

Critical Review: Which is the best language organization strategy to promote effective and efficient communication and language learning in preschoolers who use augmentative and alternative communication (AAC) systems?

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This critical review examined the semantic knowledge and language organization patterns of young typically developing preschoolers in association with the learning demands of various system designs in dynamic display augmentative and alternative communication (AAC) technologies. Study designs reviewed included: mixed randomized block design (1) non-randomized between-groups design (2) and qualitative research studies (3). Overall, the studies demonstrated good validity and reliability. Evidence suggested that young typically developing preschoolers have a preference for schematic and context-based organization patterns over taxonomic organization patterns. Recommendations for future research and evidence-based practice are provided.

Introduction

For a child with severe speech and communication difficulties, Augmentative and Alternative Communication (AAC) systems can open the door to a whole new world of language, literacy, cognitive and social development. There are many factors that must be considered when designing AAC systems for children; one of these factors is deciding how vocabulary will be organized on the display to promote maximally effective and efficient communication and language learning

dynamic display system layouts. A secondary objective of this paper is to propose future research considerations as well as evidence-based practice recommendations regarding improvements in AAC system designs to better reflect the learning capabilities of preschoolers using such systems.

multiple symbols to specify a single target word or phrase.) Inclusionary criteria and group assignment methods were maintained from the previously mentioned study. Procedures were maintained, except that 48 out of 60 items were targeted for four-year olds, and 60 out of 60 items were targeted for five-year olds. Results were analyzed using separate ANOVAs with independent sample t-tests post

used the grid page as an event setting or to create a story.

Although qualitative research (Evidence Level 3) may be considered a lower level of evidence, this type of approach was appropriate for the question at hand, as the researchers were interested in describing the semantic patterns of the group of children, rather than manipulating any variables. The high percentages described also help to strengthen the credibility of the evidence reported. This study had clear research aims that are important and relevant to exploring semantic knowledge of preschoolers and providing a framework for the development of AAC systems. The study had a high rate of reliability in both procedures and coding, and the researchers were unbiased in their question. One of the limitations of this study was that vocabulary was presented, but not specifically taught. It is therefore possible that the children may have been categorizing the vocabulary based on the picture more so than the concept, depending on their understanding of the graphic representation. Further, the sample size was very small (two preschools) and it is possible that the semantic knowledge could depend on the type of instruction that occurs at various schools. Finally, the patterns of typically developing participants may not best reflect the semantic organization patterns of children with complex communication needs. Therefore, although the findings of this study may be limited in generalization, it does provide a framework for understanding the semantic organization patterns of preschoolers, to guide future research in this area.

Conclusions

Currently, research and evidence is limited in terms of understanding which language organization strategies may lower learning demands and lead to more efficient and effective communication and language learning for preschoolers using AAC devices. Current evidence is limited to a small body of research that includes mixed randomized block designs, non-randomized between group designs, and qualitative research by a small group of researchers. The studies reviewed used designs that provided evidence of moderate strength; however the reliability of the evidence at hand is increased when different studies find similar results.

Although the research is limited, currently there is suggestive evidence indicating that preschoolers, particularly those under age four, tend to rely on schematic and context-based language organization patterns rather than taxonomic grid organization patterns. It has been suggested that typically developing children aged four and five may be able to learn either organization pattern through instruction, but tend to rely on schematic organization themselves (Light et al, 2004).

Alternately, it has been suggested that a transition in categorical organization, from more schematic-based to more taxonomic-based typically occurs as children begin formal instruction in school, and that event schemas may in fact aid in the semantic development of preschoolers (Lucariello, Kyrtziz & Nelson, 1992; Fallon et al, 2003).

Recommendations

Given the limitations of the current research

References

Bedrosian, J. (1997). Language acquisition in young AAC