of a recognition the way we’re doing it now, that says this person isn’t going to be an independent talker again. And I really don’t want to give up on that. And I think what we’re trying to say here is that by doing what you’ve just said we’re not saying they’ll never talk again we could say to them “We’d be delighted if they could say this, they’d never need to use the book or the device if they can verbally say it” or can we use the book or the device to get them a ways into it and then let their natural speech take over to the extent that it can. And it removes from a person with aphasia or from their family I think that, as if it’s a dichotomous kind of choice.

Slide 61

Dr. Beukelman: And then here what do we have here? It looks like we've got plastic folders with lots of stuff in them,

Kristy: Yeah, we try to always include in a notebook a way for the person with aphasia to bring in contexts that we would not have guessed about. And this is a concept that a lot of people know as like a remnant book or a remnant notebook, but we try to include that in all of our books so that people can put things in there. A lot of times people with aphasia are walking around with pockets full of things, and purses full of things, billfolds. So this is a way to just help them organize themselves and allow them to bring in things that I would have never guessed that they want to talk about. And we encourage them to do that, and train their families and talk to their families about doing this as well.

Dr. Beukelman: Okay, good. And then these become part of the therapy activities, or become part of low-tech book or may in fact develop into a theme for later on in a high tech application as well.

Kristy: Yeah, if it's something that's going to come and then go than this is probably a good place for it to stay, but if it's something that is used often we would probably transfer that into a page in the book or in some kind of system to handle it so that it's available. It's not pictured here but one of our people with aphasia had a kind of a stack of business cards that they used a lot to communicate who they were talking about. I'm talking about this doctor, or I'm talking about this place, or these people, and they this person used the business cards to do that. In that case we decided to use business card holders in the book so that it would just be more organized rather than kind of whipping out all of these business cards and laying them all over the table. And I have to say that at first the person resisted that, because they were used to the system of kind of moving it all over the table and then picking it out, but as the person used it more and more they ended up saying "Thank you for doing this, this is much better, this is much easier for me."

Dr. Beukelman: Well it's probably also a navigation issue isn't it. That when you lay it all out you can use recognition memory to find the one you want, when you've got it on a number of pages then you're back to navigation once again. It's kind of interesting going back to Aimee's presentation, when Ron was using, or talking about the Louis and Clark exhibit, I think that's what showed up as sort of a remnant of the ticket he bought to get in, or the program or bulletin or something like that and then later on we start getting a lot more content about it.

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Dr. Beukelman: It seems like we could talk for hours about this and I appreciate the time you spent with us and your participation in the project and I think the whole idea of building context in to all areas of aphasia intervention and aphasia support is such an important idea and so thanks for taking the time to be with us today.

Kristy: Sure, it was my pleasure.

