

The Impact of Contextualization and Personal Relevance on Communicative Performance by People with Severe Aphasia

People with moderate/severe/profound aphasia have difficulty using AAC systems to meet their complex communication needs because of three reasons: (1) They have difficulty assigning meaning to pictures, words, or symbols (representing information); (2) they have challenges combining words and symbols into responses (formulating messages); and (3) they can not consistently locate information in their AAC systems (navigation) (Dietz, McKelvey, & Beukelman, Weissling, & Hux, 2006). Information placed in AAC systems for people with moderate/severe/profound aphasia must be easily comprehended, efficiently and effectively support communication interactions/exchanges, and be easily and quickly located.

Symbolization of information in AAC systems must be commensurate with an individual's residual language abilities. People with moderate/severe/profound aphasia have relatively preserved memory, visual spatial, and intellectual abilities (McNeil, 1983). These skills allow people with moderate/severe/profound aphasia to recognize, process, and recall pictures of familiar people and events (Fox, Sohlberg, & Freid-Oken, 2001; Garrett & Lasker, 2005).

Because of the combination of impaired language but intact visual processing, memory, and intellect, practitioners may find that representing information through, personally-relevant-contextualized visual photographs is more beneficial than representing information through other types of symbols. A contextualized photograph depicts and represents a situation, place, or experience in a manner such that all elements and semantic associations are integrally tied together in a natural environment. By contrast, a portrait or iconic symbol contains limited, decontextualized, information (individual picture, line drawing, or symbol) that denotes a single topic, action, person, activity, or relationship without additional contextual information. The person with aphasia is therefore required to generate any additional information concerning the person, object, or activity independently.

A contextualized photograph can be either personally relevant or non-personally relevant. A personally-relevant denotes that people, animals, and/or objects are highly familiar to the person viewing the picture. A non-personally relevant picture contains the same type of information as a personally-relevant picture; however, the people and background are not familiar to the person viewing the picture.

One recent technological development that supports the communication interactions of people with moderate/severe/profound aphasia is the Visual Scenes Displays. Visual Scenes Displays are a new type of interface designed to use contextually rich photographs with other navigation aids to represent meaning, promote effective and efficient message formulation and support navigation within low-tech or high-tech AAC systems (Dietz, McKelvey, Beukelman, Weissling & Hux, 2005; McKelvey, Dietz, Hux, Weissling & Beukelman, 2005; McKelvey, Dietz, Hux, Weissling & Beukelman, 2007). Such a display provides people with moderate/severe/profound aphasia with the visual-contextual support they need to facilitate navigation through an AAC system and, thus, increases the likelihood of their successful communication of messages or intents. Information is represented through personally relevant contextualized photographs (e.g., picture of a daughter's wedding or a grandchild's soccer game). Such a scene establishes a context for a conversational interaction and provides the

person with moderate/severe/ profound aphasia and their communication partner(s) with information to support multiple communication exchanges.

Research questions:

- (1) Given a choice of personally-relevant contextualized pictures, non-contextualized symbols, and non-personally relevant contextualized pictures that represent different socially-relevant events and given the examiner's verbal and written presentation of a socially-relevant event, which picture type do persons with severe/chronic aphasia prefer to use?
- (2) Given a choice of personally-relevant contextualized pictures, iconic symbols, and non-personally-relevant contextualized pictures that represent different socially-relevant events and given the examiner's verbal and written presentation of a socially-relevant event, which picture type do persons with severe chronic aphasia choose with the greatest accuracy?

Methods

Preparation of participants to select stimulus pictures. The researcher presented the participants and a member of his/her family (i.e., informant) with a written definition of contextualized pictures and personal relevance. The participants collected 30 personally relevant contextualized photographs from his/her private collection.

Preparation of stimulus sets. The researcher selected 16 of the 30 pictures provided by each participant. Three target words (noun, verb, episode) were assigned to each of the 16 pictures. A panel of three judges (i.e., individuals without disabilities) used a 3-point Likert scale (1=not representative; 3=representative) to rate how representative a stimulus picture was of its associated target words and for similarity in content. Stimulus pictures must receive a rating of two or higher to be used.

Procedures

Data collection. Each participant completed two tasks during the individual data collection sessions.

During the first experimental task the researcher presented the participant with three picture types: (1) a personally relevant contextualized picture, (2) a corresponding iconic symbol, and (3) a corresponding non-personally relevant contextualized picture and stated all the three pictures represented the given target word. The researcher instructed the participant to choose the picture they preferred to use when talking about the target word. Next, the researcher said the target word, simultaneously placed the written word in front of the participant and touched each picture in the plastic organizer to indicate the participant was to select the stimulus picture he/she preferred to match the target word. The participant's responses were recorded and the task was repeated for all 45 items.

For the second task, the researcher instructed the participant that only one of the pictures presented would match the target word. The participant was to point or touch the picture that matched the target word. For example, if the target word was "wedding," the cards presented in random order might be a personally-relevant contextualized picture of the participant's grandchild's birthday party, an iconic symbol of a graduation hat, and a non-personally-relevant contextualized picture of an unknown person's wedding ceremony. The researcher recorded each response as correct or incorrect for all 45 items.

Data Analysis

The study used a repeated measure design to ensure that each participant performed two tasks, and was exposed to all 45 stimulus pictures.

The independent variables were the three stimulus pictures: personally relevant contextualized pictures, iconic symbols, and non-personally relevant contextualized pictures) and the three word categories (noun, verb, episodic).

The dependent variables were: (a) preference of visual representation of information type (i.e., personally-relevant contextualized pictures, iconic symbols, non-personally-relevant contextualized pictures) and; (b) accuracy of identification of pictures associated with target words across the three picture stimulus types.

Data was collected and analyzed for eight subjects using SPSS and the Friedman test (the non-parametric alternative of a repeated measures ANOVA). Follow-up pairwise comparisons using Wilcoxon test.

Results

Participants moderate/severe/profound/chronic aphasia indicated a clear preference for using their own personally-relevant, contextualized pictures to represent target words with a mean of 82%. This finding held true regardless of whether the pictures were representing episodic events, actions (i.e., verbs), or people or objects (i.e., nouns). Second, the participants identified personally-relevant, contextualized photographs with a significantly higher level of accuracy (97%) than they did for non-personally relevant and iconic symbols, 54.2% and 32.6% respectively, and, once again, the type of word or event corresponding with the stimuli did not impact accuracy.

Conclusions

The current research provides important information regarding a potential means of circumventing some of the symbolic processing challenges of people with aphasia. Specifically, people with chronic aphasia seem to have greater success processing information when it appears in the form of personally-relevant, contextualized photographs than when it appears in other forms that convey less contextualized information or have less personal relevance.

Appendix

References

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