Speech language disorder: interventions and strategies for stuttering

Stuttering is a speech language disorder that causes disfluency, or interruptions of speech that may be either normal or abnormal, to the speaker (Guitar, 2006). The causes of stuttering are unknown, but theories that link stuttering to genetic, epidemiology and environmental exists. Several studies have shown that approximately 68% of children who stutter have extended family who stutter, 39% have relatives that stutter in their immediate family, and 27% have stuttering parents (Ratner and Healey, 1999). According to Guitar, neurologically, scientist believes that the neural connections for talking may be underdeveloped or disturbed by an excess of emotional activity in the brain (Guitar, 2006). Environmental triggers like stress can activate the onset of stuttering during early childhood. Some incidences of stress induced stuttering may occur soon after a sibling is born, during a move to a new neighborhood or school, or criticism of speech at school (Guitar, 2006).

This speech disfluency affects people of all ages, creed, cultures, and races in all parts of the world. According to Guitar, stuttering has five distinct stages all having unique characteristics (2006). The stages of stuttering disfluencies are normal, borderline, beginning, intermediate, and advance (www. coloradospeechinstitute. com). According to the Colorado Speech Institute, normal and borderline stuttering do not display any tension or adverse feelings or attitudes because the disfluencies may go unnoticed. The characteristics of normal disfluency consist of the disfluencies occurring less than ten times per one hundred words and have the multisyllabic and phrase repetition, revisions, and interjections. When repetitions of words are present, the words are slow and even and two or fewer occur per repetitive

instance (www. coloradostutteringtherapy. com). Borderline stuttering have two or more disfluencies per one hundred words. More than two parts -word and/or single syllable whole -word repetition are exhibited as the stutter speaks (www. coloradospeechinstitute. com).

Beginning through advanced stuttering exhibit feelings of tension and adverse feelings and attitudes because the awareness of the disfluency is conspicuous and the speaker begins to feel frustration, shame, embarrassment, or fear (Guitar, 2006). In 2006, Guitar stated that beginning stuttering presents the emergence of prolongation and the repetitions are fast and abrupt, with a noticeably louder pitch. The child may display facial tension and difficulty initiating airflow (www. coloradostuttering therapy. com). Intermediate stuttering has all of the above characteristics in addition to avoidance behavior and periods of blocks, inappropriate ending of sound and air, due to the immobility of the tongue, lips and/or vocal folds (Guitar, 2006). In the last stage, advance stuttering, the speaker has all of the above characteristics in addition to tremors, but the stutterer is fourteen years old or older and need an adult centered treatment program (www. coloradospeechinstitute. com).

According to Guitar, beginning, intermediate, and advance stages of stuttering exhibit a higher affect on the child's cognitive, behavioral, physical, emotional, and social development as well as their ability to learn and interact with one another (2006). Then normal and borderline stages do not have major impact on such areas because the disfluency may go unnoticed until it advances to the next level where prolongation and tremors begin. Stuttering puts a developmentally strain on the child because it places

an intense speech and language demands on the immature central nervous system (Guitar, 2006). According to Guitar, the brain is much like a computer in its ability to multitask simultaneously, but too many demands can cause it to perform slower and inefficiently, which happens to the developing brain of a child (2006). When the processing capacity of the brain is compromised, the language development of the child becomes more developed than the speech motor control skills, and it gives the child much to say but a limited capacity to say it (Guitar, 2006).

Stutterers usually compare themselves to others and formulate " self-conscious" emotions of pride, shame, guilt, fear, and embarrassment from what they observe (Guitar, 2006). According to the National Institute for Deaf and Other Communication Disorders (NIDCD), children who do not naturally recover from stuttering develop maladaptive responses and self-regulatory skills like tension, escape, and avoidance responses, sucking thumb, nonverbal communication, withdrawal, and becoming introverted (www. nidcd. nih. gov). Stuttering takes a toll on the child's social, emotional, and behavioral development. As the stuttering progresses, a self awareness develops into embarrassment, jealousy of peers, and other difficult emotions. Rather than feeling secured and confident, a child who stutters sense of security is threatened and is very self-aware of the disfluencies. This may lead to self-corrections, which only worsen the problem (Guitar, 1999). The social-emotional traits, according to Guitar, from this fearfulness lead to withdrawal and sensitive temperament (1999).

There have been proven research based classroom, behavioral, and instructional management strategy that have positive results. The strategies

and intervention that are proven are (1) The Lidcombe Therapy, (2) Self Modeling Strategy, (3) Stress Reduction, (4) and assistive technology. The Lidcombe Therapy focuses on the behavioral management of students who stutter (Miller & Guitar 2009). The self modeling strategy can be utilized within the classroom instructional setting. Stress reduction is another behavioral and instructional intervention. The use of assistive technology is beneficial on an instructional and behavioral management level. Within each intervention, special and general education teachers and related services personnel in addition to parents can utilize the strategies to improve and manage the severity of stuttering. The Lidcombe Program is a parent-driven operant conditioning based behavioral treatment for early stuttering (Hayhow, 2009). This is a 2 phase program, ranging from 1 to 2 years, that is set in the child's natural setting (Guitar & Miller, 2009). According to Guitar and Miller's 2009 research, the parent will utilize verbal contingencies during natural conversations for both stutter free and stuttered speech during phase one. As the child displays stutter free speech for three consecutive visit, then phase two will begin.

Phase two is a continuation of phase one, but parents reduce the events of verbal contingencies and use a quantitative measure to score the rate of stutter free and stuttered speech (Guitar & Miller, 2009). During the second phase, parents and speech language pathologists will identify triggers causing stutter free and stuttered speech (Hayhow, 2009). To improve the frequency of stutter free speech, the adults will reduce or eliminate the triggers. Phase 2 will end one year after the ending of phase 1 (Guitar & Miller 2009). According to Hayhow, quantitative research have shown that

the Lidcombe Program is a successful tool of treatment for eliminating stuttering in children of 6 years and younger (2009).

Parents, while helping their child at home can use this program easily because the Lidcombe Program is completed in the child's natural setting with their parents. During stage 1, daily structured and subsequent daily unstructured conversations are administered by a parent in everyday situations to determine any triggers of stuttered speech (Hayhow 2009). Parents will find triggers and try to eliminate them from the child's environment to improve the frequency of stutter free speech. According to Hayhow, parents then use the information received during the treatment procedure in their daily lives (2009). In many situations, there was a steady transfer from parental control to their children controlling the stuttering triggers because of the daily implementation (Hayhow, 2009). Parents can easily collaborate with the special education, general education, and related services personnel to help the child's success outside their natural setting.

Special and general education teachers and personnel can implement the results of the Lidcombe program within the instructional setting. This can be accomplished with direct and constant collaboration with the parents because the Lidcombe Program is primarily parent directed. One way teachers and personnel can use the result of the program is utilizing " talk-time"(Hayhow, 2009). " Talk-time" is a 15 minute teacher led motherese like conversation with the student using slower than average speech rate, short and simple sentences, and chunking words together. Teachers take the opportunity to teach students how to speak slower through differentiated instructions and altering oral presentation (Guitar & Miller, 2009). With every

opportunity, teachers should judiciously praise, acknowledge stutters, correct the stutters, and evaluate the child's progress.

Self Modeling Strategy, or speech restructuring, is an effective technique that uses range of novel speech patterns for the improvement of stuttered speech (Cream, O'Brian, Onslow, Packman, & Menzies, 2008). Speech restructuring begins with an instatement or an establishment stage in which the stutters learn an extremely unhurried exaggerated form of speech model (Cream et al, 2008). This speech pattern is then used at methodically increasing the pace until normal speech rate is fairly accurate and the stutterer can consistently construct extensive samples of restructured stutter-free speech (Cream, O'Brian, Onslow, & Packman, 2010). According to Cream et al, self modeling strategy utilizes self-evaluation, performance contingent maintenance, and personal construct therapy, supplementary fluency training and cognitive or anxiety treatment (2008). Under this strategy, video self-modeling or VSM is a process in which stutterer views 5 minute video images of themselves with stutter free speech and free of problem target behaviors.

Yaruss (2006) claimed that four techniques to the Speech Modeling Strategy that parents, teachers, and personnel can use has also been shown to hold positive results, based on his research, that when certain aspects of communication are modified can ease children's production of fluent speech. During communication modification, the specific targeted areas are (a) use and exhibit a simpler and more relaxed manner of speaking; (b) use of increased gaps between each speaker's turns to decrease time pressures a child may have when communicating; (c) reduce of burden to speak and

increased time pressures often associated with " rapid-fire questioning", if present; and (d) reflecting, rephrasing, and expanding on children's utterances to provide a positive communication mode.

Instructionally, special and general education teachers can utilize the VSM technique of the speech restructuring process to help their students overcome their speech impediment. The students will go through a process called self-efficacy to identify their own capacity to speak without stuttering (Cream et al, 2008; Cream et al, 2010). Cream et al reported the use of VSM in an instructional setting with three students who had completed speech restructuring treatment. The three 5-minute VSM videos were supplied for each student showing their stutter-free answers to teacher questions during academic lessons and the stutterers will give a self-reflection to the teacher (2010). There was a considerate decrease in stuttering for 2 out of 3 students during the 12-18 months the VSM technique was utilized. Related service personnel, like speech language pathologists, can implement the VSM during sessions to track the progress of the child's stuttering (Cream et al, 2010). Speech restructuring with the VSM technique is also useful tool for parents to use at home. Using this technique at the child's natural setting is a behavior management strategy. Both parent and the child can review the short videos and self-reflect together to improve the likelihood of stutter free speech.

According to Guitar (2006), stress has been linked with stuttering. There are small tremors in everyone's muscles that are amplified when faced in a stressful event. The strain on the tremors during these stressful moments may cause an increase in the stuttering disfluency (2006). If moments of

stress can be identified and reduced or eliminated, then the frequencies of the disfluencies will be reduced as well. In Yaruss 2006 research, he mentioned that improving a stuttering disfluencies by identifying the precise tension on a stressor inventory are supported on the idea that children's fluency is affected by the environment they are in and how their reaction is to that environment stressor, including their temperament. If parents, teachers and related service personnel can work together to identify any, and if possible, all stressors that aggravate the child's stuttering, than the outcome of treatment may increase both at home and in the academic setting.

Yaruss suggests that parents, educators, and all service related personnel should complete a stressor inventory intended to recognize individual characteristics of the child and environmental issues that may influence the child's capability to speak freely and converse efficiently (2006). If collaboration exists between parents and educators, each will completes the inventory independently, then each educator and parent insight can be analyzed (Yaruss, 2006). By focus on the relationship between the stutterer and his/her surroundings, than the speech language pathologists can work with both educators and parent to personalized the management toots to each child's specific needs. After all stressors are identified, each member works together to recognize ways to eliminate or lower the force of each stress even. An example of this in the instructional level is if student feels unprepared during asking questions in oral reading assignments, teachers can reduce the stress by informing the child ahead of time of the question he/she is to answer. At home, if the child feels pressure to tell family

members about his/her day at school, a way to reduce the pressure is for the parents to set aside periods to talk.

Assistive technologies are products and mechanical aids which are replacements for or to improve the function of some bodily or intellectual capability that is hindered (Williams, 2006). For speakers who stutter, the assistive technology device that is available to them is called SpeechEasy. SpeechEasy is a convenient and subtle fluency improving device that is much like a hearing aide. SpeechEasy is a prosthetic device that fits in or behind the ear. This device is intended to imitate choral speech. Choral speech is an occurrence that promotes fluency among stutterers by speaking in unison. SpeechEasy creates a choral speech pattern though Altered Auditory Feedback (AAF). AAF combines Delayed Auditory Feedback (DAF) which allows stutterers to hear their voice with a slight delay (echo) and Frequency Altered Feedback (FAF) which allows stutterers to hear their voice with a shift in the pitch (higher or lower) (Williams, 2006). Through AAF, SpeechEasy produces an illusion of choral speech to improve the fluency of stutterers. This assistive device is very effective in reducing the stuttering occurrence by 75-85% (Pollard, Ellis, Finan, & Ramig, 2009). Teachers, parents and related service personnel can used this device in additions to any communication modification therapy. The SpeechEasy as an addition will strengthen the effect of the therapy and decrease the likelihood of children relapsing, especially those at the intermediate and advanced stages in stuttering (Pollard et al, 2009).

Stuttering is a lifelong challenge that network, strategies and interventions must be in place continuously. The information described about students

with speech impairment, in the area of stuttering, had a huge impact on my future as an educator, related service personnel, and parent working together and educating students within this area of need. The primary notion is that using strategies and interventions without collaboration proves null. A child with disability, especially in the area of stuttering, needs constant interventions that must be generalized throughout his or her day. If the skills that the child learns at school are not practice at home and vice versa, the idea of overcoming the disfluency may not happen.

When it comes to collaboration, the focus must be on the child and what is best for their success. With the four interventions mentioned above, (1) Lidcombe, (2) Speech Modeling, (3) Stress Reducer, and (4) SpeechEasy, researches have shown that majority of the achievements begin with the parents, then the parents providing quantitative and specific tools to teacher and personnel. The teacher and personnel must take the information given and implement it within their instructions to nurture the whole child.

In conclusion, the information discussed in the articles read and summarized has provided a foundation to begin working with students who stutter. The VSM technique in the Speech Modeling intervention is the most cumbersome because of the extra video equipment needed. First, it may not be possible for teacher or school administrators to supply camcorders to record student speaking fluently. Secondly, it may also be impossible to actually get a 5 minute clip of the student speaking fluently. Lastly, if parents in the classroom do not give consent to videotaping, the school cannot record the child. The Stress Reducer strategy is the most effective for budget conscience school and the child's parents. Parents, teachers, and related

service personnel collaborating to identify the stress triggers focuses on the whole child, inside of the classroom and at his or her own natural environment. Knowing and reducing the stress will lead to the child effectively speaking fluently around the clock and not during specific hours in the day.