Effects of Augmentative and Alternative Communication on Challenging Behavior: A Meta-Analysis

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Background
- Unresolved challenging behavior in children and adolescents can have life-long negative effects.
- Individualized PBS is effective in reducing problem behavior in preschoolers, persons with autism, and others with serious problem behavior.
- Researchers have suggested that the ability of individuals with disabilities to repair communication breakdown contributes in important ways to gaining desired outcomes and avoiding problem behavior.
- Meta-analysis findings may provide teachers and clinicians with guidelines for designing and implementing interventions to address challenging behavior.

Methods
- Initial Search
- Initial Screening
- Inclusion Assessment
- Article Review
- Effect Size Calculation
- Descriptive & Inferential Analyses

Phase 1: Initial Search
- Conducted electronic database search using key search terms.
- Example search terms: “augmentative and alternative communication”, “problem behavior”
- Examined references in articles.
- Included unpublished studies to avoid publication bias.
- Searches resulted in 805 articles.

Phase 2: Initial Screening
- Reviewed abstracts to exclude non-research studies and those not related to education.
- 349 articles in database after initial screening.

Phase 3: Inclusion Assessment
- Articles in database reviewed against 4 inclusion criteria:
  - Single Subject Design
  - Participants with Disabilities
  - Intervention Focused on AAC
  - Problem Behavior Measured
- 81 articles in database after inclusion assessment.
- Inter-rater agreement across inclusion criteria:
  - Mean kappa = .93 (range: .82-1.00)

Phase 4: Article Review
- Rated articles on 24 variables that described participant and intervention characteristics.
- Inter-rater agreement across coding items:
  - Mean kappa = .88 (range: .60 -1.00)

Phase 5: Effect Size Calculation
- Extracted data with UnGraph computer program.
- UnGraph found to have high reliability and validity (Shadish et al., 2009).
- Calculated Non-Overlap of All Pairs (NAP; Parker & Vannest, 2009) across control and treatment phases.
- NAP has been shown to equal or outperform other overlap indices in its accuracy and its robust correlation with visual analysis.
- Excluded graphs containing less than 3 data points in initial control phase.
- 53 studies and 109 participants in database after applying 3-data-point rule and eliminating participants with unclear graphs.

Phase 6: Descriptive & Inferential Analyses
- Descriptive analysis:
  - Calculated frequencies and mean NAP scores in SPSS.
- Moderator analysis:
  - Compared means with non-parametric analyses (i.e., Kruskal/Wallis and Mann-Whitney U tests) to identify whether statistically significant differences exist in intervention effects.

Preliminary Results
- Overall NAP score across comparisons =.87 (n = 109)

Effect Size Analyses

Implications
- Effect sizes were significantly higher for participants who received:
  - Teacher-delivered intervention versus parent-delivered intervention
  - FCT versus PECS
  - Prior functional assessment versus no functional assessment
  - No maintenance measurement versus maintenance measurement
  - Social validity assessment versus no social validity assessment