International Conference on Logopedics

Fluency Disorders:
Theory and Practice

University of Silesia
Katowice, Poland

Evidence-based multi-dimensional assessment leading to multi-modal treatment

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Thank you

	DIAGNOSIS	
REALITY	**PWS**	**PWNS**
PWS	**Hit/Correct Acceptance** **Correctly diagnose someone a PWS**	**Miss/False Negative/ Type II Error** **Diagnose someone a PWNS when he/she actually is a PWS**
PWNS	**False Alarm/ False Positive/ Type I Error** **Diagnose someone a PWS when he/she actually is a PWNS**	**Hit/Correct Rejection** **Correctly diagnose someone a PWNS**

Multi-dimensional evidence-based approach to diagnostic and therapeutic decision making

- *Different dimensions* characteristic of the PWS
- *"Evidence-based"* test procedures
  - differential diagnosis
    - PWS
    - PWNS
    - Other fluency disorders
  - point to *individualized* strategies and *tactics* of *therapy*

My client is a moderately-severe person who stutters…..

Now what?

"Two people viewing an event
(… stuttering) are unlikely to abstract the same attributes of it and are unlikely to describe it in the same way" (Silverman,1996)

- Unreliability of "stutter" count
- Lack of between- and within-listener agreement
- Count procedures differ
  - Number of words
  - Number of syllables

- Unreliability brings into question the *validity* of the measurement of
  - Severity
  - Improvement
- Reliability increased by more precise *molecular* definition of stuttering

Molecular analysis has shown that

- PWNS
  - Also disfluent
  - Disfluencies NOT clinically significant in type or amount
- PWS
  - More fluent than dysfluent
  - Characterized by more than dysfluencies
  - Dysfluencies differ in type and amount from those of PWNS
- Other disorders have an effect on fluency
  - Neurogenic
  - Psychogenic

- "Though observable speech dysfluencies … [are] an essential element in labeling one a stutterer… the label does not apply unless the dysfluencies are accompanied *by feelings*, *attitudes*, and *other behaviors* characteristic of the stuttering syndrome" (Cooper, 1999, p.10)
- Assessments of the PWS are more often *uni-dimensional*, focusing on speech dysfluency. This practice results in a "*tunnel vision* " view of the stutterer (Conture, 2001)

⇨ **need for a *multi-dimensional* assessment**

- The nature of the *intrinsic features* of the problem faced by stutterers, often goes unattended during assessment and treatment (Conture, 2001; Manning, 1999)
- The definitive features of stuttering are *experiential* rather than observable (Perkins, 1990)

⇨ **Self-report measures**
a *view from 'within'*

Behavior Assessment Battery

Martine Vanryckeghem and Gene J Brutten

A Multi-Dimensional
Evidence-Based Approach
to Differential Decision Making

Behavior Assessment Battery:

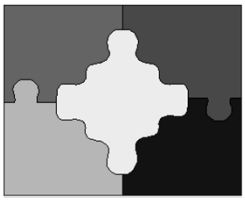
- Use of clinician *observation* and client *self-report* (standardized and normed)
- Assessment dimensions must be
  - Specifiable
  - Operational
  - Reliable
  - Valid
- Information obtained through the test's dimensions assists in reducing Type I and II errors

Assessment Procedure

- Case history form
- Diagnostic assessment session
  - Self-report
  - Clinician observation
    - Dysfluency during reading and extemporaneous speech
    - (physiological measures)
  - Client interview

BAB

- Assessment involves:
  - Affective
  - Behavioral
  - Cognitive



- **A**ffective reactions to
  - Sounds, words
  - Speech situations
- **B**ehavioral
  - Stuttering behaviors and other disfluencies
  - Coping behaviors
    - avoidance and escape
- **C**ognitive
  - Belief about speaking ability
  - Attitude towards speech

~~My client is a moderately-severe person who stutters…..~~
~~Now what?~~

My client has specific problems as it relates to A, B, C components

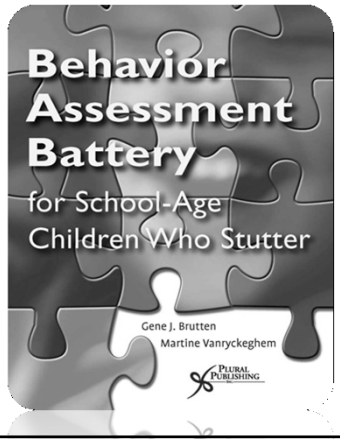
GENERAL EMOTIONAL REACTION

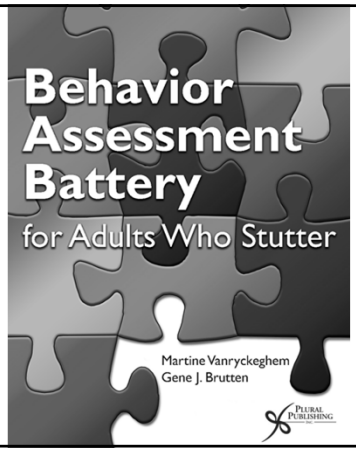
- Self-Report Measure
  - Using a standardized test to screen for significant general anxiety or social anxiety
- [Physiological measure]
- Interview

If the anxiety self-report test and/or the physiological measures during silence reveal a significant amount of general or social anxiety
⟹ refer for a psychological evaluation

SPEECH-SPECIFIC MEASURES

- Speech-Situation Checklist
  - Emotional Reaction
  - Speech Disruption
- Behavior Checklist
- Communication Attitude Test
- Speech performance
  - Extemporaneous speech
  - Silent and oral reading





SPEECH SITUATION CHECKLIST© (SSC)

Emotional Response (SSC-ER)

Speech Disruption (SSC-SD)

SSC-ER

- Assesses negative emotional reaction (concern, worry, fear, anxiety)
- To interpersonal *situations*
  - talking on the telephone
  - ordering in a restaurant
- To specific *sounds* and *words*
  - giving your name
  - reading an unchangeable passage aloud

Speech Situation Checklist - Adults: Emotional Response

11. talking with a sales person	1 2 3 4 5
13. being criticized	1 2 3 4 5
14. meeting someone for the first time	1 2 3 4 5
17. reading an unchangeable passage aloud	1 2 3 4 5
21. being interviewed for a job	1 2 3 4 5

Speech Situation Checklist - Children: Emotional Response

12. share or give an oral report in class	Not afraid	A little afraid	More than a little afraid	Much afraid	Very much afraid
14. tell a story	Not afraid	A little afraid	More than a little afraid	Much afraid	Very much afraid
17. talk at a party	Not afraid	A little afraid	More than a little afraid	Much afraid	Very much afraid
20. talk to your best friend	Not afraid	A little afraid	More than a little afraid	Much afraid	Very much afraid

SSC-ER

- Total score: rates on a 5-point scale are summed
  - Total score is compared to norms
  - 2 standard deviation cut-off
- Specific attention to items with high score
  - Make a hierarchy of situations that need to be addressed in therapy

SSC-SD

- Assesses speech disruption (stuttering) in the same speech settings as SSC-ER
- To interpersonal *situations*
  - Meeting someone for the first time
  - Speaking to a teacher or supervisor
- To specific *sounds* and *words*
  - Introducing yourself
  - Being asked to repeat your answer

Speech Situation Checklist - Adults: Speech Disruption

34. being asked to give your name	1 2 3 4 5
35. making introductions	1 2 3 4 5
36. being asked to give personal information	1 2 3 4 5
37. asking the teacher or supervisor a question	1 2 3 4 5

Speech Situation Checklist - Children: Speech Disruption

6. talk to a doctor	No trouble	A little trouble	More than a little trouble	Much trouble	Very much trouble
23. talk on the telephone	No trouble	A little trouble	More than a little trouble	Much trouble	Very much trouble
48. give a talk about something	No trouble	A little trouble	More than a little trouble	Much trouble	Very much trouble

SSC-SD

- The client rates extent of speech disruption
  - Total item scores are summed
  - 2 standard deviation cut-off
- Item scores are inspected for inclusion in therapy

SSC: Between-Group Findings

- Significantly higher score for PWS than PWNS on both SSC-ER and SSC-SD

Test interpretation

- Determine whether or not client's score is '***atypical***' '
  - does the score differ by ***2 or more standard deviations*** from the mean of P**WNS**
- Pay attention to ER and SD scores that are ***1 ½ - 2 standard deviations*** above the mean of ***PWNS***
- Compare client's score to the ***average*** for ***PWS***

Test interpretation

- Specific ***test items*** of SSC-ER and –SD
  - Score of 3, 4 or 5
- Do the situations have something in common?
  - Item analysis relative to specific eliciting cues
    - Specific sounds and words
    - School or job situation
    - Inter-personal speech situation

Behavior Checklist © (BCL)

Behavior Checklist provides information about the client's speech-associated *avoidance* and *escape* behaviors specific to words and situations

- Lists behaviors that might be associated with or exhibited prior to/during act of speaking to avoid or escape speech situations and/or words
  - explores the number of coping behaviors (and frequency of use)

Behavior Checklist Adults

16. look up, down or to the side		1 2 3 4 5
20. hold your breath or speak while inhaling		1 2 3 4 5
50. substitute one word for another		1 2 3 4 5
60. speak in an unusual way		1 2 3 4 5

Behavior Checklist : Children

To help your sounds or words come out without trouble, **do you**…

1. touch your hair……YES…….NO
24. take a deep breath…… YES…….NO
31. move your body…… YES…….NO
33. change sounds or words?…… YES…….NO

Behavior Checklist: Between-Group Findings

- Number of different coping behaviors used: significantly greater among PWS than PWNS
- PWS and PWNS tend to use different types of coping behaviors
  - PWS distinguished by coping devices that involve manner of speaking : e.g.
    - Letting some breath out before talking
    - Change loudness
    - Rate change
    - Add a sound before a word

Test interpretation

- Determine if client's score is '***atypical***'
  - ***2 or more standard deviations*** above the average for *P**WNS***
- Give consideration to score that is ***1 ½ to 2 standard deviations*** above the mean of ***PWNS***
- Determine if a client's BCL score approximates, meets, or exceeds that of ***PWS***

Test interpretation

- Turn attention to ***BCL items***
  - Provides inventory of type of escape and avoidance behaviors being used
  - Are coping responses employed predominantly adjustments to particular
    - sounds/words
    - speech situations

COMMUNICATION ATTITUDE

- Investigates cognition, *speech-associated beliefs*
- BigCAT (adults)
- CAT (school-age children)
- KiddyCAT (preschool and kindergarten)

COMMUNICATION ATTITUDE

- BigCAT
  - 17 items scored 'true' and 17 scored 'false' indicate negative attitude toward speech
- CAT
  - 18 items marked 'true' and 15 marked 'false' indicate a negative belief about speech
- KiddyCAT
  - 6 items marked 'Yes' and 6 marked 'No' are indicative of negative attitude

BigCAT

BigCAT

1. There is something wrong with the way I speak……True…False
6. Speaking is no problem for me…… True...False
26. My speech does not affect the way I interact with people……True…False
34. The way I speak troubles me…… True…False

BigCAT: Between-group data

- PWS score statistically significantly higher compared to PWNS
- Powerful tool in differentiating PWS from PWNS (PWS score 6 SD above the mean of PWNS compared to 2 SD for Erickson S-24)

CAT

11. I talk well most of the time……True…False
13. I don't talk like other children……True…False
16. My words come out easily…… True…False
25. I would rather talk than write…… True…Fals

CAT: Between-group data

- CWS score statistically significantly higher compared to CWNS

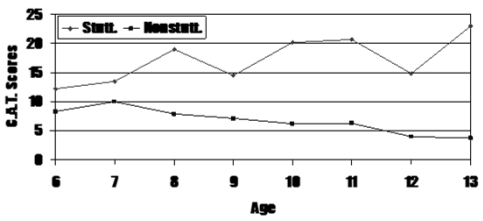
BigCAT and CAT: Test interpretation

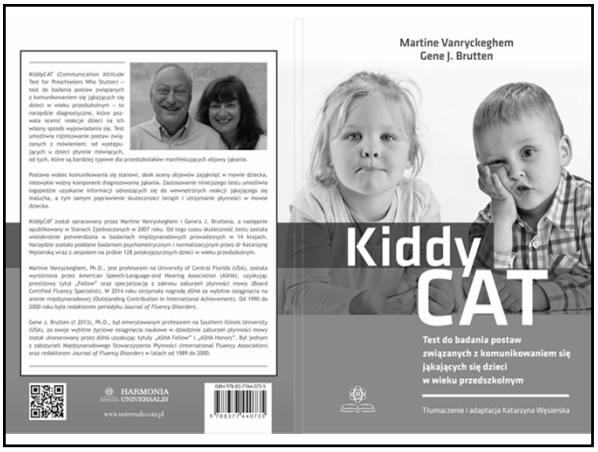
- Determine if the client's score is '***atypical***' ' and suggestive of a negative speech-associated attitude
  - does a client's score fall ***2 or more standard deviations*** above the mean of ***PWNS***
- A score between ***1 ½ and 2 standard deviations*** above the average ***PWNS*** should not be ignored
- If the score appears to be different from normal: compare client's score with that of the average ***PWS***

BigCAT and CAT: Test interpretation

- Pay attention to the specific BigCAT or CAT ***items***
  - Separate out the attitudinal reactions to speech that are negative from those that are not
  - A person's *negative* speech-associated beliefs
    - tend to impede improvement and require cognitive behavior change
  - Use the *positive* speech-related beliefs
    - building blocks for the development of an attitude that helps produce, support and maintain improvement

Line graph of the mean CAT scores of 55 CWS and 55 CWNS at eight different age levels (Vanryckeghem & Brutten, 1997).





KiddyCAT

• Do you talk right?	Yes	No
• Is talking hard for you?	Yes	No
• Are words hard for you to say?	Yes	No

KiddyCAT: Between-group difference

- Statistically significant difference between CWS and CWNS

Test interpretation

- Determine if a child's speech-associated attitude is typical for CWNS or is ***atypical*** and more like that of CWS
  - Does the child's KiddyCAT score fall ***2 or more standard deviations*** above the average score of the ***CWNS***
- Compare client's score to the normative data of ***CWS***
  - Does the KiddyCAT score approach, approximate or exceed that of CWS

Speech Performance

Adults

Expectancy ⇨ Oral Reading

- 2 expectancy readings (same 300 word text)
  - Client reads the text *silently* and underlines the words on which he would "expect to have difficulty" if he were to read the text aloud
- After 2nd silent reading, client is asked to read the passage *aloud*

Silent - Oral Reading

- Consistency
  - stuttering anticipated/occurring on a given trial was also anticipated/occurred on the immediately preceding reading
- Neotericity
  - stuttering anticipated/occurring on a given trial that was not anticipated/did not occur on the previous trial reading

Reading:
Expectancy ⇔ Oral Reading

- Expectancy (silent) reading versus oral reading
  - expected difficulty
  - observed difficulty
  - agreement/consistency
  - difficult phonemes

Oral Reading

- 300 word reading passage on *2 successive* occasions
- Clinician records the loci of stutters and other disfluencies

Oral Reading

- Determine
  - absolute number and % words stuttered
  - types of stuttering behavior
  - % and type of other disfluencies
  - significant phonemes
  - location of phonemes
  - # units in repetition
  - duration of prolongation
  - consistency versus neotericity

Behavioral Display

- Extemporaneous speech
  - Obtain a 300 word speech sample during:
    - Monologue
    - Conversation

- Determine:
  - frequency and type of stuttering behaviors
  - frequency and type of other disfluencies
  - consistency relative to particular problematic sounds/words
  - locus of stuttering
  - use of coping behaviors

School-age Children

Expectancy ⇨ Oral Reading

- Two consecutive expectancy (silent) readings of same age-appropriate 200 word passage
- "Read the text *silently* and underline the words on which you would expect to have difficulty if you were to read the text aloud"
- A clean copy of the passage is given to the child before each reading
- After the second silent reading, the child is asked to read the passage *aloud*

Reading: Expectancy ⟺ Oral Reading

- Expectancy (silent) reading versus oral reading
  - Expected difficulty: absolute number and % words on which stuttering was expected
  - Observed difficulty: absolute number and % words stuttered during oral reading
  - Agreement between expected and observed difficulty

CONSECUTIVE ORAL READINGS

- Read age-appropriate 200 word passage twice in succession
- Clinician records
  - *type* and *frequency* of stuttering behaviors
  - *loci* of stuttering behaviors
  - type and frequency of *other disfluencies*

Reading

- types and frequency of stuttering behaviors
- consistency versus neotericity
- difficult phonemes
- location of phonemes
- # units in repetition
- duration of prolongation
- types and frequency of other disfluencies

School-Age and Preschool Children
Extemporaneous Speech

- Collect a 300 word speech sample during
  - Monologue
  - Conversation

Interview

- Use client's case history, self-report tests, reading and extemporaneous speech data as basis for extended evaluation of speech-specific
  - negative emotion
  - speech disruption
  - avoidance and escape responses
  - mal-attitude
  - word and situational eliciting cues

Multi-dimensional Treatment

Culatta & Goldberg (1995)

- Client's failures are more often due to an *inappropriate selection of techniques* rather than to inherent characteristics of those techniques.
- Both the *complexity* of the *disorder* and the tremendous amount of *inter-individual variability* prevent the use of a uniform set of clinical procedures and inflexible protocols that cannot be modified to meet individual clients' needs.

- Multi-dimensional assessment has indicated the inter-relationship between
  - negative emotion
  - speech disruption
  - speech-associated mal-attitude
  - escape and avoidance behaviors

- BAB test procedures provide therapist with specific self-report data about
  - Stuttering behaviors
    - Speech disruption
      - Sounds, words
      - Situations
  - Coping responses
    - Avoidance
    - Escape
  - Antecedents and consequences of behavioral events
    - Negative emotion
    - Mal-attitude

- BAB results provide the clinician with an initial road map to therapy that is
  - client specific
  - tailored to behavioral needs
  - multi-dimensional
- Van Riper: "We need to consider the individuality of each person who stutters"

- Multi-Modal Tactics
  - No one therapy procedure or set of procedures helps everyone (see meta-analysis studies)
  - Magnitude of effect differs among clients
  - Tactics are not mutually exclusive
  - Interactive
  - Cumulative effect

- Multi-Modal Tactics
  - Effectiveness depends, in part, on
    - the treatment tactics that relate to stuttering or coping behavior
    - severity and complexity of behavioral display
    - longevity of disorder
    - realistic expectations
      - anticipated improvement
    - commitment of client
    - massed and distributed practice

Multi-dimensional treatment

Some guidelines

Assessment

- Multi-modal procedures
  - Affective
  - Behavioral
  - Cognitive changes

Coping Behaviors

- Voluntary responses - secondary *to* stuttering
- Impede fluency improvement
- Can be more distractive to listeners than stuttering and interfere with communication
- Can easily be affected by contingency management procedures
- Reduction of the responses has motivational effects
- Provide protection in guarding against the full-blown return of their use

TARGET AWARENESS

- Determine the most frequently occurring coping responses
  - Order for initial reduction
- Three step approach
  - Identification of target response in clinician
  - Identify targeted response in own video-recorded speech
  - Discriminate target response in ongoing speech

TARGET OMISSION

- Frequency of target response will decrease markedly as a result of *awareness* training
- Determine current base-rate of target response and work on target *omission*
- Using contingency management procedures (reinforcement, response cost, etc…)

STUTTERING BEHAVIORS

REALITY TESTING

- Listen to recorded speech of *others*
  - peers are not completely fluent
- Listen to recorded samples of *own speech*
  - fluency predominates
  - dysfluency not always present

Stuttering Behaviors

- Stuttering modification
- Fluency shaping
- Hybrid approaches

REINFORCE FLUENCY ENHANCING RESPONSES

- Train relaxation of speech-specific musculature relative to:
  - respiration
  - phonation
  - articulation

REINFORCE FLUENCY ENHANCING RESPONSES

- Model and provide reinforcement for:
  - slight expiration prior to initiating speech (airflow management)
  - soft contact
  - gentle speech onsets
  - prolonged within-word production (speech rate reduction)
  - continuous phonation
- Start practice with non-feared sounds/words in a non-threatening situation

Affective Responses

COUNTER CONDITIONING AND DECONDITIONING OF TARGETED SPEECH SOUNDS AND SITUATIONS

- Sounds, words, and situations that elicit negative emotions, anxiety
- First address speech sounds/words that
  - occasion the least concern
  - occur most frequently
  - client is most motivated to face up to

COUNTER CONDITIONING AND DECONDITIONING OF TARGETED SPEECH SOUNDS AND SITUATIONS

- Repeated practice in *positive settings*, designed to produce fluency (counter-conditioning) precede practice in *neutral settings* (deconditioning)
- Provide behavior rehearsal in settings of graduated difficulty in and outside the clinic
  - enhance transfer and maintenance

Attitude Shaping

- Discuss the client's irrational belief that others are always fluent and that he/she always stutters
  - video tapes and reality testing
- Advise client that negative statements about one's speech and speech ability
  - are self defeating
  - interfere with the progress of therapy
- Discuss negative self-talk such as "I will never…; I can't…; If I did not stutter I would…"

ATTITUDE SHAPING

- Advise client that negative statements
  - are self defeating
  - increase likelihood of fluency failure
  - interfere with the progress of therapy
- Positive statements about ability to speak
  ⇒ enhance improvement
- Positive comments will be rewarded
  - negative comments will be rejected
- Discussions about speech will be used to deal with attitude shaping

ATTITUDE SHAPING

- Cognitive-behavior therapy
  - Mindfulness treatment
  - Acceptance and Commitment Therapy
  - Rational-Emotive treatment