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| Article | Kaiser, A.P., & Roberts, M.Y. (2013). Parent-implemented enhanced milieu teaching with preschool children who have intellectual disabilities. *Journal of Speech, Language, and Hearing Research, 56*(1), 295-309. doi:1092-4388 (2012/11-0231) | Mobayed, K.L., Collins, B.C., Strangis, D.E., Schuster, J.W., & Hemmeter, M.L. (2000). Teaching parents to mand-model procedures to teach their children requesting. *Journal of Early Intervention, 23*(3), 165-179. | Meadan, H., Angell, M.E., Stoner, J.B., & Daczewitz, M. E. (2014). Parent-implemented social-pragmatic communication intervention: A pilot study. Focus on Autism & Other Developmental Disabilities, 29(2), 95-110.doi:10.1177/1088357613517504 | Roberts, M. Y., Kaiser, A. P., Wolfe, C. E., Bryant, J. D., & Spidalieri, A. M. (2014). Effects of the teach-model-coach-review instructional approach on caregiver use of language support strategies and children’s expressive language skills. *Journal Of Speech, Language & Hearing Research*, *57*(5), 1851-1869 19p. doi:10.1044/2014\_JSLHR-L-13-0113 | Kaiser, A.P., Ostrosky, M.M., & Alpert, C.L. (1993). Training teachers to use environmental arrangement and milieu teaching with nonvocal preschool children. *Journal Of The Association For Persons With Severe Handicaps, 18*(3), 188-199.  |
| Participants | 77 children and their primary caregivers. Child criteria:* Between the age of 30 and 54 months
* Nonverbal IQ between 50 and 80,
* Total language standard score less than the 11th percentile on the Preschool Language Scale
* Mean length of utterance between 1.00 and 2.00 in a 20 minute language sample
* Able to imitate 7 of 10 words during an imitation screening task
* At least 10 productive words observed during the language sample
* Normal hearing
* English as primary language
 | 4 mother-child dyadsChildren all:* Between 24-31 months
* Had expressive language delays of at lest 6 months
* Able to imitate gesturally and verbally
* Able to explore and manipulate toys and objects for 5 seconds
* Able to sit and maintain an attention span for 5 minutes
* Had visual ability to see and respond to food, toys, and activities
* Able to produce 3 different single words
* Attendance at Kentucky’s First Step program at least 90%
 |  5 parent-child dyads (4 mothers, 1 father)Children were between the ages of 37 and 60 months old and all had a diagnosis of Down syndrome. All children had significant delays and deficits in the communication domain based on parent report and the Pre-school Language Scale-4th Edition.  | 4 caregiver-child dyads Children were between 24-42 months, had a cognitive composite standard score of 80 or above on the Bayley, and had a total language standard score of 79 or less on the Bayley-III.  |  Three teachers, teaching at a university preschool for children with moderate to severe disabilities. All had their bachelor’s degree in special education. There were also 3 target children used for the study. Children ranged in age from 22-45 months and showed significant cognitive and language delays. Pre-treatment test results showed that the functioning level for communication for these children was about 2 years below their chronological age.  |
| Setting | Some sessions took place in the family home, others in a clinic setting | The family’s home | The family’s home | A clinic room with child-sized furniture | In the children’s classroom |
| Implementers | Intervention was implemented by a therapist who had at least a bachelor’s degree related to child development or special education and who was trained to criterion on the intervention procedures prior to working with children. | An early interventionist who was completing the requirements for a Master’s degree in Early Childhood Special Education and had 12 years experience in early intervention. Other staff were trained by the primary early interventionist to collect procedural reliability and interobserver agreement data. All staff had bachelor’s degrees in related fields.  | 4 female and 1 male interventionist ranging in age from 22-58 years old. Prior to the start of the study, the implementers participated in training sessions and received written materials on the target teaching strategies and on all research activities.  | Five interventionists consisting of 3 Early Childhood Special Education master’s degree students and 2 speech pathologists.  |  |
| Independent Variable | Enhanced milieu teaching (EMT) strategies including:* environmental arrangement-arranges the environment to set the stage for adult-child interactions and to increase the likelihood that the child will initiate to the adult
* responsive interaction-models specific language targets appropriate to the child’s skill level in response to the child’s communication and connected to the child’s play and focus of interest
* specific language modeling and expansions-expands child communication forms by adding words to child utterances
* milieu teaching prompts-responds to the child’s requests with prompts for elaborated language consistent with the child’s targeted skills and functional reinforcement of the child’s production or prompted target forms by providing access to requested objects and verbal feedback for communication.
 | Parent training and feedback-more specifically parents were trained and encouraged to increase their child’s targeted language responses through the use of * functional activity areas in which instruction could be embedded
* the mand-model teaching procedure
 | Parent training and coaching on naturalistic and visual teaching strategies.Interventions taught to parents:-Modeling-Mand-Modeling-Time Delay-Visual Teaching Strategies | Caregivers were taught four EMT language strategies using the Teach-Model-Coach-Review instructional approach. The “teach” part consisted of an hour long workshop where the language strategy was discussed in depth. Parents were also given video examples of the strategies at this time. Next, the caregivers practiced the language strategy during two 40-minute interventions sessions (per week) at the clinic, for 12 weeks. At this time the educator would remind the parent of the strategy, role-play with them, and discuss how the parent wanted to implement them. Next, the interventionist modeled the strategy for the parent. After that the parent implemented the strategy with their child as the interventionist watched. Finally, the caregiver and interventionist reviewed the session to discuss what went well and what didn’t.  | Environmental arrangement strategies including “materials of interest, within view out of reach, assistance, inadequate portions, sabotage, protest, and silly situations.” Milieu teaching strategies including the model procedure, time delay procedure, mand-model procedure, and incidental teaching procedure.  |
| Dependent Variable | Child language skills and parent implementation of strategies. | Child’s use of targeted language response.  |  Parent’s correct use of teaching strategies.  | Parent’s correct use of the following EMT strategies:Matched Turns- “adult verbal or nonverbal communicative turns that immediately followed (within 2 seconds) a child communicative turn and were contingent to the child communicative turn.” Expansions-“adding one or two content words to the child’s previous utterance, replacing a word in the child’s previous utterance to make it grammatically correct, or changing the verb tense in the child’s previous utterance to make it grammatically correct.”Time Delays-included time delay strategies for “assistance, inadequate portions, choice making, sabotage, silly situations, and waiting with a cue.”Milieu Prompting-“sequences of adult prompts in response to a child verbal or nonverbal request.” | Teacher use of the Milieu Teaching Strategies and environmental arrangement and child communication. |
| Results |  Children in the parent + therapist group used a significantly higher percentage of target utterances than children in the therapist-only group at 6 and 12 months. Children in the parent + therapist group used between 16% more utterances with language targets 6 months after intervention and 13% more after 12 months. Children in this group also used a greater number of unique targets after 6 and 12 months. Children in the parent + therapist group used 5 more different language targets 6 months after intervention and 4 more 12 months after intervention. Parents in the parent + therapist group used significantly more responsive interaction strategies in trained and untrained activities at the end of intervention, 6 months after intervention, and 12 months after intervention.  |  Results showed that a functional relationship existed between the IV and DV across each dyad. In the intervention phase, all parents demonstrated an immediate increase in the correct use of the procedure. During the intervention, the overall mean for parents’ correct use of the mand-model procedure was 43.1% over a total of 59 fifteen-minute sessions. The mean for correct parent use of the mand-model procedure during maintenance was 41.6% over a total of 14 fifteen-minute sessions. Increases in child responses appeared to correspond to the increase in parent behavior. The children provided 507 correct responses (304 prompted and 203 unprompted) with an average of 8.6 total verbal target responses per 15-minute session during intervention. They provided 290 correct responses (149 prompted and 141 unprompted) with a mean of 20.7 total verbal target responses per 15-minute session during maintenance.  | The average use of the modeling teaching strategy increased or remained constant from baseline through training for all but one parent. During coaching, all parents increased their average use of the modeling teaching strategy. All parent decreased their use of the modeling strategy during maintenance when compared with the coaching phase. All but one parent increased their use of mand-modeling during the coaching phase. However, the average use of mand-modeling for all parents decreased during maintenance. All parents increased their use of time delay during coaching. However, all decreased their use of time delay during the maintenance phase. The average use of visual supports by parents increased in varied amount. 3 parents increased while 2 parents did not use the visual supports strategies. There was an increase in the average use of the teaching strategies with high-quality between baseline and coaching for all parents across all strategies. All parents decreased their average use of the target strategies between coaching and maintenance. All children responded more frequently to their parents’ communication acts than their own initiated communication acts throughout all phases. Children’s data was variable, but one evident trend-during the time delay coaching phase, all children increased their mean percentage of initiated interactions.  | A functional relationship between the intervention of all strategies (matched turns, expansion, time delay, and prompting) and caregiver use those strategies were found for all four caregivers. All four caregivers were also able to generalize these strategies into their routines at home, although at varying levels. Also, “all four caregivers maintained the use of previously learned strategies with the introduction of a new strategy during intervention sessions in the clinic.” There was also “a functional relationship between caregiver use of strategies and child use of communication” target for 3 out of the 4 children.  |  During the introduction to environmental arrangement, all three teachers increased their use of the strategy. During the milieu teaching intervention, all three teachers were able to maintain the environment arrangement strategies. All three teachers were also able to generalize the environmental arrangement strategies across all of the target children in different classroom settings. During their instruction on milieu teaching, all three teachers were able to use all four strategies correctly. They were all also able to generalize the strategies across children and settings. Children showed some increases, but not a lot, during the instructional intervention for teachers. There was no increase in their average frequency of communication after the environmental teaching condition alone. When the milieu teaching was introduced, all three children showed increased communication. Children continued to show these results at the maintenance session.  |
| Usability/Social Validity | There was great success reported with both groups. However, the group that received therapy plus parent training showed greater increases. This shows that there was greater social validity when both parts where implemented.  |  Parents were given a survey to rate the effectiveness, helpfulness, and training of the intervention to find social validity. All parents rated a 3 or higher (scale of 1 [low] to 5 [high]) in all categories. Thus, showing satisfaction with the intervention and results. |  A parent questionnaire was handed out to rate the social validity. They used questions to find:* The social significance and importance of the goals for society
* The accept-ability of the strategies by consumers
* The social importance of the outcomes

On a scale of one (low) to five (high), all parents responded with a four or higher to each question | The results of this study show that the Teach-Model-Coach-Review method is potentially effective for instructing caregivers on how to use EMT language strategies in play.  | The results of this study show that teachers can be taught environmental arrangement strategies and milieu teaching strategies to promote communication with young children.  |
| Additional Comments |  |  |   | There was a slight increase in expansion behaviors before formal intervention because one interventionist modeled it briefly prior to baseline being finished.  |  |