

Speech and Language Developmental Delays and Early Intervention Programs

Deidre Douglas-Washington

Lynchburg College

Learning speech and language skills at an early age is an integral part of communication in society. Speech and language skills are a developmental task that must be mastered to articulate wants and needs. Delays in speech and language acquisition are an early indicator of developmental deficits that can affect academic performance for children in school. Rodriguez and Higgins (2005) indicate that young children must learn to master basic interpersonal communication skills, cognitive and language skills to be successful in academic and social settings. An absence of such acquired skills presents cause for early educational intervention in the home and school environment.

According to the U.S. Census Bureau (2006), the number of children identified with developmental delays is increasing, with an estimated 225,000 children birth to age three being identified as having a developmental delay. The number of children from three to five years of age diagnosed with a developmental delay or disability continues to increase to an estimated 376,000 children (U.S. Census Bureau, 2006). The Individuals with Disabilities Education Improvement Act (2004) indicated that children ages three to nine years of age (or any subset of that age range) with speech or language impairments, hearing impairments, visual impairments (including blindness), autism, traumatic brain injury or other health impairments; and who experience developmental delays in physical, communication, cognitive, adaptive, and social or emotional development may receive special education services. Children with a developmental delay may receive special education services prior to mandated school enrollment as deemed appropriate by state and local education agencies.

The term developmental delay is a less pejorative term associated with describing the students' need to receive early special education services without the inherent risk of being identified as a student with a deficit-focused intellectual disability (Polloway, Patton, & Nelson,

2011). Early special education services may be adequate to either prevent students from falling behind their peer group in speech and language acquisition or identify a disability otherwise undetected at birth that requires additional intervention and services in later years (Goldstein, 2011). Kaiser and Roberts (2011) indicate that early interventionists implement early special education services to address communication and language deficiencies that align with social, cognitive, motor, and adaptive behaviors.

Early intervention is uniquely challenging. Additionally, early intervention must be offered in a natural environment. A natural environment or least restrictive environment is virtually the same as that of a young peer's environment without disabilities (Etscheidt, 2006). Early intervention programs in the natural environment will be important in the development of young children's speech and language. Inclusive, natural settings are most appropriate for providing school aged children interaction opportunities with peers to learn interpersonal and cognitive academic communication skills.

The impact of parental involvement and educator support in early intervention will enhance speech and language acquisition for young children. Early exposure to language plays a critical role in the foundation for later reading success (Alston & St. James-Roberts, 2005). Mastery of speech and language skills will be imperative for future reading success. Parents and educators must be equipped with the knowledge and understanding that early intervention methods must be employed to remedy developmental delays. Both parents and educators must make a concerted effort to provide enriching opportunities for young children to acquire basic speech and language communication skills. Understanding the perception and competence of parents and educators in providing support to young children with developmental delay is crucial to children's success.

The purpose of this paper is to provide information about speech and language acquisition as it applies to children with developmental delays. Local education agencies, early interventionists, such as speech-language pathologists, and parents must provide literacy rich environments for pre-school aged children. The concerted effort among these individuals to provide speech and language services and activities for children in natural environments will be necessary to identify children who may need additional special education services and decrease the number of children being identified with a developmental disability. A review of the literature about early speech and language acquisition and intervention is provided in the forthcoming section.

Kaiser, A.P. & Roberts, M. Y. (2011). Advances in early communication and language intervention. *Journal of Early Intervention*, 33(4), 298-309.

Kaiser and Roberts (2011) indicated that delays in communication using speech and language is an early indicator of developmental deficits that may cause concern for academic and social success across one's life span. The context for early intervention in language included: 1) intervention focusing on prelinguistic forms of communication, 2) family focused service provisions addressing the needs of the family, 3) continuity of intervention across disciplines, and 4) increased parental involvement. Approximately forty years of research in language intervention provided a basis for language intervention treatment in the areas of:

social, symbolic, and prelinguistic foundations of spoken language; parent-implemented language interventions; the language foundations for literacy; the relationship between language and social behavior; and the use of augmented and alternative methods for communication. (Kaiser & Roberts, 2011, p. 299)

Based on the findings from this research, Kaiser and Roberts (2011) proposed adherence to and understanding of the following guidelines when establishing early language intervention:

- 1) all children are communicators,
- 2) prepare a proactive prevention plan that includes progress monitoring, assessment and systematic intervention to ensure positive academic and social outcomes,
- 3) implementation of intervention in natural environments,
- 4) intervention must provide support to increase the rate, diversity, and complexity of communication in each developmental stage,
- 5) implement systematic teaching to maintain new language skills during each age progression;
- 6) children's progress should be the vehicle for determining the methods, amount, contexts, and duration of intervention;
- 7) early communication should commence with supporting social foundations, teach prelinguistic skills, build comprehension and expressive communication skills continuing through the stages of spoken language;
- 8) incorporate instructional strategies that enhance communications skills;
- 9) teaching participatory caregivers;
- and 10) provide training and support to participatory caregivers to assist children to learn in the natural environment.

The authors provided foundational support and a framework for parents and educators to utilize to work collaboratively to assist young children in developing early communication and language skills. The research over the past four decades has focused on the need for a greater emphasis of the home and school (educator) connection to train and provide assistance to caregivers in influencing age appropriate and positive communication methods for children with developmental delays. Language intervention treatment is paramount to success. Kaiser and Roberts provided a rationale for increased training for both caregivers and educators. Early interventionists, teachers and parents often lack the knowledge, understanding, and training of intervention methods and therefore under identify children with developmental delays. This

article did not include a research methodology but rather provided a quick reference and rationale for an increased need to prepare professionals and caregivers in providing early language and communication intervention.

Smith, A. L., Ronski, M. A., Sevcik, R. A., Adamson, L. B., & Bakeman, R. (2011). Parent stress and its relation to parent perceptions of communication following parent-coached language intervention. *Journal of Early Intervention*, 33(2), 135-150. doi:10.1177/1053815111405526

The study entailed providing parents with three parent-coached language interventions to support communication skills, adaptive behavior, and educational placement of pre-school aged children with language delays (Smith, Ronski, Sevcik, Adamson, & Bakeman, 2011). Each parent-child dyad participated in pre-intervention screenings to determine the use of language communication with the parent. Parents completed assessments in the areas of parent stress, parents' perception of child's language ability, daily skills and intervention history (Smith et al., 2011). The children were assessed using the "Expressive Language Scale of the Mullen Scales Early Learning" as cited by Smith et al., 2011, p. 10, which provided baseline data of children having less than 12 months of expressive language equating to knowing 10 intelligible spoken words.

The purposes of the study were to discover the change in parent stress levels as a result of participating in the coaching situation, how the change in the children's communication ability contributed to parent stress at pre- and post-intervention, whether or not the parents' stress scores decreased when children's expressive language skills increased, and if parents' perceptions interceded between the child's expressive language and parents stress.

Sixty parent-child dyads were selected for the quantitative study based in the metro Atlanta area. The procedure involved 24 parent-coached language intervention sessions. Dyads were randomly assigned to either the Augmented Communication-input intervention, Augmented Communication-output intervention, or Spoken Communication intervention (Smith et. al, 2011). The four components of intervention contained target vocabulary, mode, strategies, and parent coaching (Smith et. al, 2011). All 24 sessions lasted 30 minutes teaching parents “effective ways to communicate with their child” (Smith et al., 2011, p. 140). All three interventions promoted using basic language stimulation techniques. Parents were urged to use modeling, expansions, and sabotage stimulation techniques during interactions and communication with the child.

The study conducted by Smith et al. (2011) provided results indicating that the stress levels of parents were not negatively affected by participating in the coaching program. Rather, the parents were equipped with practices that helped facilitate better communication with their child. I surmise that the implications from this study yield a greater need to provide communicative coaching services for parents and family members to assist in speech and language acquisition activities for their children. Parent stress levels are affected by their perception of their child’s speech and communication development. Thus, a replication of this coaching dyad model would be beneficial for many parents and family members across the country. Limitations for replication would be funding, personnel, time and transportation needed to conduct training of this magnitude.

Henrichs, J., Rescorla, L., Schenk, J., Schmidt, H. G., Jaddoe, V. W. V., Hofman, A., Raat, H., Verhulst, F. C., & Tiemeier, H. (2011). Examining continuity of early expressive vocabulary development: The generation R study. *Journal of Speech, Language, and Hearing Research, 5*, 854-869.

Mothers of 3,759 children ages 18 to 30 months participated in a language development study in Rotterdam, Netherlands. The purpose of the quantitative study was to determine the factors associated with language acquisition of toddlers to predict developmental delays.

Vocabulary skills were measured at 18 and 30 months using the MacArthur Communicative Development Inventory-Netherlands. Other variables analyzed in the study included demographic predictors, perinatal data, parenting stress levels, receptive language functioning, and nonverbal abilities. The study questions included:

- a) Determining the biological, environmental, and child factors predicting expressive vocabulary development at 18 months; b) discovering the continuity of early vocabulary development from 18 to 30 months; and c) answering how biological, environmental, and child factors relate to continuity versus discontinuity in early vocabulary skills from 18 to 30 months. (Henrichs et al., 2011, p. 856)

Univariate and hierarchical regression analyses were used to predict which demographic, perinatal, maternal psychosocial and child factors affected expressive vocabulary at 18 months. Results indicated that these variables are not inherently predictors of low expressive vocabulary for toddlers 18 to 30 months. Expressive vocabulary at 18 and 30 months was insignificantly accounted for by maternal, demographic, and perinatal factors (Henrichs et. al, 2011). Gender of the toddlers was considered a significant predictor, however the significant predictor of 18 month expressive vocabulary was concurrent receptive vocabulary and not gender of the toddler. For 30

month aged toddlers, the most significant predictor of successful expressive vocabulary was 18 month expressive vocabulary.

Henrichs et al. (2011) outlined important factors associated with developmental delay. After reading the article, it would appear that other factors such as family income, marital status, maternal age, ethnicity, low birth weight and gender would be important factors in accounting for the differences in expressive vocabulary but this was not the case based on this study. Factors not included in this study that could potentially be measured are genetic/heredity components of brain development and rate of brain maturation. A replication of this study would be needed to address the combined expressive and receptive vocabulary scores as related to determining a delay in language acquisition. Additionally, a more ethnically diverse group of mothers and children should be included in the study from various countries.

Isakson, L., Marchland-Martella, N., & Martella, R. (2011). Assessing the effects of the McGraw Hill phonemic awareness program with preschool children with developmental delays: A case study. *Education and Treatment of Children*, 34 (3), 373-388.

The study conducted an assessment of the effects of participating in the McGraw-Hill Phonemic Awareness program for preschool aged children with developmental delays. This study utilized a single group pre- posttest pre-experimental research design. Pre- and posttests subtests of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) were given to determine growth in initial sound fluency and phoneme segmentation fluency. Participants of the qualitative case study were five children, four boys and one girl, all having received special education services.

The children in the study participated in 60 of the 110 lessons that lasted 15 minutes. To monitor progress of the lessons, DIBELS was used before, during, and after program implementation to track performance. Results of the study indicated that the phonemic awareness skills of the five children improved due to the explicit and systematic instruction of the program by the teacher. It should be noted that a fidelity check was conducted at random intervals during the program to ensure that the teacher provided instruction specifically designed by the program.

Isakson et al. (2011) listed limitations of the study to include using a small sample of students without the use of a control group, assessing short term effects of the program, and an absence of studying the long term effects of students with developmental delays participating in the program. I venture to conclude that this study should be replicated with a larger sample size of students with developmental delays and a longitudinal study should note whether or not the students maintained the skills learned over the successive school years.

Matson, J. L., Hess, J. A., Sipes, M., & Horovitz, M. (2010). Developmental profiles from the Batelle developmental inventory: A comparison of toddlers diagnosed with Down Syndrome, global developmental delay and premature birth. *Developmental Neurorehabilitation*, 13(4), 234-238. doi:10.3109/17518421003736032

This quantitative study examined the developmental profiles of toddlers diagnosed with either Down syndrome, global developmental delay or premature birth using the Batelle Developmental Inventory, 2nd Edition (BDI-2; Matson, Hess, Sipes, & Horovitz, 2010). The purpose of the study was exploratory looking at the development of “how toddlers develop in relation to each other across multiple domains of development (i.e. personal/social, adaptive, motor, communication, and cognitive)” (Matson et al., 2010, p. 235).

Twenty-eight toddlers ranging from 17-34 months were included in the sample. Eight participants were diagnosed with Down syndrome, 10 with global developmental delay, and 10 premature births (Matson et al., 2010). In this sample, 42.9% were female, 57.1% were male; 57.1% were Caucasian and 42.9% were African-American (Matson et al., 2010). Participants did not have a combination of the conditions (e.g., Down syndrome and global developmental delay). Parents and care-givers were given the BDI-2 Inventory in a quiet setting in the presence of the child. The BDI-2 provides a developmental quotient for each of the five domains of development and a total developmental quotient is derived from the sum of each domain (Matson et al., 2010). The results indicated that children diagnosed with Down syndrome and global developmental delay scored lower in personal-social and motor domains of the BDI-2 as compared with premature birth children.

Careful inspection of this article provides little detail about the delays in each of the domains assessed by the BDI-2 and intervention strategies. It would have been helpful to see the specific results of each domain by group as opposed to summarizing the data to indicate that two groups of toddlers evidenced greater weaknesses in two domains when compared to the other group. Also, the authors did not provide any remedies for assisting parents whose children evidenced delays once the data were discovered.

Discussion

The overall findings from the aforementioned articles provide important implications in the development of speech and language skills of students with developmental delays. A developmental delay can affect children from all ethnicities and demographics. Based on the research findings from the articles noted in this literature review, there is no presupposition that

students of a particular race or ethnicity is more likely to be identified. Rather it is the manner in which children are identified during school years that inflates the number of children reported as having a developmental delay in the school setting. The rising number of children with developmental delays ages three to five could be attributed to the lack of receiving special education services as an infant and toddler.

Research findings from Henrichs et al. (2011) indicated that children from a low socio-economic status and whose parents' education level is commensurate to a high school diploma can have developmental delays. A lack of knowledge about what to do to enhance speech and language skills is the culprit for exacerbating the developmental delay of a child even if identified. Smith et al.'s study (2011) indicated that parental perception of their child acquiring and sustaining speech and language skills prohibited progress as do stress levels. To remedy delays and alleviate elevated stress levels, parent-coached dyads were established to provide training opportunities for parents so that they could help their child catch up with their peer group counterparts. Parental support must reinforce the growth of acquiring speech and language skills of preschool aged children. However, time and financial resources to participate in such trainings are a major deterrent in implementing parent-coached early intervention programs.

Students with developmental delays must receive explicit and systematic instruction from educators. Explicit and systematic instruction of speech, language and phonemic awareness is essential in providing a bridge for the gap in future academic success. Response to Intervention (RtI) is designed to assist children who are at-risk for learning disabilities and acquiring speech, and language skills in school settings (O'Connor & Sanchez, 2011). However, early intervention at home is the key to initial success. Identifying children with developmental delays and providing experiences to improve the delay will be beneficial during school years. The IDEA

Part C outlines programs for infants and toddlers with disabilities and eligible infants and toddlers can be provided an Individual Family Service Plan (IFSP). By beginning with an IFSP, parents and educators can begin to work collaboratively to provide a chance of success for children with developmental delays. Parental involvement is key to developing the best educational and learning experiences for children identified with speech and language delays (Kaiser & Roberts, 2011).

According to Rodriguez & Higgins (2005), limited English proficiency students with developmental delays are not unique in their speech and language acquisition development. Rather, they need caregivers and educators who understand the nuances of how to learn their native language and a second language with respect to merging the two cultures to learn the second language. Basic interpersonal communication skills for English language learners must be mastered. The best way to ensure mastery is to have children communicate with other children and caregivers in ways that enhance the acquisition of these skills. Once children with developmental delays transition to public school settings, cognitive academic language proficiency will begin to develop and children will succeed in reading, writing, and speaking the second language.

Basal reading series, such as the McGraw-Hill Phonemic Awareness Program, can be used to enhance phonemic awareness of pre-school aged children with developmental delays. As noted by Isakson et al. (2011), such programs improved phonemic awareness skills of pre-school aged children. A conclusive determination for implications of retaining learned skills in successive grades is undetermined. All in all, early intervention is critical for student success. Utilizing the information gathered from early intervention screenings, Matson et al. (2010) discovered from the BDI-2 that students with Down syndrome and global developmental delay

scored lower in two of the five domains associated with developmental skills. Notwithstanding, they discovered significant differences among two of the three groups of children in the study, Matson et al.'s (2010) research findings did not provide insistence for further support of providing early intervention. The information derived from the data further explains the needed attention for providing early intervention in all domains assessed by the BDI-2 that would assist educational stakeholders in creating meaningful early intervention activities for children with speech and language delays as well as personal/social, adaptive and motor skills.

Leadership Implications

As stated in the introduction, early intervention is uniquely challenging and is best implemented in a natural setting. Speech and language acquisition is vital for success and growth of communities and must be developed during the preschool years. The daunting task of community leaders in educational, non-profit or business sectors will be alignment of resources that provide educational training for parents of children with speech and language developmental delays. Children with speech and language delays will need a firm foundation for reading upon entry into the school setting. Early and effective intervention will provide children an opportunity to “catch up” with their peer counterparts, identify other disabilities that may have a more profound effect on speech and language acquisition, and educate parents about the best practices for increasing the social and communicative aspects of acquiring speech and language skills.

A paradigm shift must occur in the way assistance is provided to parents of children with speech and language developmental delays. Speech and language development occurs in the

home. Since most of what a young child learns starts at home, it behooves us as leaders to develop a systemic and sustainable program to assist children. The challenges of implementing a systemic change will be threefold. Leadership, financial assistance, and human resources will need to be premium to launch innovative and effective programs accessible to all parents. Parental and care giver education must take precedence to decrease the number of children being identified with speech and language delays. Interestingly, in some communities there are children who fall through the cracks due to under identification and the ramifications are manifested by the increasing number of children identified with a speech and language disability.

The practical implications associated with providing services for parents of children with speech and language developmental delays are significant. The knowing-doing gap that exists for parents will need to be lessened. An effective training protocol will need to be established by leaders to make early intervention accessible to *all* parents of children with developmental delays in each community. Examining the etiology of developmental delays may be valuable in determining the causes of speech and language developmental delays. The results of such examination may provide additional information to utilize when designing accessible programs to assist parents in providing early intervention activities for children with developmental delays. Children with speech and language developmental delays must grow up in an educational milieu that is supportive of their needs. Additionally, future success as young children, teenagers and adults is contingent upon exposure to and development of speech and language.

As the population continues to grow, communities will need to provide outreach programs to disseminate information about ways to help children with developmental delays. Parent educational training programs, much like that of teacher professional development programs, will need to be a focus of communities. Leaders will need to advocate for community

wide intervention and support to assist families in identifying and providing services to meet the needs of the children. Local and regional leaders will need to combine financial resources and personnel to achieve the goal of assisting children with disabilities.

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