Background

Delays in child communication and language may impact how young children access and participate in activities related to vocabulary development, social development, early literacy and school readiness. Given the connection between children’s early communication skills and later language and literacy, there is a need to translate research into practice that can be readily used by interventionists and parents. Methods facilitating collaboration between researchers, early intervention providers and parents to deliver a naturalistic communication intervention are described.

Participants

- Three Part C Early Intervention Programs (65 Part C Infants and Toddlers per early intervention provider)
  - 22% with BA/BS Degree
  - 76% with MA Degree or higher
  - 16% infants and toddlers with special needs
  - 60% male/40% female
- Mean age at entry: 23.97 months (SD=4.81)
- Mullen Scales of Early Learning 24 month mean score: 83.30 (SD=16.51; Range = 49-144; n=164)

Methods

- The Promoting Communication intervention was designed to be flexible and can be individualized for unique skill levels, needs and diverse backgrounds of infants and young children.
- Designed to be used across the different contexts in which young children learn to communicate, talk and interact.
- Intervention coaches collaborated with Part C interventionists to build the capacity of parents to use the strategies across routines.
- Practices that can directly inform how to engage families and interventionists in the use of evidence-based intervention.
- Analysis of change over time using Multilevel Modeling examined parents use of language promoting strategies as a predictor of child outcomes.
- Promoting Communication Intervention Strategies
  - Arranging the Environment: Designing the room or area to promote interaction and communication.
  - Following a Child’s Lead: Noticing and talking about the child’s interests, activities, or materials.
  - Commenting and Labeling: Describing child’s actions, interests and activities.
  - Imitating and Expanding: Repeating a child’s vocalizations and/or adding new information to what the child says.
  - Asking Open-Ended Questions: Asking what, where, when, why, how.
  - Time Delay/Fill in the Blank: Giving the child the chance to fill in content after pausing during a familiar phrase, book or song.
  - Pixelate and Praise: Attending to, and providing positive feedback about communication behaviors.
  - Providing Choices: Giving the child a chance to say what he or she wants.

Multiple Measures of Fidelity

- Parent Fidelity Observations: 30-min frequency count of parent use of intervention strategies concurrent with child communication.
- Data entered into PDA or paper, produce graphs of intervention use and child outcomes.
- Graphs shared with parents regularly as feedback.
- Highlight/Issues of strategies and child growth over time.
- Parent implementation data collected concurrently with child communication data used to provide feedback to interventionists and parents on use of the intervention strategies.

Parent Self-Checklist

- Parent self-reports frequency rating of use of intervention strategies across routines
- Generated to discuss communication between parent and interventionist about parent’s use of the intervention between home visits.

Provider Observation Checklist and Feedback

- Self-report checklist of strategies and activities addressed, and activities in which provider observes and records parent using the communication strategies.
- Completed at each visit.
- Data used by research staff to generate reports.
- Intervention coaches distribute reports to providers and discuss.
- Used as a management tool to keep track of goals and activities with different families/educators.

Results

Multilevel individual growth modeling techniques were used to examine growth in children’s early language skills to determine whether parent’s use of naturalistic communication strategies predicted children’s outcome and growth on four measures: (a) child language during the parent fidelity observation, (b) weighted total on the Early Communication Indicator (ECI), (c) total standard score on the Preschool Language Scale (PLS-4), and (d) preschool literacy screening and progress monitoring measure, (Preschool Picture Naming IDGI).

Analyses were conducted using SPSS (v20) Mixed, full maximum likelihood method, wherein each measurement occasion is Level 1 nested in each child at Level 2 with age centered at 48 mos. The growth model allows us to investigate: (a) whether parent use of naturalistic communication strategies contributed significantly to outcomes at 48 months (intercept) and (b) whether parent use of naturalistic strategies predicted growth over time (slope).

Figure 1. Child Communication During Intervention Fidelity

Children whose parent used naturalistic language strategies more frequently had higher rates of communication at 48 months (β(95%) 3.91, p=.000)

Children whose parents used more strategies had steeper growth over time (β(95%)=-5.0, p=.000).

Figure 2. Child Progress on Early Communication Indicator (ECI)

Parent Strategy use was a significant predictor of child communication measured on the ECI. Children whose parent used PC Strategies more frequently had higher rates of communication at 36 months (t(159)=8.79, p=.000, and more strategy use by parents resulted in higher rates of ECI growth t(65) 2.08, p=.05.

Figure 3. Preschool Language PLS-4

Children who received higher rates of PC Strategies from their parents were more likely to have increases in PLS standard scores over time, while scores were more likely to decline for those receiving lower rates. This is illustrated by the significant interaction effect t(181) = 26.63, p<.000 of time x strategy use.

Figure 4. Preschool IDGI at 48 mos.

Parent Strategy use was a significant predictor of children’s outcomes on the Picture Naming IDGI. Children whose parents used PC Strategies more frequently had higher literacy readiness scores at 48 months (t(208)=6.55, p<.000, and more strategy use by parents resulted in higher Preschool IDGI scores at each age assessed.

Discussion

- Using multiple measures and informant of implementation and outcomes contributions to data relevance for informing intervention.
- Measurement of implementation data permits analysis of differences in practice at individual level and across groups.
- Analysis of concurrent adult and child data provides information about impact of implementation fidelity on child outcomes.
- Implementation process contributes to knowledge of level of intervention delivered.

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