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SENIOR THESIS APPROVAL

This Honors thesis entitled

**“Naturalistic Speech and Language Remediation in the Preschool
Population”**

written by

Karen L. Nix

and submitted in partial fulfillment of the
requirements for completion of the
Carl Goodson Honors Program
meets the criteria for acceptance
and has been approved by the undersigned readers.

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Naturalistic Speech and Language Remediation in the Preschool Population

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Abstract

Views of language learning have shifted from passive, behavioristic models in the 1960's to contemporary models which view the child as an active learner (Nelson, 1995). During the same time period, laws such as PL 94-142 and PL 99-457 were passed, which mandated that special services be provided to preschool children and their families and that services be provided in a Least Restrictive Environment (LRE) (Tiegerman-Farber, 1995). Naturalistic speech and language remediation is one option that meets the LRE for the preschool population. A mail-out survey of 200 Arkansas Speech-Language Pathologists was utilized in researching the actual and ideal methods employed. The purposes of the survey were: 1) to determine the number of Speech-Language Pathologists in Arkansas who employ naturalistic techniques, 2) to determine what they considered as the ideal service-delivery method, 3) to determine if they currently employed that type of service-delivery, and 4) if not, what prevented them from doing so. The results include information from 63 surveys which were returned by SLP's who serve preschoolers. Utilizing primarily naturalistic techniques was reported by 56.5% of respondents, slightly fewer SLP's in small counties (44.4%) reported primarily naturalistic techniques. Ideal service-delivery was reported as a classroom setting with pull-out therapy, yet actual service-delivery was reported most frequently as individual, or one-on-one. Arkansas SLP's did report using primarily naturalistic remediation, but 40.3% did not. Further, they did not report providing therapy through their ideal service-delivery method.

Literature Review

According to the American Speech-Language-Hearing Association, as of 1995, approximately 10-15% of preschool children have speech disorders and 5% have specific language impairment. At this same age, children should be experiencing rapid growth in all areas of their communications skills. Federal education laws require that services be provided to meet the special educational needs of each child. These services are provided in the least restrictive setting possible, and, in the preschool population, the family is required to be included in all educational plans (Tiegerman-Farber, 1995). One method of meeting these educational needs is through an integrated preschool-classroom in which children receive speech and language remediation while interacting with typically developing children who can serve as communication role models. A language-focused classroom also provides a center from which to interact with and teach parents (Rice & Wilcox, 1995). If a classroom is not a feasible option for any given community, then the naturalistic remediation techniques employed in a language focused classroom can be applied in other settings. Naturalistic remediation techniques are carried out in a natural environment through normal interactions during play and other modes of communication (B. Bunce, personal communication, December 1, 1998).

Language includes the five components of semantics, syntax, pragmatics, phonology, and morphology. Semantic skills refer to the actual words or vocabulary an individual uses to communicate. Syntax includes combining single words into multi-word utterances and sentences. Morphology can be viewed as a subcomponent to syntax, as it governs the small single words such as articles that serve as grammatical tools in language. It also includes prefixes, suffixes, and tense markers. The use of language skills such as conversational turn-taking fall into the category of pragmatics. The actual speech sounds of a language and the rules for their combination are the phonological component.

Language is a dynamic characteristic of human life that develops across the lifespan. It begins in a pre-lingual state with the perceptions that lead to later production skills. In a

baby's first year, he or she can perceive and discriminate speech, produce native language sounds, and use other early communication skills (James, 1990, p. 24). A typically developing child will say his or her first word toward the end of one year (James, 1990, p. 40); communication skills continue to grow rapidly in the toddler and preschool years. Between the ages of two-and-one-half years and four-and-one-half years the average child learns two to four new words every day (Berko Gleason, 1989, p. 107). Early sentence production skills usually begin by the end of age two with simple two-word utterances, such as "want juice" (James, 1990, p. 51). By age three a child should be taking turns and sharing toys (James, 1990), which are precursors to the understanding of turn-taking in conversation. Although children do not have complete mastery of all speech sounds native to English until about age 7 (Berko Gleason, 1989), they generally drop their compensatory speech simplification habits by about age 4 (Hodson-Paden 67). By the time a child reaches kindergarten he or she can have a vocabulary of 8000 words and mastery of most grammatical forms. Later school age development focuses on reading and writing skills (Berko Gleason, 1989, p. 4,5) Teenagers and young adults develop abilities to speak in different styles or registers as needed for socialization or professionalism. Some communication skills begin to diminish as aging adults begin to lose word-finding abilities until some elderly adults rely on greatly limited vocabularies. (Berko Gleason, 1989, p. 6). Humans are creatures with natural, dynamic communicative abilities who within a lifespan, have communication skills that arise prenatally, climb progressively through the years and eventually diminish.

Several schools of thought exist to describe the language learning process. The behaviorist hypothesis emphasizes the environment and its stimuli. The child passively learns according to the consequences afforded by the environment's responses. The nativist hypothesis hold that the environment triggers innate language-development skills. Neither of these hypotheses is completely in favor today. The cognitive hypothesis relies on certain cognitive structures, such as object permanence and symbolic play, that are

required to be in place for language development to progress. The social/communicative hypothesis includes elements of all of the hypotheses, but concentrates on interactions between the caregiver and the child. An additional hypothesis is the connectionist model of Rumelhart and McClelland (1987). It differs from all of the hypotheses in that it describes languages acquisition in terms of learning analogies, not rules of language. (James, 1990, p. 185-187). The debate over acquisition can be divided into two views, the linguistic and developmental views (see table 1, Rice & Wilcox, 1995, p.16) From the developmental view, language development relies heavily on sociocultural and environmental influences. The linguistic view focuses on grammatical structures and adult feedback. Both, however agree that language learning is an active, independent process.

Also it should be noted that a child's language comprehension and language production abilities do not necessarily match. Children in a study by Benedict (1979) comprehended their first 50 words at about 13 months but did not produce 50 words until about 19 months (Berko Gleason, 1989, p. 113). This gap between comprehension and production in normally developing children seems to decrease, but still remain, by age 2 (Owens, 1988, p. 237) Owens says that the first word is not understood by the one-year-old infant who produces it because he or she does not possess the language or life experiences that it would necessitate (Owens, 1989, p. 236). The first word is likely to refer to an object that is important to the child, such as a person, a pet, or a favorite toy (Berko Gleason, 1989, p. 107) Children seem to develop their ensuing early semantic skills in a manner and style most suited to their personalities and needs. Although early speech seems to focus on nouns and various object names some children show a preference for action words. In a child's first 50 words there is often a preference for either the more noun-oriented referential words or more action and feeling oriented expressive words (James, 1990, p. 62).

No matter what the individual child selects as the first few words he or she produces, under normal developmental conditions he or she will then rapidly expand his or

her semantic abilities. Vocabularies reach a new explosive growth point in the preschool years. In 1929, Madora Smith discovered that between the ages of two-and-one-half and four-and-one-half a typically developing child will acquire between two and four new words each day (Berko Gleason, 1989, p. 107). This rapid gain in vocabulary is coupled with similar gains in syntax. In the later part of the second year, children begin to form early sentences. This skill follows the acquisition of about fifty words. The sentences are usually only about two words, but may be longer. Again, the child's individual use of language will differ but two words usually begin the process (James, 1990, p. 51). Early syntax learning generally follows a universal pattern of requests for "more" of something or to negate almost anything. they form simple greetings use a noun and verb in a simple, telegraphic, manner. At this point their utterances are noticeably in the present tense, since cognitively this is probably the only tense that they can understand. More complex grammar and morphological structures appear only as utterance length grows (Berko Gleason, 1989, p. 3-4).

In addition to preschoolers rapid growth in semantics and syntax, they begin to use increasingly mature pragmatic skills. The ways in which they use spoken and nonverbal communication grows more sophisticated as they begin to joke, and use polite language such as "please" and "thank you." They can take conversational turns as they maintain and introduce topics. Preschoolers are learning to monitor their listeners and adjust and clarify their conversations (James, 1990, p. 109-113, 120).

The etiology of speech and language disorders is rather uncertain. Assessment of a child with a suspected communication disorder will investigate the child's current hearing and past medical history. Other possible explanations stem from hypotheses of language learning. It has been suggested that genetics may contribute or that a processing disorder may interfere with children's ability to acquire vital grammatical markers (Rice & Wilcox, 1995, p. 23).

Not only is there no consensus on the etiology of language disorders, there is none on the definition of a language disorder. Speech pathologists routinely use terms such as “language delay, Specific Language Impairment (SLI), and developmental language disorders,” yet do not agree on what the terms mean. In his article “Trying to Make Sense of Developmental Language Disorders” (1998), Alan Kamhi discusses these terms. The word disorder is considered to be negative and the word delay implies that a child will catch up to his or her peers. This leaves SLI, which is generally accepted as a language deficiency with the exclusion of any “mental deficiency, sensory and physical deficits, severe emotional disturbances, environmental factors, and brain damage” (Kamhi, 1989, p. 36). For the purpose of this work, the term “language disorder” will be used unless a source specifically refers to another term.

Regardless of terms and hypothesis of acquisition and etiology of the language disorder, families and educators are faced with the reality that some children are not communicating on a level that is comparable to his or her peers. The social and communicative reasons to intervene start with family dynamics and can follow a child socially and scholastically throughout his or her life.

A communication disorder first affects the child’s relationship with his or her family. One of the child’s first communicative needs is to express his or her emotions. (Berko Gleason, 1989). This need suffers when communication is disordered. It even affects the way that parents interact with their children. Parents rely on verbal and nonverbal cues from their children in order to interact with them and fulfill their requests. When the child is not sending appropriate cues, care is difficult to provide even by very caring parents (Prizant & Meyer, 1993, p.63). Outside of the home, peers rely on the same communicative cues. In a study conducted at the Language Acquisition Preschool at the University of Kansas at Lawrence, peers preferred to interact with children who did not have speech or language disorders. Children from the classroom were individually asked to look at different types of food items and select the three that they liked. Then

they were asked to select the three foods that they did not like. The same procedure was repeated with pictures of their classmates questioning which children that they liked to play with in a certain center activity and which that they did to like to play with. SLI children from the class scored low popularity. Children with speech disorders fell into the border between popular and unpopular (Gertner, Rice, & Hadley, 1994). Another study at the same facility found that children with normal speech and language ability were the preferred communicative partners in the classroom. Data was gathered through observation of classroom activities over a three month period. Speech impaired (SI) and SLI children were more likely to initiate conversation with adults. Their conversational utterances were also usually shorter than those of their normal speech and language peers (Rice, Sell, & Hadley, 1991). More observations show that 30% of the time, SLI children do not respond to their peers and SI children do not respond 27% of the time. SI children were successful in conversational turn-taking less than 80% of the time (Hadley & Rice, 1991). These social difficulties alone warrant early speech and language intervention. Even as preschoolers, speech and language impaired children suffer the consequences of their impaired communicative abilities.

Not only does it make sense to implement speech and language services for preschoolers for their emotional and social well-being, it is also the law. Education laws such as Public Law 94-142 and Public Law 99-457 govern the ways in which preschool children must be educated.

PL 94-142 can be summarized in the following four points: “1) The development of an Individualized Education Program (IEP), 2) The right to be educated in the Least Restrictive Environment (LRE), 3) The provision of appropriate related services dependent on educational and developmental needs; and 4) Parental involvement” (Tiegerman-Farber, 1995, p. 63).

In response to changes brought on by PL 94-142, PL 99-457 was passed to extend special services to children ages three to four also. One difference between PL 94-142

and PL 99-457 is that PL 99-457 requires an Individualized Family Service Plan instead of an IEP. This difference includes the “parent (as) a member of the multidisciplinary team that generates the educational goals and program” (Tiegerman-Farber, 1995, p. 82). It also requires that services be provided to meet the needs of a child’s family instead of only the needs of the child (Tiegerman-Faber, 1995).

Education laws are not the only changes that have occurred in special services to preschoolers. Early theories of behaviorist acquisition have given way to more popular beliefs in developmental and linguistic acquisition. This leaves the contemporary Speech-Language-Pathologist faced with meeting the requirements of education laws while sorting out personal stances on theories of acquisition and development. In light of current knowledge concerning speech and language acquisition it is vital to plan remediation which is also in line with what is known about the nature of acquisition. Knowledge has progressed beyond behaviorism to more complex linguistic and developmental frameworks yet “For the most part, though, intervention still relies on the behaviorist tools of imitation and reinforcement” (Schwartz, 1992, p. 270). Schwartz suggests approaches to phonological remediation which rely on techniques such as minimally contrasting pairs of words or exposure to targets with opportunities for more conceptual activities (Schwartz, 1992).

Nelson further discusses the discrepancy between current beliefs about language learning and common behavioristic remediation techniques. In the sixties, behaviorism caused teachers to view children as “passive learners” (Nelson, 1995, p. 41). Yet much has been learned since then in the fields of sociolinguistics and pragmatics. He then states that, “It is valiantly hoped, though, that there is a growing repudiation of the traditional, behavioristic approach because of its questionable efficacy” (Nelson, 1995, p. 42). He endorses remediation which is centered on “the conviction that human interaction is the cornerstone of language development, and, that what children are ready to learn is determined by what they already know. Presumably the stages of language evolve in a

consistent pattern for most children. It is presumed also that natural conditions found in native language acquisition appear to be best when assisting a child with a language disorder” (Nelson, 1995, p.42).

Natural, experience based therapy can be termed as “naturalistic.” Naturalistic speech and language therapy is conducted by “interacting with the child and focusing on what the child is currently attending to” (private correspondence with B. Bunce, December 1, 1998). It does not rely on traditional behavioristic techniques and instead relies on meaningful communication opportunities.

Speech Language Pathologists can use knowledge about children’s play to develop play-based lessons in speech and language. Approximately 11% of children’s speech at preschool is devoted to pretending or creating fantasy (Marvin & Hunt-Berg). Children also demonstrate certain tendencies in their language preferences which can be utilized in planning activities.

“a) tendencies to refer primarily to themselves (alone or with others) and context-specific persons in their pretend play, b) preferences for pretend play about familiar daily events (especially food-related activities), c) tendencies to announce or direct the actions of people involved in the pretense, and d) interests in fictional characters and fantasy actions” (Marvin & Hunt-Berg).

SLP’s can use children’s natural preferences in speech and language activities in creating opportunities to expose children to targeted speech and language goals. This creates a very simple, unobtrusive activity which can be incorporated into many service-delivery options. Further techniques include immediately recasting a child’s incorrect utterance after it is spoken with a correct utterance modeled by an adult. Redirects are another option in naturalistic remediation when other children are available to converse with speech and language clients.

Redirects are practiced in a non-individual setting. The Language Acquisition Preschool (LAP) at the University of Kansas at Lawrence employs this technique in their

classroom. It is designed to facilitate communication in SI or SLI children who are more likely to direct their communication attempts to adults than to other children. The technique simply requires the adult present (SLP or teacher) to redirect a child's conversational initiation to another child nearby. In some cases, this strategy increases the SLI child's number of spontaneous conversational initiations with other children. It is also readily incorporated into naturalistic therapy in a LRE (Scheule, Rice & Wilcox, 1995, p. 1331).

Speech and language remediation does not require two separate therapy sessions, both can be accomplished simultaneously. There seems to be a correlation between low language abilities and later phonological disorders. Children who at 18 months and have a vocabulary of less than three words have been shown by ages three or four to be at risk for moderate to severe phonological deviancy (Jelinski, 1998). Because of the high risk of later phonological disorders in children with early identified language disorders it is prudent to closely monitor these children once identified or even to provide language service for these children in an environment which facilitates appropriate phonological stimulation. Remediation can combine techniques of language and phonological intervention. Teaching both syllableness, a phonology goal, and two or three word semantic relations, a language goal, can be an effective way of both increasing a child's utterance length and use of multi-syllabic words (Berman, 1998). Children in the same study were also noted to talk more in "tasks (which) had communicative intent." Effective phonological and language remediation can occur within the context of naturally rewarding communicative tasks and do not need to be separate processes in order to be effective.

The dilemma of meeting education laws while providing therapy which is line with current theories of speech and language development can be met through naturalistic remediation. These dilemmas are addressed by the LAP program (Rice & Wilcox, 1995). It provides opportunities for naturalistic interactions amongst children and adults in a least

restrictive environment and increases opportunities to communicate with parents, as required by PL 99-457's IFSP. The LAP program is an example of a preschool in which children learn naturally through a language-based curriculum. The classroom consists of three groups of children, children with typically developing speech and language skills, children with impaired speech and language skills, and children for whom English is a second language (Rice & Wilcox, 1995, p.8). Speech and language services are provided within the context of normal classroom activities, not through individual or small group therapy outside of the classroom. Children in the program demonstrate progress in speech and language, as evidenced by data which states that: "all of the children with SLI improved their communication during the course of their enrollment in this LFC (Language Focused Classroom) program regardless of the age at which services were initiated, and regardless of the length of time that they were enrolled. Importantly, the children either matched or exceeded the expected normative rate of language learning across at least three of the four outcome measures obtained" (Rice & Wilcox, 1995, p.168). Speech results were similar, with all children showing improvement in the course of the program, yet children who had been in the program for two years showed the greatest increase in standardized scores (Rice & Wilcox, 1995, p. 179). There is no hard evidence that supports LAP's approach as being more effective than other approaches because of the lack of an ethical control group. According to private correspondence with Betty Bunce, the director of the program, LAP "primarily used maturation as (their) control." LAP does not compare their results to the results of other programs because of the "lack of control of many of the variables." Even without hard data, LAP personnel believe that LAP demonstrates effective naturalistic therapy, and meets the requirements of a LRE. In addition it provides a unique opportunity for implementing an Individual Family Service Plan. LAP provides not only family IEP conferences, but also social events for families, and even support for parents struggling with the emotional impact of their children's communication disorder (Rice & Wilcox, 1995, p. 146-148, 135-139).

In light of current research in naturalistic remediation, the next step in this study is to determine if these techniques are commonly used. To assess the methods and service-delivery of SLP's in Arkansas, the following survey was conducted. Copies of data obtained are available in appendix two.

Purpose

The purposes of the survey were: 1) to determine the number of Speech-Language Pathologists in Arkansas who employ naturalistic techniques, 2) to determine what they considered as the ideal service-delivery method, 3) to determine if they currently employed that type of service-delivery, and 4) if not, what prevented them from doing so.

Method

Selection of Participants

Two hundred SLP's were polled. Addresses were randomly selected from the State of Arkansas Board of Examiners in Speech-Language Pathology and Audiology, Licensure Directory 1997-98.

Procedures

Surveys and survey development. The survey was developed by the author in response to information presented in the above literature review. The definition of "naturalistic speech/language therapy" was adapted in part from correspondence with Betty Bunce, Ph. D., CCC-SLP of the University of Kansas. The definition stated "Naturalistic speech/language therapy is carried out in a natural environment through normal interactions during play and other forms of communication. Children are directed toward activities that include their speech and language objectives, but therapy does not rely on traditional behavioristic techniques. This would exclude drills or rote activities with artic or language flash cards."

Mailing and processing. Each SLP was sent a survey and a self-addressed, stamped envelope in which to return his or her response. Surveys were postmarked

January 13, 1999. After March 3, 1999, all surveys returned were not included in the responses as coding of results had already begun. Surveys were processed using SPSS for Microsoft Windows. Population data used for cross-tabulation purposes was gathered from the 1990 census.

Results

Return rate

Of the 200, 63 were returned by active SLP's who currently serve children ages 3-5. All 63 provide services in Arkansas.

Description of Respondents

Respondents were from 31 different counties, with three respondents not reporting a county of practice. When broken down into three population groups, 18 or 30.5% of respondents were from a county of 10,000 to 26,000 residents. Counties with populations of 28,000 to 50,000 had nine respondents or 15.3% of the total sample. The largest counties, those with populations of 54,000 to 350,000, had 32 respondents or 54.2%.

Caseload

Respondents were asked to classify their overall caseload and the number of preschoolers that they serve. Overall caseload was reported by 59 of the 63 respondents reported data about their caseloads. Only 20.3% reported serving 40 or more clients, and 79.7 % served less than 40 clients.

The majority of respondents, 94.9, served less than 40 preschoolers out of their total caseload. Only 5.1% served 40 or more preschoolers.

Actual Service Delivery

Respondents were asked to classify the manner in which they carried out the majority of their preschool therapy and were given the choices of: individual, one-on-one; small group (2-5 children to one therapist); large group (5+ children to one therapist); within a preschool classroom, with pull-out therapy; within a preschool classroom, without pull-out therapy. Overall results were: 46.8% individual; 14.5% small group;

19.4% classroom with pull-out; and 4.8% classroom with pull-out. Missing values made up 14.5%.

When grouped by population, in the 10,000 to 26,000 category 53.3% reported individual service delivery, 26.6% reported small group delivery, and 20.0% reported classroom/pull-out delivery. None reported classroom/non-pull-out. In the 28,000 to 50,000 results were evenly distributed amongst individual, small group, and classroom/pull-out. None reported classroom/non-pull-out. In the 54,000-350,000 group, 57.1% reported individual delivery, 10.7% reported small group, 21.4% reported classroom/pull-out, and 10.7% reported classroom/non-pull-out. There were 12 missing cases.

When grouped by caseload, those reporting an overall caseload of less than 10 reported 80% individual delivery and 20% small group delivery. In the 10 to 20 caseload group, 52.4% reported individual delivery, none report small group, 38.0% reported classroom/pull-out, and 9.5% reported classroom/non-pull-out. In the 21-30 caseload group, 61.5% reported individual delivery, 15.4% reported small group delivery, 15.4% reported classroom/pull-out, and 7.7% reported classroom/non-pull-out. In the 31 to 40 caseload group, 20.0% reported individual delivery, 60.0% reported small group delivery, 20.0% reported classroom/pull-out, and none reported classroom/non-pull-out. There were nine missing cases.

Ideal Service Delivery

Respondents were also asked what their ideal service-delivery method would be for preschoolers. Overall responses were: 25.8% individual; 8.1% small group, 1.6% large group, 30.6% classroom/pull-out; 16.1% classroom/non-pull-out; and 17.7% did not respond.

When grouped by population, in the 10,000 to 26,000 group 42.8% preferred individual, 7.1% preferred small group, 7.1% preferred large group, 14.3% preferred classroom/pull-out, and 28.6% preferred classroom/non-pull-out. In the 28,000 to 50,

000 group, 14.3% preferred individual delivery, none preferred small or large group, 57.1% preferred classroom/pull-out, and 28.6% preferred classroom/non-pull-out. In the 54,000 to 350,000 group, 28.6% preferred individual, 14.3% preferred small group, none preferred large group, 42.9% preferred classroom/pull-out, and 14.3% preferred classroom/non-pull-out. There were 11 total missing cases in the population groups.

actual	individual 46.8%	small group 14.5%	large group 0%	class/pull-out 19.4%	class/no pull-out 5.7%
ideal	25.8%	8.1%	1.6%	30.6%	17.7%

Respondents were then asked what factors prevented them from carrying out their ideal service-delivery method. Out of the options of time restraints, lack of funding or other resources (space, therapy materials...), transportation of clients, and clinic policies; respondents were asked to rank in order what prevents them from carrying out their ideal service-delivery, number one being the largest contributor and four being the least contributor. Results were as follows for time restraints: 33.9% number one, 21.0% number two, 9.7% number three, and 35.5% were missing cases. Results were as follows for funding: 17.7% number one, 21.0% number two, 14.5% number three, 3.2% number four, and 41.9% were missing cases. Results were as follows for clinic policies: 11.3% number one, 8.1% number two, 11.3% number three, 24.2% number four, and 43.5% were missing cases. Results were as follows for transportation: 1.6% number one, 6.5% number two, 17.7% number three, 24.2% number four, and 45.2% were missing cases.

Naturalistic Techniques

Respondents were asked if they felt that their preschool therapy was carried out in a primarily naturalistic manner. Overall, 56.5% replied yes and 40.3% replied no. When grouped by population, 44.4% replied yes and 50.0% replied no in the 10,000 to 26,000

group. In the 28,000 to 50,000 group 66.7% replied yes and 33.3% replied no. In the 54,000 to 350,000 group 61.3% replied yes and 38.7% replied no. Four cases were missing by population. Overall, 41.9% would consider using only naturalistic remediation techniques and 41.9% would not; 16.1% were missing cases. Broken into population groups, the 10,000 to 26,000 group 43.8% replied yes and 56.2% replied no. In the 10,000 to 26,000 group 55.6% replied yes and 44.4% replied no. In the 54,000 to 350,000 group 52.0% replied yes and 48.0% replied no.

Respondents were polled about their inclusion of typical speech and/or language abilities. Overall, 37.1% reported inclusion and 61.3% did not. There was one missing case. Overall, 93.5% would consider inclusion and 4.8% would not. One case was missing. Grouped by population, 88.9% of the 10,000 to 26,000 group replied yes and 11.1% replied no. In the 28,000 to 50,000 group, 100% replied yes. In the 54,000 to 350,000 group, 96.9% replied yes and 3.1% replied no. Four cases were missing in the population group.

Preschool Classroom

Further questions about service delivery included what type of classroom structure was employed and whether or not children were removed from their classroom activities for therapy. Overall, 6.5% reported serving a classroom of only children with speech and/or language disorders, 22.6% reported serving a preschool that integrates children with and without speech/language disorders, 17.7% serve classrooms of only special needs children, and 27.4% serve a classroom which integrates children with and without special needs. The 10,000 to 26,000 population group reported the following structures: 14.3% only speech/language; 28.6% integration of speech/language and typical; 35.7% only special needs; and 21.4% integration of special needs and typical. The 28,000 to 50,000 population group reported the following structures: 0% only speech/language; 12.5% speech/language and typical; 14.3% only special needs; and 62.5% special needs and typical. In the 54,000 to 350,000 group the following structures were reported: 8.7%

only speech and language; 39.1% speech/language and typical; 17.4% only special needs; and 34.8% special needs and typical. There were 17 missing cases in the population groups.

In the classrooms, 58.1% of the overall respondents removed children from classroom activities for speech and language services and 17.7% did not. Missing cases made up for 24.2% of the overall responses. When classified by county, 85.7% of the 10,000 to 26,000 group did remove children for services and 14.2% did not remove. Of the 28,00 to 50,000 group, 55.6% reported removal and 44.4% reported no removal. In the 54,000 to 350,000 group, 78.2% reported removal and 21.7% reported no removal.

Discussion

This study was designed to assess how many SLP's in Arkansas employ naturalistic therapy techniques and to assess the degree to which their service delivery methods are considered naturalistic. It also provided information about why SLP's are not providing their services in their ideal manner.

Major findings

The sample Arkansas SLP's report that 56.5% of them feel that their therapy is carried out in a primarily naturalistic manner and 40.3% do not. The highest number of SLP's who reported using naturalistic techniques were in the 28,000 to 50,000 group (66.7%) and the 54,000 to 350,000 group (61.3%). Fewer SLP's in the smallest population group, 44.4% in the 10,000 to 26,000 group, reported using primarily naturalistic techniques. When further questioned as to whether they would consider using only naturalistic techniques, a higher percentage of SLP's in the smallest population group again said no. Overall, 37.1% included children of typical speech and language abilities in their therapy, yet 93.5% would consider it. The small population group was below the average (88.9%) for the number which would consider inclusion.

In the preschool classrooms served by respondent, the majority (58.1%) removed children from classroom activities for speech and language remediation. Although 85.7% of the small counties removed children for services, they also did not report a classroom of only speech and language disordered children.

The ideal service-delivery method indicated by respondents was a preschool classroom with pull-out therapy (30.6%), yet only 19.4% actually provided services in this manner. The most common method of service-delivery was individual, one-on-one therapy sessions (46.8%). The SLP's in the smallest population group reported a different ideal, 42.8% preferred individual therapy. Caseload did not greatly affect service-delivery. Individuals with caseloads of 31-40 preschoolers reported a higher percentage of small group delivery (60.0%) than the overall sample.

The most commonly identified preventer from providing ideal service-delivery was time (33.9%), followed by funding (17.7%), clinic policies (11.3%), and transportation of clients (1.6%).

Qualifications and Limitations

These findings are based on only 63 respondents. This is a return rate of only 10.7% and is a small sample. There also was no field study done to test the reliability of this survey. There were missing cases in response to each question due to either an omitted or multiple responses. Respondents were not asked information about the date of their education, which may have taken place before developmental and linguistic frameworks of language acquisition were accepted.

Conclusion

The survey is limited by its response number and number of missing cases, but says that naturalistic techniques are only employed by only a small majority of speech-language pathologists. The number is even smaller in responses from SLP's in smaller counties. Furthermore, SLP's do not necessarily provide their services through the service

delivery-methods which are the most in keeping with their beliefs about the most effective options. The most common preventer from ideal service-delivery is time restraints. Comments were not solicited, yet some respondents did include them in their replies. They additionally report limitations due to clinician mentality and unreliable classroom structure. Billing difficulty was reported for serving children through non-pull-out options as was difficulty in meeting IFSP's written in language which details service-delivery. This difficulty is described by Nelson in the context of school-age delivery. He states "if the goals are semantic and syntactic rather than communicative, school clinicians will be prevented from incorporating interactions that research and clinical experience suggest will expedite language development" (Nelson, 1995, p. 42).

Implications for Further Research

Current theories on language acquisition accept the child as an active learner (Nelson, 1995). Education laws require that special services be provided for preschoolers and their families and that those service be provided in the LRE. SLP's address those issues in designing speech and language remediation. Current research in remediation at the LAP program examines providing services in an inclusive, non-pull-out preschool classroom (Rice & Wilcox, 1995). Specific techniques of remediation include recasting utterances (Melanson, Dore, Farrell, Kay-Raining Bird, & Cleave, 1998), redirecting conversational attempts (Schuele, Rice, & Wilcox, 1995), and play therapy (Marvin, Hunt-Berg). Due to Arkansas SLP's report that individual therapy is the most common service-delivery method that they employ, investigation needs to focus on how to incorporate naturalistic techniques into individual therapy. Since fewer SLP's in small counties report using primarily naturalistic techniques, efforts also should be made to keep all SLP's educated in changes in theories of development and intervention.

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Appendix A

Survey

Naturalistic speech/language therapy is carried out in a natural environment through normal interactions during play and other forms of communication. Children are directed toward activities that include their speech and language objectives, but therapy does not rely on traditional behavioristic techniques. This would exclude drills or rote activities with artic or language flash cards.

(definition adapted in part from correspondence with Betty Bunce, Ph.D., CCC-SLP, University of Kansas)

1. What county do you provide most of your services in? _____
2. What is your current total caseload?
 - a. less than 10
 - b. 10-20
 - c. 21-30
 - d. 31-40
 - e. 40+
3. How many preschool children do you serve?
 - a. less than 10
 - b. 10-20
 - c. 21-30
 - d. 31-40
 - e. 40+
4. How do you carry out the majority of your preschool therapy?
 - a. individual, one-on-one
 - b. small group (2-5 children to one therapist)
 - c. large group (5+ children to one therapist)
 - d. within a preschool classroom, with pull-out therapy
 - e. within a preschool classroom, without pull-out therapy
5. If you serve a preschool classroom, how is it structured?
 - a. only serves children with speech and/or language disorders
 - b. integrates children with and without speech and/or language disorders
 - c. only serves special needs children (mentally or physically handicapped)
 - d. integrates children with and without special needs (mentally or physically handicapped)
6. If you serve a preschool classroom, do you remove your clients from their classroom activities for therapy?
 - a. yes
 - b. no
7. Are children of normal speech and/or language abilities included in activities during your preschool therapy?
 - a. yes
 - b. no

8. Would you consider integrating children of normal speech and/or language abilities in your activities?
 - a. yes b. no

9. Do you feel that your preschool speech-language therapy is carried out in a primarily naturalistic manner?
 - a. yes b. no

10. Would you consider using only naturalistic remediation techniques?
 - a. yes b. no c. I only use naturalistic techniques

11. What would be your ideal service-delivery method for your preschoolers?
 - a. individual, one-on-one
 - b. small group (2-5 children to one therapist)
 - c. large group (5+ children to one therapist)
 - d. within a preschool classroom, with pull-out therapy
 - e. within a preschool classroom, without pull-out therapy

12. What prevents you from carrying out your preschool therapy in this manner? (please rank in order, number 1 being the largest contributor and 4 being the least contributor)
 - time restraints
 - lack of funding or other resources (space, therapy materials...)
 - transportation of clients
 - clinic policies

Appendix B

COUNTY county

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Nevada	13	1	1.6	1.7	1.7
Little River	23	1	1.6	1.7	3.4
Van Buren	28	1	1.6	1.7	5.1
Chicot	28	1	1.6	1.7	6.8
Randolf	28	1	1.6	1.7	8.5
Polk	31	1	1.6	1.7	10.2
Drew	31	1	1.6	1.7	11.9
Lawrence	33	2	3.2	3.4	15.3
Carroll	33	2	3.2	3.4	18.6
Jackson	35	1	1.6	1.7	20.3
Conway	35	2	3.2	3.4	23.7
Clark	43	1	1.6	1.7	25.4
Hempstead	44	1	1.6	1.7	27.1
Arkansas	48	1	1.6	1.7	28.8
Columbia	48	1	1.6	1.7	30.5
Boone	50	1	1.6	1.7	32.2
St. Francis	51	1	1.6	1.7	33.9
Baxter	51	1	1.6	1.7	35.6
Indepedence	53	1	1.6	1.7	37.3
Crawford	53	1	1.6	1.7	39.0
Pope	60	2	3.2	3.4	42.4
Union	61	1	1.6	1.7	44.1
Crittenden	62	1	1.6	1.7	45.8
White	65	3	4.8	5.1	50.8
Mississippi	64	1	1.6	1.7	52.5
Faulkner	68	2	3.2	3.4	55.9
Craighead	67	3	4.8	5.1	61.0
Garland	68	2	3.2	3.4	64.4
Benton	71	2	3.2	3.4	67.8
Sebastian	71	3	4.8	5.1	72.9
Pulaski	73	16	25.8	27.1	100.0
	80	3	4.8	Missing	
Total		62	100.0	100.0	

Valid cases 59 Missing cases 3

CASELOAD caseload

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
less than 10	1	5	8.1	8.1	8.1
10-20	2	23	37.1	37.1	45.2
21-30	3	14	22.6	22.6	67.7
31-40	4	7	11.3	11.3	79.0
40+	5	13	21.0	21.0	100.0
		-----	-----	-----	
	Total	62	100.0	100.0	

Hi-Res Chart # 3:Histogram of caseload

Valid cases 62 Missing cases 0

PREK # of preschool children served

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
less than 10	1	16	25.8	25.8	25.8
10 to 20	2	27	43.5	43.5	69.4
21 to 30	3	11	17.7	17.7	87.1
31 to 40	4	5	8.1	8.1	95.2
41+	5	3	4.8	4.8	100.0
		-----	-----	-----	
	Total	62	100.0	100.0	

Hi-Res Chart # 4:Histogram of # of preschool children served

Valid cases 62 Missing cases 0

DELIVERY service delivery

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
individual >one-on-o	1	29	46.8	54.7	54.7
small group (2-5 chi	2	9	14.5	17.0	71.7
classroom/pullout	4	12	19.4	22.6	94.3
classroom/non-pullou	5	3	4.8	5.7	100.0
	99	9	14.5	Missing	
		-----	-----	-----	
Total		62	100.0	100.0	

Hi-Res Chart # 6:Histogram of service delivery

Valid cases 53 Missing cases 9

DELIVERY service delivery by POPLATN population by county

Page 1 of 1

Count	POPLATN			Row Total
	10-26K	28-50K	54-350K	
	1	2	3	
DELIVERY 1 individual >one-	8	2	16	26 52.0
2 small group (2-5	4	2	3	9 18.0
4 classroom/pullou	3	3	6	12 24.0
5 classroom/non-pu			3	3 6.0
Column Total	15 30.0	7 14.0	28 56.0	50 100.0

Number of Missing Observations: 12

IDEAL ideal service delivery

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
individual, one-on-o	1	16	25.8	31.4	31.4
2-5 children	2	5	8.1	9.8	41.2
5+ children	3	1	1.6	2.0	43.1
classroom, pull-out	4	19	30.6	37.3	80.4
classroom, no pull-o	5	10	16.1	19.6	100.0
	99	11	17.7	Missing	
		-----	-----	-----	-----
	Total	62	100.0	100.0	

Hi-Res Chart # 14:Histogram of ideal service delivery

Valid cases 51 Missing cases 11

IDEAL ideal service delivery by POPLATN population by county

Count	POPLATN			Row Total
	10-26K	28-50K	54-350K	
	1	2	3	
IDEAL				
1 individual, one-	6	1	8	15 30.6
2 2-5 children	1		4	5 10.2
3 5+ children	1			1 2.0
4 classroom, pull-	2	4	12	18 36.7
5 classroom, no pu	4	2	4	10 20.4
Column Total	14 28.6	7 14.3	28 57.1	49 100.0

Number of Missing Observations: 13

TIME time restraint

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
#1 preventer from id	1	21	33.9	52.5	52.5
#2 preventer from id	2	13	21.0	32.5	85.0
#3 preventer from id	3	6	9.7	15.0	100.0
	99	22	35.8	Missing	
Total		62	100.0	100.0	

Valid cases 40 Missing cases 22

FUNDING lack of funding/resources

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	1	1.6	2.8	2.8
#1 preventer from id	1	11	17.7	30.6	33.3
#2 preventer from id	2	13	21.0	36.1	69.4
#3 preventer from id	3	9	14.5	25.0	94.4
#4 preventer from id	4	2	3.2	5.6	100.0
	99	26	41.8	Missing	
Total		62	100.0	100.0	

Valid cases 36 Missing cases 26

TRANSPOR transportation of clients

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	3	4.8	8.8	8.8
#1 preventer from id	1	1	1.6	2.9	11.8
#2 preventer from id	2	4	6.5	11.8	23.6
#3 preventer from id	3	11	17.7	32.4	55.9
#4 preventer from id	4	13	21.0	44.1	100.0
	99	28	45.1	Missing	
Total		62	100.0	100.0	

Valid cases 34 Missing cases 28

CLINIC clinic policies

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	1	1.6	3.9	3.9
#1 preventer from id	1	3	4.8	10.0	13.9
#2 preventer from id	2	3	4.8	14.8	28.7
#3 preventer from id	3	11	17.7	30.8	59.5
#4 preventer from id	4	13	21.0	42.9	100.0
	99	27	43.1	Missing	
Total		62	100.0	100.0	

Valid cases 35 Missing cases 27

NATRLSTC primarily naturalistic tx

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
yes	1	35	56.5	57.4	57.4
no	2	25	40.3	41.0	98.4
	13	1	1.6	1.6	100.0
	99	1	1.6	Missing	
		-----	-----		
	Total	62	100.0	100.0	

Hi-Res Chart # 11:Histogram of primarily naturalistic tx

Valid cases 61 Missing cases 1

NATRLSTC primarily naturalistic tx by POPLATN population by county

Page 1 of 1

Count	POPLATN			Row Total	
	10-26K	28-50K	54-350K		
	*	1	2	3	
NATRLSTC					
yes	1	8	6	19	33 56.9
no	2	9	3	12	24 41.4
	13	1			1 1.7
Column Total	18	9	31	58	58 100.0

Number of Missing Observations: 4

CONNAT consider only naturalistic tx

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
yes	1	26	41.9	50.0	50.0
no	2	26	41.9	50.0	100.0
	99	10	16.1	Missing	
		-----	-----	-----	
Total		62	100.0	100.0	

Hi-Res Chart # 13:Histogram of consider only naturalistic tx

Valid cases 52 Missing cases 10

INCLUSN inclusion of typical children

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
yes	1	23	37.1	37.7	37.7
no	2	38	61.3	62.3	100.0
	99	1	1.6	Missing	
		-----	-----	-----	
Total		62	100.0	100.0	

Hi-Res Chart # 10:Histogram of inclusion of typical children

Valid cases 61 Missing cases 1

CONSINCL consider inclusion of typical

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
yes	1	58	93.5	95.1	95.1
no	2	3	4.8	4.9	100.0
	99	1	1.6	Missing	
		-----	-----	-----	-----
	Total	62	100.0	100.0	

Hi-Res Chart # 9:Histogram of consider inclusion of typical

Valid cases 61 Missing cases 1

CONSINCL consider inclusion of typical by POPLATN population by county

Page 1 of 1

Count	POPLATN			Row Total
	10-26K	28-50K	54-350K	
	1	2	3	
CONSINCL				
yes	1	16	8	31
no	2	2	1	3
Column Total	18	8	32	58
	31.0	13.8	55.2	100.0

Number of Missing Observations: 4

STRUCTUR classroom structure

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
only speech/language	1	4	6.5	8.5	8.5
speech/language+typi	2	14	22.6	29.8	38.3
only special needs	3	11	17.7	23.4	61.7
special needs+typica	4	17	27.4	36.2	97.9
	999	1	1.6	2.1	100.0
	99	15	24.2	Missing	
		-----	-----	-----	
Total		62	100.0	100.0	

Hi-Res Chart # 7:Histogram of classroom structure

Valid cases 47 Missing cases 15

REMOVE removal from class for tx

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
yes	1	36	58.1	76.6	76.6
no	2	11	17.7	23.4	100.0
	99	15	24.2	Missing	
		-----	-----	-----	
Total		62	100.0	100.0	

Hi-Res Chart # 8:Histogram of removal from class for tx

Valid cases 47 Missing cases 15