ECHO

E-Journal for Black and Other Ethnic Group Research and Practices in Communication Sciences and Disorders

ECHO is the Official Journal of the National Black Association for Speech, Language and Hearing



Volume 3, Number 1 **Spring 2007**

MEDIATIONS FOR STUTTERING REDUCTION: LESSONS FROM AFRICAN-AMERICAN AND MEXICAN-AMERICAN CHILDREN

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ABSTRACT

The purpose of the article is to provide clinicians examples of best practices for the remediation of stuttering in school-age children. The recommended approach to treatment is based on best practices as espoused in the professional literature (ASHA) and based on the author's seven years of research with over 40 African American, White, and Mexican-American children who stutter. The article is an outgrowth of a recent workshop presentation (NBASLH, 2006) and disseminates results of ongoing research to address the needs of children who exhibited chronic stuttering with little or no improvement resulting from school-based therapy. Recent case studies indicate that children, particularly those who experience limited success in school-based therapy, have significantly improved outcomes when stuttering modification or fluency-shaping approaches are combined with mediated learning strategies to promote cognitive change, family support, and learning transfer (Radford, Tanguma, Gonzalez, Nericcio, & Newman, 2005). A consistent theme throughout the article is that clinicians should adopt a view from the perspective of the speaker to promote clients' successful management of their stuttering (Plexico, Manning, & Dilollo, 2005). However, successful management should include strategies to reduce stuttering as the factor significant to disruption of communication, social isolation, and quality of life. Further, successful management may include prosthetic devices.

KEY WORDS: stuttering, stuttering modification, fluency-shaping, multicultural

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INTRODUCTION

A nagging question for many clinicians is "Why was I unable to assist this client in achieving more fluency?" The summative word is *failure*, whether attributed to some factor in the client, the therapy, client-clinician interaction, or some combination of factors. Plexico, Manning, and Dilollo (2005) summarize the recurring themes associated with unsuccessful management of stuttering. Of the six themes the researchers identify to avoid, three themes are most pertinent to this discussion: (1) an approach that promotes a gradual awareness about stuttering rather than an intense approach with provision of behavioral tools for change, (2) limited attention to the client's perspective about stuttering and his or her feelings of helplessness, anxiety, and low self-worth, and (3) a criterion of success based on unrealistic goals. Regarding the latter factor, Plexico and her colleagues suggest that the criterion for success should not be limited to absolute fluency. The writers concur with this suggestion, although a caveat is offered. An alternate dilemma would be a criterion for success with *too low an expectation for establishing fluency.* We suggest that successful management does include a considerable amount of attention to **observable reduction in stuttering along with changes in reaction/attitude to stuttering by the child, family members, and other communication partners.**

The purpose of this article is to describe strategies for reducing stuttering, influencing positive cognitive changes to promote transfer, assisting the family in supporting the child's behavioral changes, and incorporating technology as appropriate. In addressing these issues, we hope to promote, in particular, school-based clincians' success in helping school-age children reduce stuttering and manage communication successfully. Too often, outcomes have been disappointing in school-based settings, as reported by clinicians themselves. Clinicians' insights will be briefly discussed, followed by an overview of mediated learning and application to assessment and treatment with school-age children who stutter.

Clinician's Concerns About Limited Success

In chatting with a colleague recently about the modest outcomes attributed often to school-based clinicians, the first author was reminded by the colleague that *we already know why failure happens in public schools.* These factors have been discussed at various professional conventions, in the professional literature and other forums. Discussions with school-based clinicians in the states of Missouri, Arkansas and Texas resulted in a list of various factors they identified consistently as interfering with success in stuttering therapy. Clinicians often identified "difficult to treat clients," for whom they had been unable to find the right approach to resolve the stuttering. Clinicians also identified factors such as scheduling, mixed disability groups (intervention in a group setting in which children who stutter are treated along with children with language, articulation and/or voice issues) and large caseloads. The five most frequently mentioned factors are summarized in Table 1, with no particular order regarding "least" or "most" among the five as no weighted score or rankings were used.

Table 1. Factors Reported by School-based Clinicians that Limit Therapy Success

1. Report of limited or poor pre-service preparation and continuing education opportunities for practicing clinicians who lack confidence about working with children who stutter.

2. Restrictions may be imposed by various school districts that limit clinician control and decision-making in devising intervention for children.

3. Unwieldy caseloads which create a burden on time allocation and opportunity for individual therapy.

4. Personnel shortages that contribute further to unwieldy caseloads and less effective service provision and increased pressure for mixed-disorder grouping during service delivery.

5. The chronic stutterer whose stuttering seems to persist in spite the approaches attempted, or who experiences repeated cycles of improvement and relapse.

Note. These factors were identified by clinicians participating in inservice training, workshops, or regional conventions that were provided by the first author in the states of Missouri, Arkansas, and Texas, from 1997-2005. The workshops ranged in size from 5 to 100 participants.

A related question regarding unsuccessful outcomes is "Why do the fairly easily modifiable problems continue to pose a hindrance to establishing effective management of stuttering?" Each of the factors summarized in Table 1 will be discussed along with some solutions.

Pre-Service Preparation and Continuing Education

As of 2005, ASHA standards were revised to remove the required minimum of practicum requirements for graduate preparation in speech-language-pathology. For those programs where opportunities to treat fluency disorders are limited, compounded with the removal of required practicum hours specifically devoted to fluency, professionals in higher education are encouraged to continue to make every effort to provide students with practicum experiences devoted to stuttering. Further, practicing clinicians are encouraged to avail themselves of the numerous continuing education opportunities that exist. One resource is the Stuttering Foundation of America which provides high-quality training opportunities and low cost materials regarding assessment and treatment.

In addition, the annual Schools Conference and the National Convention, both sponsored by the ASHA, include a variety of learning opportunities regarding stuttering assessment and treatment. For clinicians in remote areas with limited opportunities to travel, mentorship opportunities are available through the Fluency Cadre. Independent study is

readily available through the ASHA online journals, the *Journal of Fluency Disorders*, membership in the Special Interest Division # 4 (Fluency and Fluency Disorders), distance learning opportunities (i.e., web-based learning, teleconferences through satellite) and other opportunities. In addition to nationally recognized experts in stuttering, such as *Barry Guitar, Alex Johnson, Patricia Zebrowski, Peter Ramig, Tommy Robinson, Kristin Chmela* and others[1], there are numerous lesser-known clinicians working energetically in a variety of settings throughout the country who may be readily accessible for consultation regarding school-age children who stutter.

School District Restrictions

Often, clinicians report difficulty with scheduling and individual education plan development. For example, for the 40 children recruited to participate in various clinical studies by the first author over the past seven years, school-based clinicians have been the liaisons providing parents with information about study participation. The clinicians were eager for this additional avenue to serve stuttering children for several reasons. SLPs reported concerns about protracted periods for assessment, completing IEP conferences and placement for treatment. They also reported delays in assessment and placement decisions. Delays in assessment were caused by the demands of large caseloads and clinicians' limited time for testing during fixed time periods. These factors were often compounded by a student's absence from school on a day the clinician had prepared to complete assessment. Delays in conferencing also result from the difficulty in finding a common time for committee members to meet. There also were concerns about restrictive therapy schedules, with clinicians reporting dissatisfaction with the minimal contact hours (30 minutes, twice weekly) often encouraged in various districts and mixed ability grouping. The public school-university collaboration in which the authors have participated have alleviated some of the restrictions for services to children who stutter in Southwest Texas by offering research-based, intervention options, with limited or no cost to parents. Funding was provided by various grants over the past five years. For the clinicians who have referred clients, they have expressed their satisfaction with the partnership and relief from the time demands of their caseloads.

In addition to the public school-university networks, it is important for individual clinicians to take the time to plan. In the process of planning, clinicians must first take some time to prioritize. The clinician may have little control regarding the time frame for educational planning conferences. Clinicians may also have to compromise regarding the exact scheduling of services and time requirements, dependent upon their own districts particular policies. However, at each juncture—from referral, to testing, to placement, and service, the clinician should always be critiquing what factors may be modified and how. Clinicians are encouraged to list those factors limiting therapeutic success with clients who stutterer, as well as the solution to

[1] The reader is referred to *The British Journal of Disorders of Communication*, particularly work by Lena Rustin and Frances Cook regarding parent involvement in the treatment of stuttering. See also The Association for Research into Stammering at www.stammeringcentre.org.

alleviating the identified factors. Once factors and solutions are listed, the next task is to prioritize those factors that are within the clinician's immediate control and can be addressed rapidly without IEP modification, or formal written requests. For example, a clinician who underutilizes technology may begin to systematically assess how technology can be used to simplify paperwork, track client progress, and increase the availability of feedback to support client progress.

Factors Under the Clinician's Immediate Control

Technology is readily available and may be an underutilized tool that can be used in a variety of ways. The child might monitor his or her own speech with the use of digital recorders, language masters, or personal listening devices available through a variety of electronic stores. Digital tape recorders can be used and speech converted to wave files for storage on a lap top computer and ready playback during therapy and pre- and post-assessment. In addition, software for delayed auditory feedback can be downloaded free of charge from various websites on the internet. Because the majority of children who stutter are boys, we have found that the use of technology and electronic devices in therapy are motivating, generally, to the boys who have reported they are doing something "high tech." Transfer training activities or homework for practice can be stored on a child's personal flash drive for those children who have a computer at home and have access to such technology. Saving worksheets, and follow-up talk-listen activities, and other materials on a flash drive certainly reduces the need for paper copies and cumbersome speech notebooks; this is especially useful for itinerant SLPs. Further, digital tape recorders can be used to extend the clinician's access to the client throughout the day. Recorders can be used to remind the client of useful strategies, to deliver relaxation and/ or speech exercises, or to allow the client to record and analyze his or her own speech.

A cautionary note is offered, however. When using electronic devices to store samples or process paperwork related to assessment or educational planning, the clinician should take precautions to guard client confidentiality. Client files should not be saved to the desktop of laptops that are used for dual professional and personal purposes. Further, samples should not be emailed or stored on a server with multiple users.

A variety of transfer training activities can be implemented with no risk to confidentiality. For example, a conference call can be scheduled so that parents can listen in on and participate in their child's therapy. Videoconferencing equipment is available for under $40.00 that could be easily used as well. Conference calls and videoconferencing are viable options for increasing parental involvement, particularly when individual therapy is in place and clinicians have their own private office or classroom in which to work.

Factors Not Under The Clinician's Control

Clinicians in the United States vary in their authority regarding the actual scheduling of therapy and structure. For example, it is the first author's experience that school-age children who present with chronic stuttering are best served when

individual therapy is combined with group therapy and family counseling. However, in various school districts, it is not uncommon that formulas for making decisions regarding the recommended amount of time for therapy and structure (group vs. individual) often support the minimal time allotments and stress group management.

Another difficulty that hampers therapeutic progress is lack of parental involvement. The public school clinician traditionally provides direct services to the child, with minimal parental involvement. The minimal involvement is often a byproduct of all the same challenges that affect working directly with the child: an excessive caseload, minimal time for parent counseling, and parents with equally demanding schedules who are unable to visit the school often. A suggestion is that clinicians work with supervisors and administrators to provide individual therapy for children who stutter, particularly in the early stages of training. Group work is desirable as the child progresses. In addition, the most effective groups will be those which involve children who stutter rather than mixed ability groups. Various support groups for children who stutter and their families are available. Clinicians also might seek to establish partnerships with university-based personnel to increase client contact time. Partnerships such as these may eventually lead to increased educational funding to improve services for children who stutter. An example of a partnership from 2000-2006 that supported the Smooth Talking Fluency Clinic in Southwest Texas was among school-based clinicians, special education administrators at Region 1 Educational Service Center, and university personnel.

Another factor that is less influenced by the clinician is caseload. Caseload size is often dictated by a school district's policies and procedures. State Associations are an avenue for advocacy to state legislatures, state departments of education, and local districts regarding the advantages of caseload sizes that reflect the ideal as suggested by the ASHA (2002).

The Chronic Stutterer and Relapse

A significant amount of the first author's research and clinical work over the past five years has been devoted to school-age children who stutter. During the initial referral, dissatisfaction with prior therapeutic outcomes has been the primary reason for participation in the research clinic. Of the 40 children seen over the past 5 years, all have been referred by their public school speech language pathologist. To date, one case study from this data has been published regarding a child with chronic stuttering and minimal response to treatment in schools (Radford et al., 2005). A thorough review of the issues regarding relapse will not be attempted here. The reader is referred to work by Blood (1995), Plexico et al. (2005) and Silverman (1981) for more information regarding relapse and treatment options. Blood takes an innovative approach to speech training in his study of three adolescent stutterers who received 25 hours of intense therapy, with 50 hours of relapse prevention training and follow-up at 6 and 12 months. Therapy devised by Blood is based on the POWER^2 Game, with Power being an acronym for P(ermission), 0(wnership) W(ell-being), E(steem), R(esilience)and R^2(responsibility). Blood's approach is commendable because he directly addresses attitudes, feelings, and other

factors that might lead to relapse. A shortcoming, however, is that his model for understanding relapse is based on the relapse behavior of drug-addicted adults. Currently, information is available regarding stuttering that is derived from magnetic resonance imaging and other physiologic measures such as heart rate. Two important and contrasting views of stuttering will be briefly discussed as they contribute to an understanding of relapse.

Snyder (2006) espouses a neurophysiologic view of stuttering and explains that stuttering is a neural disorder of function, characterized by abnormal speech-musculature activations, abnormal cerebellar processing, and so forth. The result is an abnormal activation sequence in speech encoding. Stuttering is seen as a reaction to the abnormal encoding, an attempt to self-correct. Therefore, stuttering is a symptom of the neural dysfunction and not a pathology. The outcome is that relapse will occur because all therapies involve symptom suppression rather than elimination of the cause. After a given period, the stuttering will reoccur as the neural dysfunction increases and the symptom suppression is rendered ineffectual. Taken to the extreme, some might mistakenly assume that therapy is not effective for the chronic and more severe stutterers. Snyder even points out that stuttering therapy is most effective and likely to cause a permanent change to fluency when therapy is initiated promptly following onset of stuttering in children (15 months post onset or less).

In contrast, Conture and De Nil (2004) in their discussion of stuttering indicate that therapy with adult stutterers does lead to positive changes in how the brain handles speech, and this is associated with observable changes in fluency. This indicates that therapy, even if initiated later than sooner, may result in positive changes. Further, Shenker, Guitar, Tetnowski, Whipple, Caviness, Williams, and Blair (2004) discuss a delayed diagnosis of stuttering in a preschool child and a successful intervention based upon the collaborative efforts of a researcher, clinician, student and parent. So, it seems, that the neural dysfunction is amenable to alteration, which in turn, alleviates stuttering to some degree.

Apart from the neurophysiologic explanation for relapse is the basic observation that failure and or relapse may be influenced by inappropriate intervention techniques, insufficient time for the intervention to take hold, lack of parental counseling, limited focus on stuttering verses communication and inconsistent incorporation of transfer training (Plexico et al., 2005). Currently, ASHA (1999) recommends at least 18 months of follow-up following dismissal from formal therapy. Dependent upon the client, the follow-up may need to be for a longer period of time. There is evidence to suggest that successful outcomes are supported by addressing multiple factors simultaneously, instituting counseling for parents and teachers who interact with the child, and strategies for long term follow up of at least 18 months or more. Bear in mind that the suggestion that therapy should address multiple factors should not be equated to a "shot-gun" approach to therapy planning and implementation (Blood, 1995).

To summarize, we have briefly discussed the factors associated with limiting the success of some school-based therapy for children who stutter. The discussion has centered on factors

identified by clinicians during the first author's five years of work with clinicians and children who stutter in Southwest Texas. The remainder of the paper is devoted to a detailed discussion of mediated learning and application of basic tenets of this theory to stuttering therapy. In a second paper, three case studies are presented to demonstrate application of the mediations and pre and post outcomes for three children who had experienced limited success in therapy to manage their stuttering until they were enrolled in intense therapy with systematic application of the mediations as described. (Radford, 2006).

Mediated Learning Principles Applied to Therapy to Reduce Stuttering

Mediated Learning is an older theory, developed in the late 1940s by Reuven Feuerstein (Falik, 2006). The theory was an outgrowth of his work with children orphaned as a result of the Holocaust. Mediated Learning Experience has long influenced educational pedagogy and the field of special education. The basic tenets of the theory as applied to develop intervention for stuttering are summarized in Figure 1.

These five tenets are basic to a mediated approach to training. On the surface, the emphasis on creating experiences with fluency may lead one to assume that training is focused exclusively on a fluency-shaping approach. This is not the case; stuttering modification is also implemented for children with severe stuttering who need to address both increasing fluency and decreasing the impact of stuttering.

Another essential component of mediated learning is how the clinician talks to the child. Over the years, the first author has devoted considerable attention to developing graphic organizers to serve as reminders to the clinician-client about purposeful communication to change stuttering moments. Figure 2 is a summary of the 13 graphic organizers representing different ways of framing messages for children to support different responses from the child who stutters. The illustrations in Figure 2 are not arranged in any particular sequence. Therefore, Table 2 provides a summary of Clinician Talk to promote "intelligent behaviors" in children, in the order that such talk strategies would be introduced in therapy. Bear in mind that research to support the use of Graphic Organizers is in the early stages; yet, positive outcomes are accruing and the illustrations to accompany the organizers as well as new descriptors have been influenced by research over the past 4 years since the publication of the *Smooth Talking Curriculum* (Radford, 2002; 2006).

The first important message the clinician should communicate is *persistence*. Children who stutter are prone to avoiding talking or giving up readily when failure occurs. Immediately, the clinician begins to frame messages that encourage increased talking. An example, as listed in Table 2, might be: "Count all the bears in that box. Be sure to count aloud."

The next strategies, incorporated usually in the same session as persistence, are *cognitive flexibility and reflection*. This is introduced to the children as "thinking in a different way and thinking more than one way." Cognitive flexibility might occur after the child has been interviewed regarding their experience with stuttering and/or

drawing a picture to illustrate his or her feelings. This is illustrated by the case studies presented in the article that follows (Radford, 2006).

Figure 1. Basic Tenets of Mediated Learning Applied to Stuttering Reduction

1. Children learn more efficiently when trial-and-error learning can be replaced with guidance from a skilled facilitator (SLP) to avoid making errors. The SLP should increase the child's opportunities to engage in any and all activities associated with speaking fluently. This includes choral speaking, singing, and rote speaking tasks (counting or saying the alphabet).

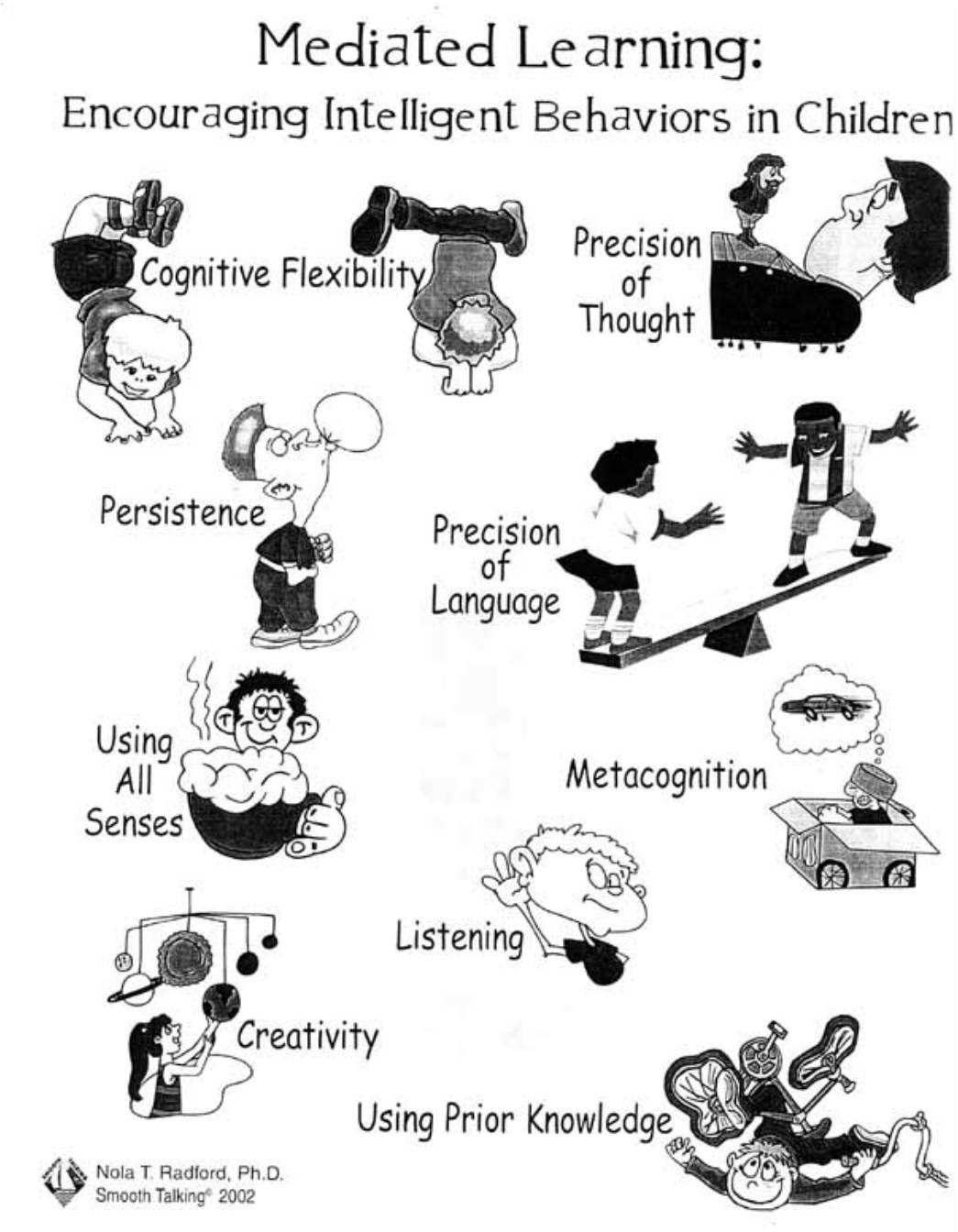
2. Increased experience with fluency rather than stuttering is the goal of therapy, with the clinician carefully manipulating all aspects of the context to establish fluency quickly at some level. "MLE requires an active interaction between the individual, the mediator, and the objects and events in the environment" (Falik, 2006).

3. Stuttering moments represent situational crises. The clinician serves to integrate him or herself in these day-to-day crises—the critical moments for intervention—and facilitate the child discovering methods to lessen the disruption of speech, counteract negative reactions in listeners, and provide strategies, tools and techniques to enhance the child's successful communication and enjoyment of talking. Relaxation and listening tapes are regularly incorporated in therapy in addition to direct counseling occurring with the child, family, and other individuals as needed.

4. Stuttering has negative emotional consequences as the child is influenced by others' reactions to the stuttering. Clinicians must, therefore, incorporate counseling to change how children who stutter view themselves and their stuttering. For children who have difficulty verbally expressing their feelings, a variety of checklists are available and, additionally, for children who like to draw, drawing should be incorporated often.

5.Children who stutter develop stronger schema for stuttering than for fluency. Visual cues, and auditory support can assist in strengthening schema for maintaining fluency. Auditory support may be provided via delayed auditory feedback, frequency altered feedback, or group choral speaking activities.

Figure 2.Graphic Organizers to Illustrate Clinician Talk to Promote Problem-Solving in Children Who Stutter



The graphic organizers are both a clue to the clinician about how to frame messages and a clue to the child about how to respond. Names for the illustrations may be modified as the clinician wishes. Further, the clinician may choose not to use all of the organizers. The organizers are introduced one at a time, during different phases of therapy. These were developed since the first authors' publication of a curriculum to reduce stuttering (Radford, 2002).

If the child expresses fears, depression, anger, or negative feelings about him or herself, a recording is implemented during relaxation periods. Children are taken to a room where they may relax, alone, on a comfortable cot or sofa and are viewed through a 2-way mirror by at least one parent and the clinician. The recording the children hear lasts for at least 5 to 10 minutes. The initial session might be 20 minutes if the child is observed to be listening and lying still. Most parents have been surprised that their active 9 to 13-year-olds would actually lie quietly and listen for this period of time. The children are told that their job is to relax; they may even go to sleep if they wish. While relaxing, they should listen to the message they will hear from the compact disk player. The recording describes how stuttering may make them feel, how the SLP can help, and the final message is that they are "more than stuttering." This experience has proven to be quite emotionally charged for a child discussed in a subsequent article (Radford, 2006). This 12-year-old, who presented with stuttering and language delay, cried as he lay on the couch during the listening activity. According to his parents, this was the first time they really had an awareness of the depth of feeling he was experiencing regarding stuttering.

Moreover, a strength of the material is that the compact disk (CD) was professionally produced by a psychotherapist with whom the first author is collaborating to develop counseling tools for the speech-language pathologist (Price, 2005). As Blood (1995) points out, many clinicians feel awkward with counseling. Beginning clinicians, in particular, may have difficulty recognizing and responding appropriately to stuttering clients' emotional expression. Clinicians' insecurity with stuttering has been described in recent research by St. Louis, Tellis, Taunquin, Wolfenden, and Nicholson (2004). The CD is advantageous as it provides a model of counseling language for the clinician who may have difficulty framing messages.

The relaxation activity represents both a *cognitive flexibility activity* and an activity to promote *focused listening*—listening for particular details about the speech or motor act, and about the language and its impact. Listening, like persistence and cognitive flexibility, is among the first behaviors targeted by the SLP. The reader is again referred to Table 2 for examples of messages to promote listening.

Table 2. Behaviors to Promote Fluency/Communication Management

Behavior	Description	Sample Clinician Talk
Persistence	Encourage Multiple attempts; Practice.	"Try that Again." "Repeat it five times.
Cognitive Flexibility	Encouraging change; Different perspectives.	"I wonder if there is a different way ?
Listening	Use of recorded messages that describe emotions associated with stuttering; methods to cope, outcomes.	This is only one example of listening; listening is basic to All the other behaviors.
Precision in Thought Reflection	Thinking and preplanning. (Here/Now Thinking)	"Take some time to think."
Using prior Knowledge Reflection	Thinking after the fact (Memory)	"Tell me what helped most during your last session."
Precision of Language	Improving word choice; word retrieval; strategies to deal with word fears.	"So, gymnasium is a word that's hard for you now." Do you think that a different word could be used?
Using all Senses	Using visual maps, altered speech and Technology to support Fluency.	"With the DAF set now, I want you continue talking about the picture."
Metacognition	Encouraging the child think about his mood and attitude and how it affects communication.	"So, you feel mad about your speech; you say it makes you look mad and other people may think you are mad at them."
Creativity	Encouraging the child to apply what they have learned in new situations.	"So, today, all on your own, you decided to put a sticker on your desk as a reminder."
Application to new Situations	Transfer training to new people and/or situations.	"You will start school again, soon" "How may we get ready for that?"
Wonderment, curiosity, inquisitiveness, and enjoyment	Are outgrowths of all the influence of the successful application of previous strategies. Occur spontaneously.	Clinician acknowledges examples of the client's behaviors.

Note: Due to space constraints, it is impossible to provide all best examples of the intended behaviors and the clinician's messages to evoke the intended response. Clinicians are encouraged to be systematic and consider how to frame messages for the best result.

Some children, when first interviewed, will exhibit difficulties describing their experiences with stuttering. Children may have language problems that compound their fluency problems. The next strategy *is precision in thought*—planning silently what is to be said or written (which also taps into reflection—thinking about the consequences of what happens). Two of the children in Case Studies 2 and 3 indicated that the words came all at once and it was hard to know what to say first (Radford, 2006). Precision in thought is encouraged by the clinician providing messages to encourage focus on one idea, and clear word choice before attempting to speak. Precision in thought messages might be provided by the clinician during an exercise in retelling a story, or encouraging the child to decide how to explain an activity or process to the clinician or another child.

Using prior knowledge begins the second session. Prior messages are constantly reviewed to maintain the child's focus and to develop his or her ability to talk about stuttering and to demonstrate strategies for managing stuttering and fluency. The clinician might begin by requesting, "Well, tell me what was most important to you from our first time together." During each session, a map or illustration of the key learning for the session is constructed. During each subsequent session, the prior sessions' maps and illustrations are reviewed. An audiocassette CD with a message to the parent is created at the end of each session. This serves as a mini "show-and-tell." The clinician and child create together a message about what happened during the session and what was learned. If nothing new was learned or if it was a difficult session, it is most productive for the clinician and child to acknowledge the difficulty on the tape. A positive consequence of the recording sent home for the parents and child to listen to is that parents *hear a model of how to speak to their child on a regular basis*. Further, hearing examples of the child's increased fluency and/or milder stutters helps to establish a framework for the parent's expectations. Parents are encouraged to send their own taped message back. Parents sending tapes with their own messages is a new strategy that was implemented after completion of the case studies described in the subsequent paper (Radford, 2006). Parent training focuses on increasing the parents' effectiveness in engaging their children in meaningful conversation and interesting reading. The same behaviors encouraged in the child are encouraged in the parents. Further, the talking tape represents *an immediate focus on transfer training*. In the suggested therapeutic approach, relapse management does not begin at the end of an intense therapy period; relapse training occurs simultaneously with the initiation of the first therapy sessions so that the child learns new ways of talking and coping with stuttering from the first session.

Precision of language may occur early in therapy if the child who stutters exhibits language delay. This was the case with the child discussed in Case Study 2 of the subsequent article (Radford, 2006). He exhibited word retrieval problems, difficulty with morphology and syntax that exacerbated his stuttering. So, fluency shaping was implemented in the context of vocabulary building exercises. For example, instead of telling an entire story about a picture, he might have been encouraged to look at a picture and name

as many words as he could think of to tell about the picture. So, for instance, when looking at a picture of a soccer game, he named *teams, ball, goal, net, grass, uniforms, sky, winners, and losers.* Occasionally, the therapist would point to some portion of the picture and say, "What about that?" Often this prompt was directed to some aspect of the picture the child probably could not name. At that point, the clinician would provide a word and it would go in the "word bank" for more discussion later.

Using all senses may occur at any stage during the course of therapy. However, the clinician must be alert to what constitutes too much stimulation. Some children served through the Smooth Talking Clinic have benefited from fewer visual, auditory, and verbal cues. Other children have benefited from simultaneous cue presentation. For example, the child in Case Study 1 of the subsequent article did not tolerate Delayed Auditory Feedback well and requested not to participate in that activity again (Radford, 2006). On the other hand, he had a strong preference for the visual and was taking an art course at the time he was first enrolled in therapy. The child in Case Study 2 of the article benefited from DAF as did the child described in the previously published case study (Radford et. al, 2005). Delayed Auditory Feedback is only one type of altered auditory feedback (AAF) available for use.

Lincoln, Packman and Onslow (2006) reviewed 10 years of refereed journal articles regarding AAF. Their conclusion was that there was no reason to accept AAF as a defensible clinical option for children. In contrast to this conclusion, my case studies indicate that DAF, for example, was beneficial to some older children (10 years and above) who had not been able to use behavioral means alone to achieve fluency at some level (Radford, et. al, 2005). An example of such a child is provided in Case Study 2 of the subsequent article (Radford, 2006). This child benefited from multiple supports/stimulation in the form of reduced speech complexity, visual cues, DAF and verbal prompting. Snyder (2006) refers to AAF devices, including the SpeechEasy©, as prosthetics. Too often, prosthetics have been treated as an "all or none." More research is needed to examine the use of prosthetics with older children to determine the effectiveness of using such devices during extended speaking tasks. Studies might be designed to examine prosthetics as high technology, augmentative-alternative devices which may be used short or long-term—dependent upon older child client needs and responsiveness to the device. AAF devices do provide the clinician a tool for multiple sensory input.

In the later sessions, in addition to multiple sensory input, the clinician may frame messages and devise experiences to increase a child's awareness of his or her own thinking, and evaluating how different thoughts may create a problem or improve the likelihood for experiencing success in different speaking situations. The graphic organizer is labeled *metacognition*. In contrast to reflection and prior knowledge, the child is now encouraged to determine how his or her attitude and mood affect how he or she thinks. So, for example, the child is asked, "Tell me, are you usually happy, or sad, or some other way?" This would be followed by, "What do you think makes you feel that way?" And finally,

"If you feel that way does it cause you to think about things in a different way, "For example, …"

In the later sessions, children will demonstrate *creativity* increasingly, as they figure out new ways to apply what they have learned. So, for example, the child in describing his or her day might mention a difficult talking situation. At this point, the clinician would ask, "Well, what do you think should happen next time?" "If you could change something, what would it be?" "How would you change it?" These questions might have been asked during the initial interview with the child. What will be different in the later phases of therapy is that the child will have changed and will be able to generate some solutions to his or her dilemma without much coaching. Further, creativity will be observed as the child begins to communicate effectively in new situations that have not been the direct focus of therapy. Recall, that a map or visual organizer is generated each session. Further, sample maps are available through previous published work (Radford, 2002). Handouts and other materials are readily available through Stuttering Foundation of America. I have used, for example,

The School-age Child Who Stutters: Working Effectively with Attitudes and Emotions (Chmela & Reardon, 2001).

About the time the child has achieved the fluency goal in structured situations in the clinic and at home, it is time to increasingly target change in less structured settings, particularly during school time. Recall that transfer training begins from the first day of therapy and the child always leaves a sessions with a talking tape or activity to complete at home. The child will be prepared for a visit from the clinician in his or her school setting, with prior notice to the teacher and completion of preparation for a school visit during a time the child is more likely to be talking. The clinician is continually supporting the child's efforts for *application to new situations.*

Wonderment, curiosity, inquisitiveness, and enjoyment will spontaneously develop as a result of success of each experience or successful recovery supported by the clinician. For example, the child client in Case Study 2 came to therapy after school particularly happy and smiling frequently. When the clinician asked why he was so happy, the child responded, "Because I got in trouble at school today." The clinician questioned regarding why he was happy to have gotten in trouble. The child essentially responded that the clinician did not understand—he had actually gotten in trouble with his teacher for talking too much to another student in his class. Being able to talk freely with a peer was not experience for this child prior to this new approach to therapy. His being chastised for talking was a "badge of honor."

As children and their families achieve the desired goals for stuttering management, preparation for gradual decrease in therapy until termination and follow-up is begun. Activities are implemented to assist the child in monitoring his own communication behavior and messages to promote *checking accuracy and precision* are begun. Work to develop local support groups and inclusion in other organizations in Southwest Texas had not begun when this work was terminated due to the first author's relocation. However, children in the Smooth Talking Clinic annually participated in an End of Clinic Party.

Participants exchanged addresses and were encouraged to continue to write and visit each other following "graduation." Clinicians wrote to and called participants one-month post dismissal. In the latest case studies, two of the participants were formally reassessed 3 months post-dismissal, and one was interviewed 6 months post follow-up re-evaluation (Radford, 2006).

CONCLUSIONS

Mediated Learning provides a useful framework for understanding and managing stuttering in school-aged children. We have presented an approach to therapy that includes: (1) increased focus on transfer training from the first day of intervention; (2) increased use of technology to support client persistence in using new behaviors , counseling, and fluency management, as well as management of paperwork; and (3) use of visual cues and graphic organizers to influence children's thinking and clinician's framing of messages to children. In a later article, application of mediated learning will be explored further in the discussion of three cases studies of school-age children who participated in clinics using mediated learning combined with fluency shaping and/or stuttering modification (Radford, 2006).

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