The Demands and Capacities Model (DCM)

Presented by:

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- "Stuttering results when *demands* for fluency from the child's social environment exceed the child's cognitive, linguistic, motor, or emotional *capacities* for fluent speech."

  - C. Woodruff Starkweather

What is the Demands and Capacities Model?

- This model was developed in 1990 by C. Woodruff Starkweather.

- This model analyzes the internal and external factors that influence the production of fluent and non-fluent speech in children.

- The model proposes that children who stutter (CWS) possess genetically influenced tendencies for disfluent speech.

What are Demands and Capacities?

- Capacities: Inherited tendencies, strengths, weaknesses, and perceptions which may influence the child's ability to speak fluently.

- Demands: May be put on the child on his/her behalf or through other listeners. Examples of possible demands include rapid rate of speech, and speech continuity. Demands may change and intensify as the child matures.

The four dimensions of the DCM

■ According to the DCM, the onset and development of stuttering is based upon four dimensions:

1. Motoric
2. Linguistic
3. Socio-emotional
4. Cognitive

1. Motoric

- The most important motoric demand is **time pressure.**
- Examples of motoric demands:
  1. Speaking when someone is waiting for a response
  2. Producing more complex or longer utterances
  3. Saying the individual's own name
  4. Answering the phone
  5. Repeating oneself in response to clarify the message or repair a communication breakdown
  6. Speaking when everyone is in a hurry (i.e., leaving for school)

1. Motoric (cont'd.)

7. Time pressure is also imposed when parents or other communication partners speak too rapidly in the child's presence, thus creating the notion that time is limited and information is expected.

8. Negative listener reactions, such as interrupting the child when speaking or finishing the child's sentence may also impact the child's fluency.

9. High levels of emotionality and excitement also are potential sources of time pressure.

10. Competition and lack of turn-taking may also increase the child's anxiety level when attempting to communicate.

11. Lastly, the request or encouragement of the child to recount past events may also affect fluency. This limits the child's spontaneity of conversation and places time pressure on the child.

2. Linguistic

- This dimension includes the semantic, syntactic, phonological, and pragmatic aspects of language use.

- The linguistic areas that enhance the prevalence of disfluent speech include: word-retrieval, sentence formulation, complex phonological combinations, and difficulty in using the appropriate form for social circumstances.

- Difficulty with word-retrieval or sentence formulation may lead to a slower rate of speech which thus increases the level of anxiety experienced by the child.

- For instance, children with a vast array of lexical knowledge, require more time to identify and select appropriate vocabulary terms to formulate sentences and to convey messages.

3. Socio-emotional

- The two most common emotional states that increase the prevalence of stuttering in children are: excitement and anxiety.

- These emotions increase the child's oral motor muscle activity thereby decreasing their fluency.

- It is important to recognize that events which excite or produce anxiety in children differ greatly from those that excite or produce anxiety in adults.

4. Cognitive

- The ability to use metalinguistic skills (i.e., formulation of thoughts and the processing of thoughts to convey a message).

- Stuttering typically occurs before metalinguistic skills evolve and fully develop.

- One important aspect of this capacity is that communication skills occur more naturally with less cognitive effort.

Tips for parents

- Avoid placing too many expectations and requirements on the child especially during stressful activities (i.e., toileting, academic coursework).
- Reduce comments on the child's eating habits (i.e., avoid making the insinuation that the child is a "sloppy" eater.)
- Remember that environmental demands make it more difficult for the child to move his/her speech structures smoothly and quickly.
- Refrain from making negative comments about the child's speech (i.e., "slow down"). Focus on what message the child is trying to convey, and not how it is produced.
- Early intervention is key! Be informed and educate yourself about ways to support fluency development, appropriate prevention, and intervention strategies.

Criticisms of the DCM

- The vast array of demands and capacities available in the child's environment result in a limitless number of possible causes for stuttering.

- This model is difficult to test due to a lack of measurable capacities.

- A relationship between a child's demands and capacities has yet to be distinguished; therefore, no identifiable thresholds are available.

- Circular Reasoning - stuttering occurs when demands exceed the child's capacities, indicating that the demands are too great for the child.

Is this model supported by Evidence-Based Practice (EBP)?

- Additional research is needed to identify the specific relationship between a child's capacity to communicate versus the demands of rapid speech.

What is our role as the Speech-Language Pathologist (SLP)?

- This model provides SLPs with the basis of a comprehensive and clear direction for treatment.
- Using this model, clinicians can help strengthen the child's capacity for production of fluent speech.
- Remember…the goal of treatment for young children is to increase their level of spontaneous or "normal" fluency.
- Within therapy sessions, Starkweather suggests that clinicians use the first ten minutes to reassess the child's needs and any environmental changes.

What is our role as the SLP? (cont'd.)

- When providing intervention, remember that a child's inherent capacity for fluency cannot be changed. As a result, clinicians can make light of the situation by educating the child on how to use their speech mechanism in a more efficient manner.

- During intervention, keep in mind that manipulation of the child's communication environment leads to an increase in fluent speech.

- Lastly, clinicians should educate parents about their role in supporting fluency development, prevention, intervention strategies, and appropriate behavior-specific feedback.

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