A Multidimensional Approach To Assessment and Treatment of Stuttering in School-Age Children

Assumptions and Perspectives:

1. "One of the most striking things about stuttering is its individual variability" (Starkweather, 1999).
2. The variability of stuttering underscores the importance of focusing on individual differences from a multidimensional perspective.
3. Unfortunately, the variable patterns of stuttering in children create major challenges for the clinician when assessing and treating the disorder.

Some Recent Multidimensional Models of Stuttering

- Starkweather (1997) & Starkweather, Gottwald, & Halfond (1990): **Demands & Capacities Model**. This model focuses on the relationship between self-imposed or environmental speech demands and the speaker's capacities (speech motor, language formulation, social-emotional maturity, and cognitive skills).

Some Recent Multidimensional Models of Stuttering

- Smith (1999): Proposed that stuttering is a dynamic disorder, with many processes can be observed at multiple levels, within a wide range of time, with multiple tools. The main feature of Smith's model is that all individuals who stutter experience a breakdown in speech motor processes that are influenced by a variety of factors.

Conceptual Framework for Our Multidimensional Model of Stuttering

Our multidimensional model of stuttering accounts for:

- The dynamic nature of the disorder and changes that occur over time.
- Multiple factors (cognition, emotions, motor speech processes,linguistic skills and social interactions) contribute and interact in a complex way to maintain stuttering.
- The heterogeneity of the stuttering.
- Individual patterns and profiles that emerge from an assessment which provide direction for planning treatment.

Our Multidimensional Model of Stuttering

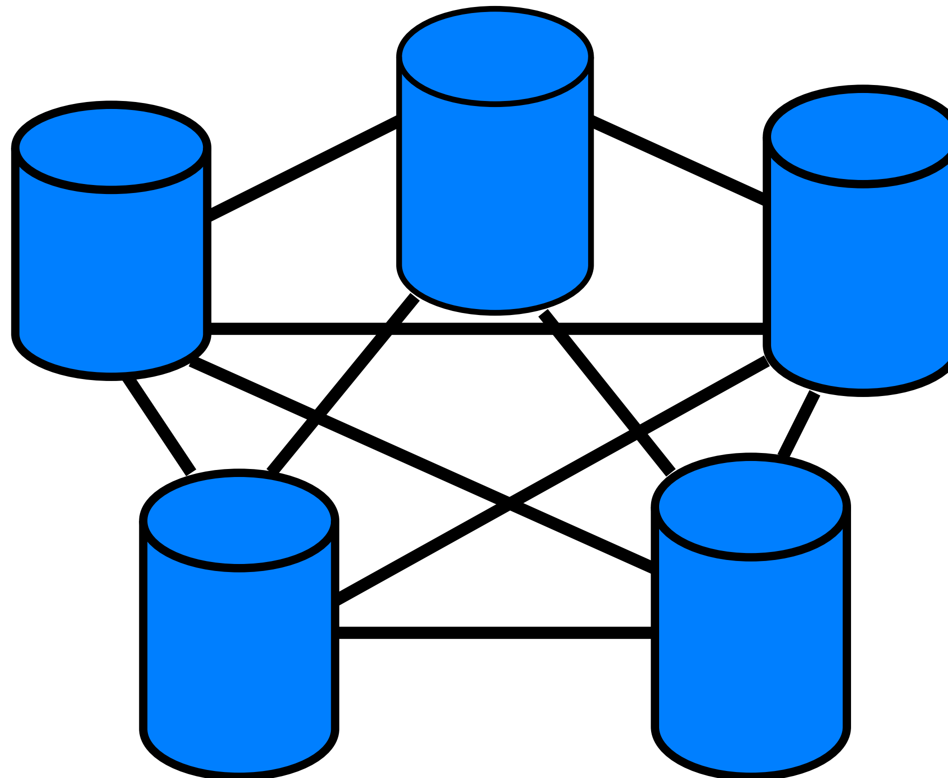
Stuttering is related to a complex interaction of five factors which include **C**ognitive, **Affective**, **L**inguistic, **M**otor, and **S**ocial components.

We refer to this as the **CALMS Model** (Healey, Scott-Trautman, and Susca, 2004).

The CALMS Model of Stuttering

Affective - feelings, emotions, attitudes

Cognitive
- thoughts
- perceptions
- awareness
- understanding



Linguistic
- language skills, lang. formulation demands & discourse

Social - effects of type of listener & sp. situation

Motor - Sensori-motor control of speech movements

Using the CALMS Model as a Framework for Assessment: The CALMS Rating Scale

- A rating scale has been developed for school-age children who stutter. This Rating Scale is based on a 5 point scale
- The rating scale accounts for both subjective and objective measures of performance.
- Data based judgments should be the focus of as many ratings as possible.

Rating Scale (con't)

- Items selected for use under each CALMS component are based on typical information obtained in an evaluation of stuttering.
- A mean score is obtained for each component. Each average score will be used to develop a graphic CALMS profile of performance.
- Refer to Rating Scale Handout

Case Example- Kyle (12)

- **Cognitive** (Mean Score = 4.0 Moderate concern about his thoughts, knowledge and perceptions)
  - Moderate difficulty recognizing when and where disfluencies occurred.
  - Moderate negative perceptions and thoughts about being a person who stutters.
  - Moderate concern about what others thought about his speech.
  - Minimal understanding of stuttering.
  - Minimal understanding of why the speech modification strategies he was taught are helpful.

Kyle's Profile

- **Affective** (Mean Score= 4.4- Moderate-Extreme concern about his emotional, attitudinal, and feelings about his stuttering)
  - Stated that he "hates stuttering a lot" and "stuttering is awful."
  - Feels bad about being teased when he stutters.
  - CAT score = 26 (mean for CWS= 17.3, SD = 7.7) His score is between 1 and 2 standard deviations from mean for CWS so his CAT score is rated a "4."

Kyle's Profile

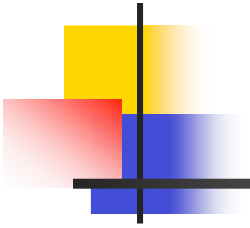
- **Linguistic** (Mean Score = 2.8- Mild concerns about linguistic skills that support fluency).
  - Fluency is improved with contextualized materials.
  - Becomes highly disfluent when speech context is decontextualized.
  - Difficulty creating stories in oral and written form.

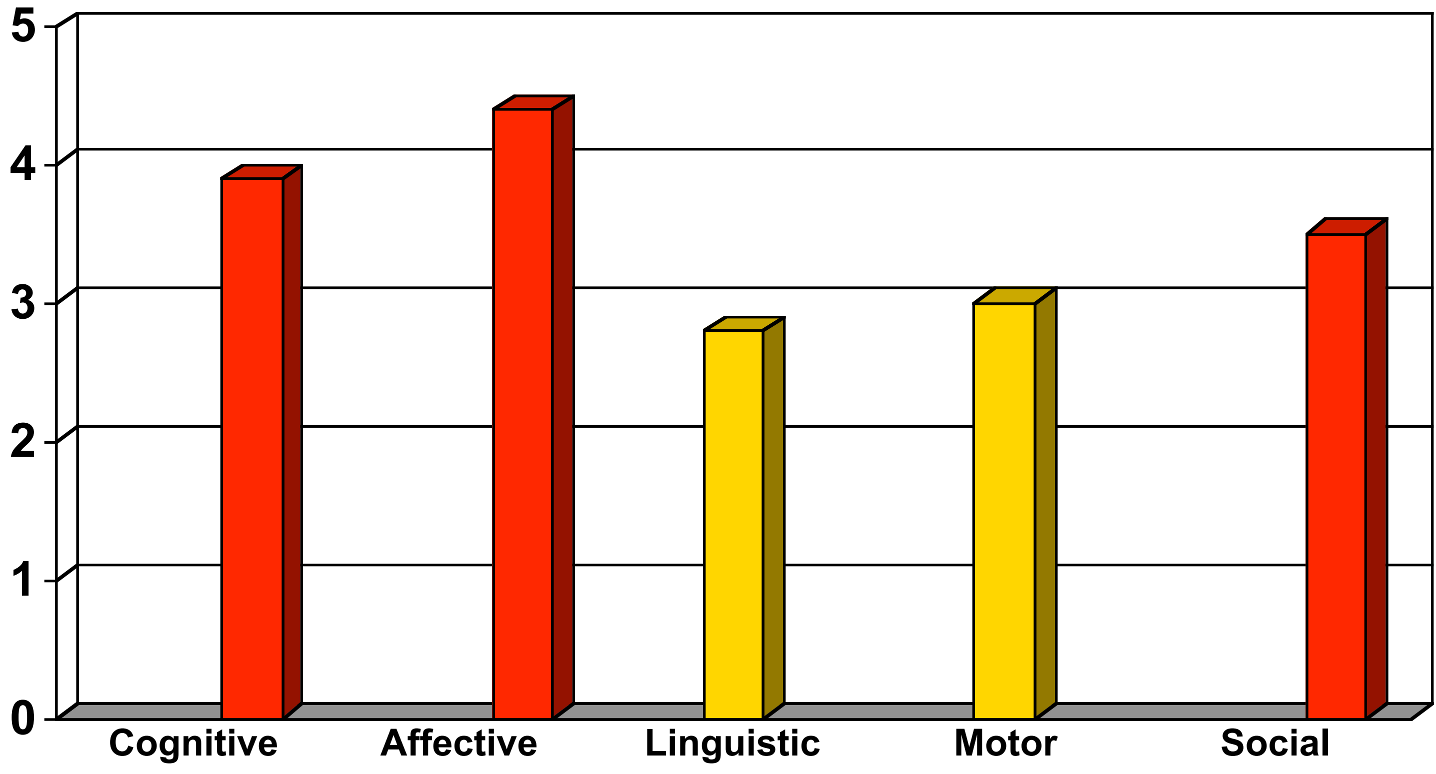
Kyle's Profile

- **Motor** (Mean Score = 3.1 Mild concern about stuttering frequency, type, and severity)
  - Multiple part-word repetitions and silent sound prolongations characterize stuttering pattern.
  - Tense articulatory posture during prolongations.
  - SSI-3 score = 18 (rating = "3")
  - Frequency of stuttering with various partners unverified, therefore, not rated.

Kyle's Profile

- **Social** (Mean Score = 3.5 Mild-Moderate concern about how stuttering affects his relationships with friends and listeners)
  - Stuttering frequency varies considerable according to type of listener and speaking situation.
  - Self conscious about stuttering around friends.
  - Small circle of friends.
  - Becoming less social because of stuttering.




5
4
3
2
1
0
Cognitive
Affective
Linguistic
Motor
Social

Bridging the Gap Between Assessment and Treatment

- Given the dynamic, unique profiles of each child, the next question is, “How does the profile assist in the development of treatment goals and objectives?”
- The profile shows area(s) of concern that may need to be addressed more specifically than other components. The decisions a clinician has to make relates to which areas need addressing in treatment.

Treatment Using CALMS Model

- Cognitive
- Affective
- Linguistic
- Motor
- Social

- Better thinking and understanding
- Reduce negative feelings and attitudes
- Control & shift linguistic demands to improve fluency
- Focus on speech skills that enhance fluency and modified stuttering
- Use of skills in realistic speaking situations, transfer/maintenance

Suggested Cognitive Component Treatment Activities

1. **Talk about talking**: Discuss the differences between normal fluency, normal nonfluencies, and stuttering. Use voluntary stuttering to produce imitations of child's stuttering pattern. Focus on physical (Motor) and emotional feeling (Affective).

2. **Increase knowledge of stuttering**: Use books/websites about stuttering…develop a trivia contest about stuttering:
   a) Children: Sometimes I Just Stutter (SFA)
   b) Adolescents: A Guide for Teens (SFA)
   c) Main website: www.stutteringhomepage.com

3. **Improve understanding of the speech mechanics & stuttering:** Focus on how physiology of speech is connected to feelings and disfluent speech. Use a diagram of speech mechanism

Cognitive Component Treatment Activities

4. **Increase self monitoring of stuttering:** Use reading or story retelling tasks.
5. **Change negative thinking**: List negative thinking about stuttering and discuss a more positive way to look at each statement listed.
6. **Develop question of the week**: Clinician and/or client driven questions.
7. **Journal**: With older children, have them journal responses to certain questions, perceptions, insights, awareness.

Suggested Affective Component Activities

1. **Playing with Stuttering:** Use voluntary stuttering to reduce anxiety, sensitivity, and fear of stuttering.
   - Teach child to stutter in different ways and play with stuttering
2. **Teach others how to stutter:** Have child grade the performance.
3. **Use objects to represent stuttering and labels for emotional reactions:** Create a "stutter monster." Label & draw feelings child has about stuttering.
   - Clay figures, balloons, paper toss

Suggested Linguistic Component Treatment Activities

1. **Select theme or topic:** With child's input, select a topic of discussion that will support the communication interactions in therapy.
2. **Systematically increase linguistic complexity**: Support responses with contextualized speech contexts and then move to decontextualized speaking tasks. Also, increase the flexibility in language use through changes in semantic complexity.

Linguistic Component Treatment Activities

3. **Use linguistic context to support speech modification skills:** Across sessions, build on success but also challenge the child to managing speech at higher levels of language use.

4. **Integrate linguistic level with other CALMS components:** For example, at a given linguistic level, have child focus on self monitoring of a speech strategy while describing, interpreting, discussing, etc. while maintaining eye contact with clinician and/or different listeners. Afterwards, probe the child’s feelings and emotions.

Suggested Motor Component Treatment Activities

1. *Increase use of speech modification strategies*
   - *THE 3 D's (Shapiro, 1999)*
   - **<u>Discuss</u> (explain) how fluency and stuttering are produced. Draw it and map it out.**
   - **Repeat explanations often. Have child put into own words.**
   - **<u>Demonstrate</u> (show) what happens during fluency and stuttering.**
   - **<u>Drill</u> (practice) skills that promote fluency. When a stuttered moment occurs, have child explore what needs to change. Make technique sound natural.**

Motor Component Treatment Activities

2. **Create speech "Tool box":** using a tool box analogy to select core set of strategies.
   - Easy onsets of phonation, rate reduction, light contacts, easy-relaxed & smooth movements, voluntary stuttering, pullouts and cancellations.
3. **Contextualize, Conceptualize, Generalize**: Use diagrams, drawings, analogies to help child understand how and why each strategy helps make talking easier.
   - Mountains or slide for easy onsets of phonation.
   - Stretched words and hooked words for continuous phonation.

Motor Component Treatment Activities

- Four wheel drive out of mud or gradual opening of clinched fist for pullouts.
- Butterfly landing on flower or any light touch for light articulatory contacts.

Generalize strategy use to a variety of speech situations and with a variety of listeners.

4. **Have child rate performance**: Use 1-5 rating scale for evaluating success of performance. Clinician and child compare ratings.

Suggested Social Component Treatment Activities

1. **Don't hide stuttering**: Focus of activities is on removing avoidances and fears associated with speaking in a variety of situations to a variety of people.
2. **Homework Assignments**: Develop speech practice contract and negotiate conditions of the assignment (who, when, where, how long, topic of discussion, skills that will be practiced, etc.)

Social Component Treatment Activities

3. **Role play various speaking situations**: Begin with school related communicative interactions and with different communicative partners (peers, teachers, school secretary, paraeducators)

4. **Take therapy on the road:** conduct therapy in environments other than treatment room and/or classroom.

Final Thoughts

- Approach therapy as a dynamic, multidimensional process. Many factors interact to maintain the disorder and multiple factors need to be addressed in therapy.
- There isn't one approach that will work for all children who stutter. Tailor the therapy to the needs of the child through decision making and problem solving.
- Children who stutter need to see that they should not hide from their stuttering, that it's OK to stutter, and with time and effort, they can learn to talk in an easier way.
- The ultimate treatment goal is to help a child believe, feel, and talk in a way that's comfortable for him/herself.