

Limitations with Using a Representational Hierarchy Approach for Language Learning

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The assumption that photos are easier to learn than pictographs is based on the representational hierarchy of which symbol is more iconic or easier to recognize or guess at the meaning, without any prior learning. A lot of us learned about the representational hierarchy in our AAC courses and the role of iconicity in symbol learning has been a focus at different times in the AAC literature. However, as we have shifted our focus to children learning to communicate and learning language in natural contexts, it is apparent that using the representational hierarchy has some significant limitations for aided language acquisition (as opposed to guessing symbols). Ronski and Sevcik (2005) refer to the representational hierarchy as one of the myths that have limited aided language learning possibilities.

Some of the issues with using the representational hierarchy as a basis for aided language intervention (including assuming that photos need to be used prior to pictographs) include:

- Photo iconicity only relates to representational nouns (picture producing words). PROBLEM for AAC – this has led to an overemphasis on noun only vocabulary to the exclusion of other, often earlier acquired, and potentially more powerful, vocabulary such as GO, COME, STOP, HELP, NO, MORE, MINE.
- More concrete representations such as objects and photos can actually make the use of these as symbols for communication purposes more difficult. E.g. As the photo of a particular cup visually has so much in common with just that cup it can be very difficult to use it to represent the more general concept of drink (which may come in any number of cups). This also complicates attempts to create photographic representations for non-picture producing words. For example, a photo of a man with his hand held up in a stop gesture, has such strong visual associations representing MAN that it may be more difficult to assign the meaning STOP to this photo (i.e. the photo more naturally produces the word MAN in a person's mind). In the past, when we used photos for people in PODD we found children and partners getting distracted from the message they were communicating by discussion of the photos (like looking in a photo album).
- Most picture producing words are lower frequency (extended / fringe vocabulary) rather than core vocabulary which is frequently used in multiple situations. This means you get less communication out of each symbol and less opportunity to learn and use words in multiple environments and situations.
- Photos of nouns are more recognizable than line drawings by individuals who have typical visual perceptual skills. Children who have damage to the cortical areas of the brain that process vision – Cortical Visual Impairment (CVI), may have great difficulty with the complexity of photographs. Problems dealing with visual complexity is a common characteristic of children who have CVI (Roman-Lantzy, 2007). The amount of details and the number of colors in a

stimulus all increase the complexity of an image. The more complex the image, the less likely that a child with CVI will look at it, and over time, be able to derive meaning from it. Photographs are among the most complex visual images for many of these children. Images that have only one or two colors, simple shapes that are presented to the child on a blank field (usually black) without other environmental visual clutter, will be more likely to interest the child visually, and therefore have a better chance of being associated with meaning through use. The visual clutter of a photograph can also be distracting for some children on the autism spectrum who may find it difficult to filter out extraneous information and focus on the part or parts that are most relevant to the meaning.

- Degree of iconicity – how easy it is to recognize, guess at the meaning of a symbol without any input - is not the issue in language acquisition.
Language is learned. Why can an English speaker understand/read/speak English and not Greek? Symbols for spoken and written Greek words are no more or less arbitrary than spoken or written English – the difference is that they have had the opportunity to learn English speech and text.
- Research into the natural acquisition of sign languages and arbitrary gestures has demonstrated that iconicity of the symbol /sign does not influence first word learning in young children. The use and usefulness of the symbol/sign is more important than the iconicity. (Namy, Campbell & Tomasello, 2004, summarize some of the relevant research in this area)
- Speech is really arbitrary (equivalent to spelling) and very young children learn to understand and use speech through exposure in daily life.
- The primary problem with using the representational hierarchy as a basis for aided language intervention is that the **iconicity of symbols is not an important factor in early language acquisition.**
- The tendency to look at iconicity with an overemphasis on nouns tends to narrow communication to choicemaking, which is not the same as communication autonomy - a person saying what they want to say, when they want to say it - and it is unlikely to stimulate language acquisition.

So with this information we do not wait to introduce pictographs, but begin by using receptive input in genuine, meaningful contexts to provide the student with the opportunity to learn the symbols. The aim is to stimulate communication and language development to support children in learning to communicate for the same purposes and functions as their speaking peers. PODD provides a way to engineer this vocabulary so that others can provide this receptive input to the child who is learning the language. Our experience with very young children (cognitively able children with complex communication needs at 12-13 months expressively using pictographs after a relatively short period of input) and students who have severe and profound cognitive and receptive (spoken) language challenges who have been provided with receptive input (aided language stimulation often over a longer period of time) in pictographs is informative. These children's first expressive words tend to include a large proportion of core (non-picture producing) words such as I DO, STOP, HELP, HURRY UP, MORE, FINISH, I LIKE THIS, SOMETHING'S WRONG. Currently there are more research studies being

published that confirm that individuals of various ages and disabilities can learn pictographs via aided language stimulation (Barton, Sevcik, & Ronski, 2006; Beck Stoner, & Dennis, 2009; Binger & Light, 2007; Bruno, & Trembath, 2006; Cafiero, 2001; Dada, & Alant, 2009; Drager, Postal, Carrolus, Castellano, Gagliano & Glynn, 2006; Goossens', 1989; Harris, & Reichle, 2004; . Ronski, Sevcik, Robinson & Bakeman, 1994; Ronski, Sevcik, Robinson, Mervis, & Bertrand, 1995).

Having said all this, there is nothing wrong with using photos to make choices between specific things that can be easily represented with a photo. We don't often feel the need to do this because

- Taking and editing photos to reduce visual complexity takes time, which can limit the amount of vocabulary that is made available to the child for choices
- One can often teach children to more effectively, flexibly and spontaneously use objects in the environments (don't have to be prepared to communicate about a specific thing when it is present)
- Most picture producing words that you can photograph are also relatively easy to learn in pictographs.

The big problems occur when people rely on recognition only and do not give the children a chance to learn language and communicate for a range of purposes.

The use of aided language stimulation (other people modeling aided symbols to communicate genuine messages in naturally occurring contexts throughout their day) provides children with the opportunity to learn not only symbols, but also how they could use these symbols for autonomous communication - to say what they want to say, when they want to say it.

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