DIFFERENTIAL DIAGNOSIS (DD) AND INTERVENTION FOR SEMANTIC AND FORM BASED WF ERROR PATTERNS IN ORAL LANGUAGE (OL).

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SEMINAR OBJECTIVES

Objective 1. Lexical models representing the theoretical underpinnings of semantic and form based lexical access difficulties will be highlighted.

Objective 2. Characteristics of learners with semantic and form based WF error patterns will be introduced.

Objective 3. Two formal WF assessments (TWF-3 and TAWF-2) that embody the DD model will be shared.

Objective 4. Informal and formal procedures for the Differential Diagnosis (DD) of semantic and form based WF error patterns will be presented.

SEMINAR OBJECTIVES

Objective 5. A comprehensive approach to WF intervention for semantic and form base WF error patterns will be explained.

OBJECTIVE 1: LEXICAL MODELS REPRESENTING THE THEORETICAL UNDERPINNINGS OF SEMANTIC AND FORM BASED LEXICAL ACCESS DIFFICULTIES WILL BE HIGHLIGHTED.

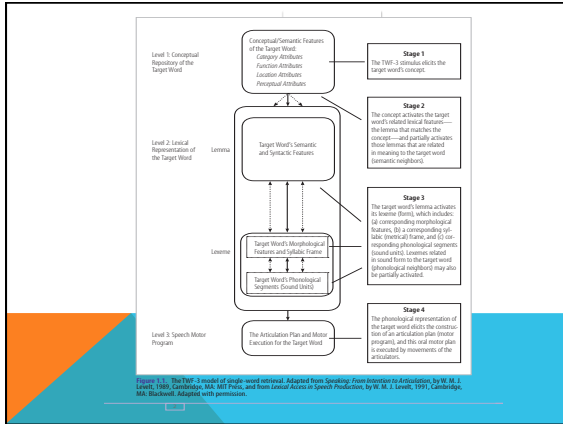**ADAPTED LEXICAL MODEL FOR SINGLE WORD RETRIEVAL (GERMAN 2000, 2015, 2016)**

We are going to review a model of lexical access adapted from the prominent lexical access models of Levelt (1989, 1991, 2001;) and Goldrick and Rapp (, 2002, 2007).

This adapted model presents the architecture for single word retrieval and is the theoretical bases for the differential diagnosis of WF error patterns and my approach to Word Finding intervention.

FUNCTIONAL ARCHITECTURAL MODEL OF LEXICAL ACCESS

This Model Indicates Three Levels When Accessing A Word

1. The word's conceptual structure

2. The word's abstract lexical representation (semantic, syntactic and form features)

3. The word's corresponding speech-motor program plan

Figure 1.1. The TWF-3 model of single-word retrieval. Adapted from *Speaking: From Intention to Articulation*, by W. M. J. Levelt, 1989, Cambridge, MA: MIT Press, and from *Lexical Access in Speech Production*, by W. M. J. Levelt, 1991, Cambridge, MA: Blackwell. Adapted with permission.

CONCEPTUAL STRUCTURE OF THE TARGET WORD

It is assumed in a retrieval task that the stimulus elicits the target word's conceptual structure.

The conceptual structure represents all the knowledge that a person has about an entity.

CONCEPTUAL STRUCTURE OF THE TARGET WORD

It is assumed in a retrieval task that the the target word's conceptual structure activates the abstract or lexical representation of the target word.

ABSTRACT OR LEXICAL REPRESENTATION OF THE WORD CONSISTS OF TWO COMPONENTS

- Lemma - Semantic/Syntactic Features

and

- Lexeme - Phonological Features

THE WORDS LEMMA

In a Language The Word's Lemma Is Its Unique Distinguished Exemplar For A Word's

- Meaning (or link to the concept) and

- Syntactical Category

THE WORD'S LEMMA

The Lemma (Semantic and Syntactic Features) of a Target Word Is Unspecified With Respect to the Word's Form.

However, lemma entries have links to the target word's phonological information, the lexeme (Levelt, 2001).

These links contain information that will affect the word's form in production.

LEXEME, THE WORD'S PHONOLOGICAL
FEATURES

**Via These Links, the Lemma Retrieves the
Word's Phonological Features:**

- The Word's Morphemic Structure

- The Word's Syllabic Structure

- The Word's Individual Sound Units

**PHONOLOGICAL FEATURES
NOT ENOUGH**

**The Phonological Features of a Target Word
Are Not by Themselves Sufficient for Triggering
Speech Output (Constable, Stackhouse &
Wells, 1997).**

**LEVEL 3: THE ARTICULATION PLAN
AND MOVEMENTS**

To Verbalize the Target Word A Learner Has to Next:

- Construct an Articulation Plan,

- Construct a Motor Program, and then

- Execute the Plan by Controlling the Movements of
  the Articulators.

THREE WF ERROR PATTERNS

Most important to our understanding of the differential diagnosis of children's WF errors is the assumption implied in this model that the semantic and phonological aspects of words are accessed from two different structures before articulation.

THREE WF ERROR PATTERNS

The assumption, that words are accessed from two different structures suggests two potential causes of WF errors:

▪ Cause 1. either the semantic aspects of words are inaccessible to a learner due, possibly, due to competition, making the phonological features unavailable also; or

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THREE WF ERROR PATTERNS

Cause 2. the semantic features are accessible while subsequent retrieval of the word's phonological features are either blocked or disabled by weakened pathways.

THREE WF ERROR PATTERNS.

If these assumptions have reality for children with WF difficulties, one could hypothesize WF disruptions at three different points in the lexical process depicted in our theoretical model.
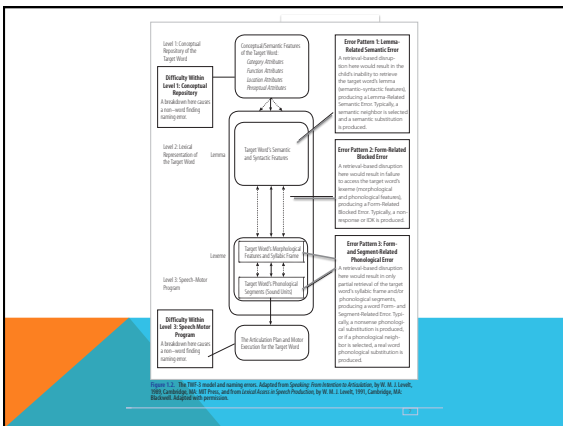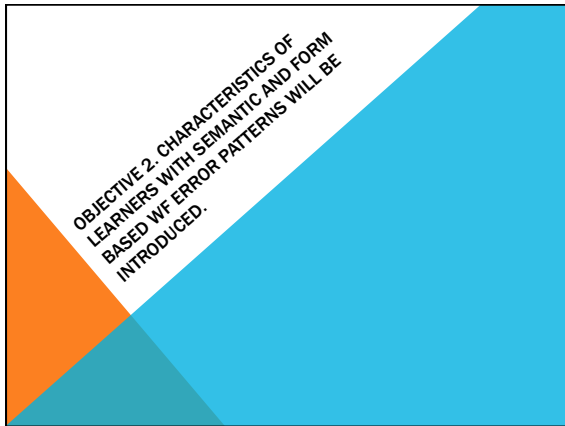

THREE WF ERROR PATTERNS.
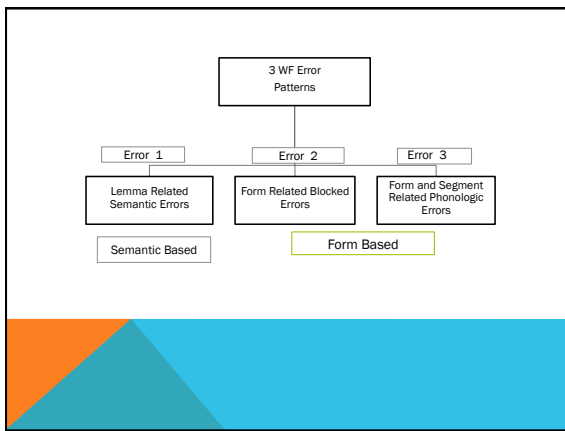
Error Pattern 1: Lemma Related Semantic Errors

Error Pattern 2: Word Form Related Blocked Errors

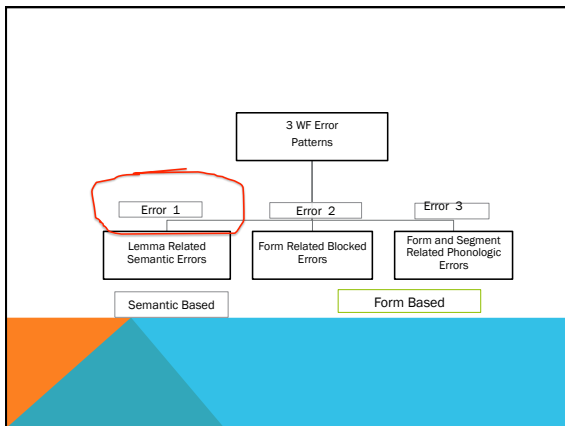**Error Pattern 3: Word Form and Segment Related Phonologic Errors**

OBJECTIVE 2. CHARACTERISTICS OF LEARNERS WITH SEMANTIC AND FORM BASED WF ERROR PATTERNS WILL BE INTRODUCED.

3 WF Error Patterns

Error 1 — Lemma Related Semantic Errors

Error 2 — Form Related Blocked Errors

Error 3 — Form and Segment Related Phonologic Errors

Semantic Based

Form Based

3 WF Error Patterns

Error 1 — Lemma Related Semantic Errors

Error 2 — Form Related Blocked Errors

Error 3 — Form and Segment Related Phonologic Errors

Semantic Based

Form Based

ERROR PATTERN 1, LEMMA RELATED ERROR

It's the "exponent" no coefficient

Commonly Known as a Slip of the Tongue Error (Fast/Inaccurate)
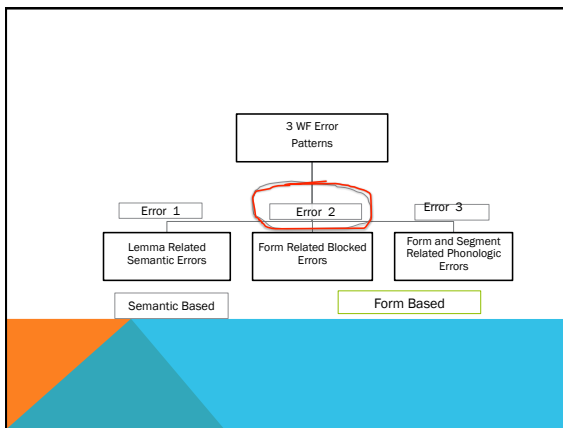

ERROR PATTERN 1

It is assumed in Error Pattern 1 that the conceptual structure (Stage 1) of the target word has been accessed, but failed to retrieve the semantic and syntactic features of the word (i.e., the lemma).

The outcome is inaccurate retrieval of the nouns, adjectives, verbs and/or verb endings within a sentence.

ERROR PATTERN 1

Although learners know the words they cannot access on the first response (Jager, 2011), they manifest the following behaviors when trying to retrieve a word to name a picture, answer a question, or share an experience:

Characteristics of 3 WF Error Patterns

Diagnostic Questions	WF Error Patterns		
	Error Pattern 1, Lemma Related Semantic Errors	Error Pattern 2, Form Related Blocked Errors	Error Pattern 3, Form/Segment Related Phonologic Errors
Comprehension And Repetition	Yes	Yes	Yes
Responds to Phonemic Cueing	No	Yes	No
Speed /Accuracy Profile	Fast and Inaccurate Retriever	Slow and Accurate or Inaccurate Retriever	Slow and Inaccurate Retriever
Substitution Types	Self Corrections, Semantic,	No Response (IDK, I Pass), Semantic	Phonological Approximations
Secondary Characteristics - Gestures and Extra Verbalizations	Not before the semantic error, but after indicating self-disappointment.	Iconic Gestures Gestures of Frustration Metacognitive Comments, "Don't tell me.", and Metalinguistic Comments, "It starts with a b."	Metacognitive Comments, "I can't say those long words."
Discourse Characteristics	Revisions - Nouns and Verbs, Self-Corrections, Semantic Substitutions,	Repetitions, Substitutions, Delays, Time Fillers (um, ah), Empty Words, and Insertions ("I can't think of it.")	Revisions, Phonological Substitutions, Delays, Time Fillers (um, ah), and Insertions ("Sometimes I mess up this word.")

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3 WF Error Patterns

Error 1 — Error 2 — Error 3

Lemma Related Semantic Errors | Form Related Blocked Errors | Form and Segment Related Phonologic Errors

Semantic Based | Form Based

ERROR PATTERN 2, FORM RELATED BLOCKED ERROR

"Its um … IDK [4 sec delay] …the number in front."
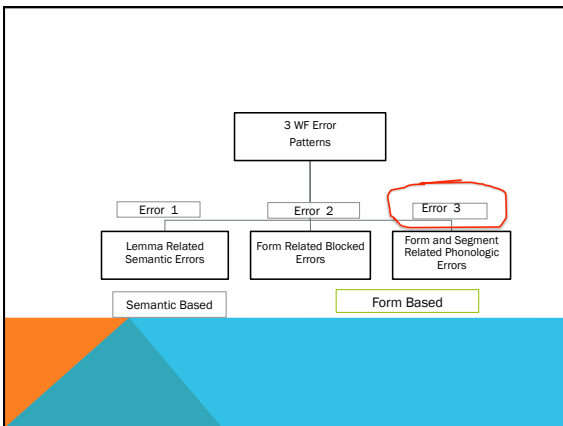(for coefficient)

Commonly Known as a Tip of the Tongue Error (slow and inaccurate or accurate)

ERROR PATTERN 2

It is assumed in Error Pattern 2 that the conceptual structure (Stage 1) of the target word has accessed the semantic and syntactic features of the word (i.e., the lemma, Stage 2) but failed to access the word's form or lexeme (Stage 3).

The outcome is a failure to retrieve <u>any</u> of the target word's phonological properties (Faust, Dimitrovsky, & Schacht, 2003; Borodkin & Faust, 2012).

Characteristics of 3 WF Error Patterns			
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3 WF Error Patterns
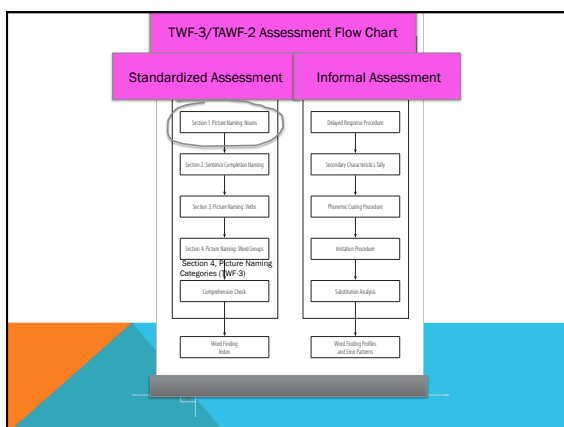
Error 1 — Lemma Related Semantic Errors

Error 2 — Form Related Blocked Errors

Error 3 — Form and Segment Related Phonologic Errors

Semantic Based

Form Based

ERROR PATTERN 3, WORD FORM – SEGMENT RELATED PHONOLOGIC ERROR

…coeint for coefficient [4 sec. Delay]

Commonly Known as a Twist of the Tongue Error (slow and inaccurate)

ERROR PATTERN 3, WORD FORM – SEGMENT RELATED PHONOLOGIC ERROR

It is assumed in Error Pattern 3 that the conceptual structure (Stage 1) of the target word has accessed the semantic and syntactic features of the word (i.e., the lemma, Stage 2) but failed to access the complete form of the target word, the lexeme (Stage 3).

The outcome is retrieval of only some of the phonological properties of the target word (Faust, Dimitrovsky, & Schacht, 2003; Borodkin & Faust, 2012).

Characteristics of 3 WF Error Patterns

Diagnostic Questions	WF Error Patterns		
	Error Pattern 1, Lemma Related Semantic Errors	Error Pattern 2, Form Related Blocked Errors	Error Pattern 3, Form/Segment Related Phonologic Errors
Comprehension And Repetition	Yes	Yes	Yes
Responds to Phonemic Cueing	No	Yes	No
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OBJECTIVE 3. TWO FORMAL WF ASSESSMENTS (TWF-3 AND TAWF-2) THAT EMBODY THE DD MODEL WILL BE SHARED.

TWF, 1985, 1989

TWF-2, 2000

Finish TWF-2, 2007

Test of Word Finding
Third Edition
TWF3

Test of Word Finding
Third Edition: Computer Administered
TWF3:CA

TWF-3, 2015

TWF-3:Computer Administered, 2015

TAWF, January 1991

Test of Adolescent/ Adult Word Finding
Second Edition
TAWF2

TAWF-2, January 2016

TWF-3 AND TAWF-2

‹ Both based on a lexical access model drawn from child/ adult research.

‹ TWF-3 is standardized on a representative sample of 1279 children across 23 states, 4yrs., 6 Mo.; –12yrs., 11 Mo.

‹ TAWF-2 is standardized on a representative sample of 1,710 learners across 28 states, 12 - 80 yrs., 11 Mo.

TWF-3/TAWF-2

TWF-3 consists of three forms.

▪ Preschool/Kindergarten

▪ Primary (Grades 1st and 2nd)

▪ Intermediate (Grades 3rd – 6th)

The TAWF-2 has one form.

TWF-3/TAWF-2 Assessment Flow Chart

Standardized Assessment	Informal Assessment
Section 1. Picture Naming: Nouns	Delayed Response Procedure
Section 2. Sentence Completion Naming	Secondary Characteristics Tally
Section 3. Picture Naming: Verbs	Phonemic Cueing Procedure
Section 4. Picture Naming: Word Groups	Imitation Procedure
Section 4. Picture Naming Categories (TWF-3)	Substitution Analysis
Comprehension Check	
Word Finding Index	Word Finding Profiles and Error Patterns

TWF-3/TAWF-2 SECTION 1: PICTURE NAMING NOUNS

Students are asked to name pictures of noun target words.

Assesses a student's
- Naming Accuracy
- Naming Speed

TWF-3/TAWF-2 TARGET WORD SELECTION

Typically target word selection for receptive and expressive language tests is based on a word's semantic features, its meaning.

However, for the TWF-3 and the TAWF-2, Target Words were not only selected based on their semantic attributes, but also based on their phonological properties as defined by specific lexical factors of words.

TWF-3/TAWF-2 TARGET WORD SELECTION

Phonological Properties Considered Were:

- Target Word Frequency,
- Target Word Length
- Neighborhood Density
- Phonotactic Probability
- Target Word Familiarity

TWF-3/TAWF-2 TARGET WORD SELECTION WAS ALSO BASED ON THEIR PHONOLOGICAL PROPERTIES

Of Interest Was Selecting Target Words With Phonological Properties Known to Draw Out Our Three WF Error Patterns

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TWF-3/TAWF-2 TARGET WORD SELECTION WAS ALSO BASED ON THEIR PHONOLOGICAL PROPERTIES

German & Newman (2004) and Newman, German, & Jaglelko (2018) reported that the target Words that draw out Error Pattern 1, Lemma Related Semantic Errors are :

- Target Words that Are Shorter
- Higher Frequency
- Words Residing in Dense Neighborhoods

TWF-3/TAWF-2 TARGET WORD SELECTION WAS ALSO BASED ON THEIR LEXICAL FACTORS

Words that draw out Error Pattern Error Pattern 2, Form Related Blocked Errors are:

- Words of Lower Frequency
- Words Less Familiar
- Words Residing in Sparse Neighborhoods

TWF-3/TAWF-2 TARGET WORD SELECTION WAS ALSO BASED ON THEIR LEXICAL FACTORS

Words that draw out Error Pattern 3, Form and Segment Related Phonologic Errors are:

- Longer Words
- Lower Phonotactic Probability
- Words of Lower Frequency
- Words Less Familiar
- Words Residing in Less Dense Neighborhoods

TWF-3 SECTION 1: PICTURE NAMING NOUNS

Based on Our Lexical Factor Research, Target Words Were Selected to Draw Out all 3 WF Error Patterns

Words that draw out Error Pattern 1, Lemma Related Semantic Errors

TWF-3 = arrow, lamb, and stamp (primary form)

TAWF-2 = maze, moose, crutch, torch, spring, rocket, and funnel.

TWF-3 SECTION 1: PICTURE NAMING NOUNS

Words that draw out Error Pattern 2, Form Related Blocked Errors are:

TWF-3 = hook, vase, igloo, pyramid, barrel, eel, dough, and torch.

TAWF-2 = blender, hydrant, acorn, wrench, rocket, faucet, hinge, blimp

TWF-3 STANDARDIZED ASSESSMENT
SECTION 1: PICTURE NAMING NOUNS

Words that draw out Error Pattern 3, Form and Segment Related Phonologic Errors are:

TWF-3 = tomato, helicopter, spaghetti, binoculars, submarine (primary form)

TAWF-2 = harmonica, binoculars, ornament, boomerang, propeller, suspenders, and tweezers.

SECTION 2: SENTENCE COMPLETION NAMING

- Students are asked to name the target word that best completes a sentence read by the examiner.

- Assesses a student's accuracy when naming target words in an intrasensory, auditory, cloze-procedure format.

SECTION 2: SENTENCE COMPLETION NAMING

All are declarative present tense sentences that either define the function of the target word or contain a another word that frequently co-occurs with the last word in the sentence.

TWF-3 - SECTION 2: SENTENCE COMPLETION NAMING

Sentences that define the function or location of the target word draw out Error Pattern 2, Form Related Blocked Errors

15. The imaginary circle that divides the earth into north and south is the _____(equator).
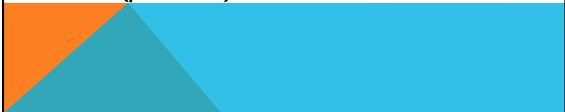
TAWF-2 SECTION 2: SENTENCE COMPLETION NAMING

Sentences that define the function or location of the target word are designed to draw out Error Pattern 2, Form Related Blocked Errors

5. **Fish breathe using their** _____(**gills**).

12. **A person who is walking across a street is called a _____ (pedestrian).**

TWF-3 SECTION 2: SENTENCE COMPLETION NAMING

Sentences whose corresponding target word is a multisyllabic word would draw out Error Pattern 3, Form and Segment Related Phonologic Errors

4. **A scientist looks at the stars through a ____ (telescope); and**

#5. **looks at small things through a ____ (microscope).**

TAWF-2 SECTION 2: SENTENCE COMPLETION NAMING

Sentences whose corresponding target word is a multisyllabic word are designed to draw out Error Pattern 3, Form and Segment Related Phonologic Errors

 # 3. A scientist looks at the stars through a ____ (telescope); and

#4. A doctor listens to your heart through a ____ (stethoscope).

TWF-3 SECTION 2: SENTENCE COMPLETION NAMING

Sentences **where the** last word frequently co-occurs with the target word as well as other words are designed to draw out Error Pattern 1, Lemma Related Semantic Errors.

TWF-3 = When you walk in the room you turn on the light ___ (switch).

TAWF-2 = On a horse you sit on a leather _____ (saddle).

When bowling you roll the ball down the lane or bowling ____ (alley).

SECTION 3:
PICTURE NAMING VERBS

Examines How Well Students Morphological System Reacts To Increased WF Stress.

Students are asked to label the action in pictures representing progressive-ing (skiing) and past tense regular (skied) or irregular (threw) verb forms .

Assesses a student's speed/ accuracy when naming verb target words.

DIFFERENTIAL DIAGNOSIS OF VERB RETRIEVAL

Learners with WF difficulties can manifest difficulties naming verb stems, naming irregulars, and consistently naming target word endings.

TWF-3 SECTION 3:
PICTURE NAMING VERBS

Specific Items Can Draw out Error Pattern 2, Form Related Blocked Errors

- Retrieving stems on progressive ing forms (pouring, skiing, measuring, weighing)

- Retrieving irregulars (threw, ran, drove, swam, blew)

- Not retrieving irregulars results in regularization (slided)

TAWF 2 SECTION 3:
PICTURE NAMING VERBS

Specific items that draw out Error Pattern 2, Form Related Blocked Errors

- Not retrieving stems on progressive ing forms (pouring, skiing, measuring, weighing, sliding, measuring, whispering, filing)

- Not retrieving irregulars (threw, ran, drove, swam, threw, slid, spun, spread)

- Not retrieving irregulars results in regularization (slided)

TWF-3/TAWF-2 SECTION 3:
PICTURE NAMING VERBS

Specific items that draw out Error Pattern 1, Lemma Related Semantic Errors

Retrieving Past tense verb endings (ed) inconsistently

TWF-3 = weigh for weighed
TAWF-2 = huddle for huddled

DIFFERENTIAL DIAGNOSIS OF VERB RETRIEVAL

In Addition, Section 3 provides Differential Diagnosis between:

- **Rule Based Syntax Difficulties - consistently omits verb endings; and**

- **WF Based Syntax Difficulties - inconsistently omits verb endings.**

TWF-3 SECTION 4: PICTURE NAMING CATEGORIES

Students are asked to name pictures of target word exemplars and implied categories that represent multi levels of inclusion within a taxonomy.

pineapple, fruit, food

Assesses a student's speed and accuracy.

TWF-3 SECTION 4: PICTURE NAMING CATEGORIES

Selected words in Section 4 draw out all 3 WF Error Patterns

Subordinate/Coordinate target words in the Taxonomy draw out:

- Error Pattern 1, Lemma Related Semantic Errors (saw, checkers, banjo).

and

- Error Pattern 2, Form Related Blocked Errors (merry-go-round, Ferris Wheel).

TWF-3 SECTION 4: PICTURE NAMING CATEGORIES

Errors on superordinate target words in the Taxonomy can suggest Error Pattern 2, Form Related Blocked Errors (tools, games)

or

Error Pattern 3, Form and Segment Related Phonologic Errors (inments for instruments).

TAWF-2 SECTION 4: PICTURE NAMING WORD GROUPS

- Students are asked to name noun target words representative of the same semantic group (porcupine and armadillo) or phonemic group (xylophone and saxophone).

TAWF-2 SECTION 4: PICTURE NAMING WORD GROUPS

It is thought that by virtue of their proximity in the lexicon, these words may compete for selection during naming tasks and thus interfere with accurate word finding.

Thus naming these item groupings can draw our Error Pattern 1, Lemma Related Semantic Errors (for words that are semantically similar) and Error Pattern 3, Form and Segment Related Phonologic Errors (for words that are phonemically similar).

TARGET WORD ACCURACY -WHY IS IT IMPORTANT?

The accuracy score focuses on the selection process of WF. It addresses the question - How accurate is the learner when naming?

THE DIAGNOSTIC RULE WHEN ASSESSING ACCURACY

- In WF assessment you always assess the first response.

- A self- correction is a WF error.

THE DIAGNOSTIC RULE WHEN ASSESSING ACCURACY

- In receptive language assessment you always assess the last response.

- In receptive language assessment you do not care if the learner tells you the answer at the end of the assessment, as you are assessing their knowledge.

THE DIAGNOSTIC RULE WHEN ASSESSING COMPREHENSION

The classic definition of Word Finding is a discrepancy between knowing a word, and being able to access that SAME word for spontaneous usage.

Therefore an assessment of Word Finding involves identifying a discrepancy between knowing a word and not being able to retrieve that SAME word.

A WF Assessment is not identifying a discrepancy between knowing one word, and not being able to retrieve a different word.

TARGET WORD COMPREHENSION-HOW DO WE ASSESS IT

First, before you start, you want to be reasonably sure in a Word Finding assessment that the target words are words the learner knows.

Second, you want to check all naming errors for target word comprehension.

TWF-3 COMPREHENSION ASSESSMENT

PROCEDURE

The examiner evaluates a student's recognition knowledge of all erred target words.

TWF-3/TAWF-2 WF INDEX

Word Finding Index (WFI) Is A Combination of Accuracy and Response time. It is the number of items the student named correctly in < 4 seconds.

The cutoff for WF difficulties on the TWF-3 is a WFI of 90 or below.

Percentile Rank

RELIABILITY/VALIDITY MEASURES FOR THE TWF-3/TAWF-2

Test reliability was demonstrated using: Test-Retest, Internal consistency, and Scorer Reliability.

Content validity was represented in test development.

- TWF-3 content reflects child language literature and research.

- IRT and classical methodologies and Differential Item Function analyses were conducted to select items.

VALIDITY MEASURES FOR TWF-3/TAWF-2

Concurrent Validity was demonstrated through correlational studies with other commonly used vocabulary tests.

Construct/Predictive validity was established through Binary Classification Analysis.

OBJECTIVE 4. INFORMAL PROCEDURES FOR THE DIFFERENTIAL DIAGNOSIS (DD) OF SEMANTIC AND FORM BASED WF ERROR PATTERNS WILL BE PRESENTED.

WHEN DOING AN ASSESSMENT OF WORD FINDING, YOU NEED TO LOOK DEEPER THAN PICTURE NAMING

You need to carry out a differential diagnosis to determine learners semantic and/or phonological error patterns.

The TWF-3/TAWF-2 has the informal differential diagnosis assessments needed.

TWF-3/TAWF-2 Assessment Flow Chart

Standardized Assessment	Informal Assessment
Section 1. Picture Naming: Nouns	Delayed Response Procedure
Section 2. Sentence Completion Naming	Secondary Characteristics Tally
Section 3. Picture Naming: Verbs	Phonemic Cueing Procedure
Section 4. Picture Naming: Word Groups	Imitation Procedure
TWF-3 - Section 4, Picture Naming Categories	Substitution Analysis
Comprehension Check	
Word Finding Index	Word Finding Profiles and Error Patterns

Figure 2.1. The TAWF-2 assessment flowchart.

DIFFERENTIAL DIAGNOSIS
WHAT YOU NEED TO KNOW

1. Estimated Response Time, slow (*> 4 sec.) or fast (< 4 sec.*)
2. Responsiveness to Phonemic Cueing
3. Ability to Imitate the Word Segmented
4. Nature of Target Word Substitutions
5. Manifestation of Secondary Characteristics - Gestures or Extra Verbalizations

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THE DIAGNOSTIC RULE WHEN ESTIMATING RESPONSE TIME

- Estimated response time is based on the first response whether it is correct or not.

Estimated Response Time

The Delayed Response Procedure Provides Examiners With Two Assessments

- A Frequency Count of the Number of Responses Estimated to be < than 4 seconds, a Fast Namer.
- A Frequency Count of the Number of Responses Estimated to Be > than 4 seconds, a Slow Namer.

Estimated Response Time

Learners with Word Finding Difficulties can demonstrate 2 different response time profiles.

1. Fast Responder – Learner responds quickly but inaccurately.
2. Slow Responder – Learner responds slow, either accurate or inaccurate

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PHONEMIC CUEING

Phonemic Cueing is a Diagnostic Procedure, Not an Intervention Procedure. It provides information as to where in the lexical process a Word Finding Disruption might be occurring.

If learner is aided by the Phonemic Cue, it suggest the learner's WF error is Error Pattern 2, Form Related Blocked Errors (commonly known as on the Tip of the Tongue).

THE DIAGNOSTIC RULE WHEN ASSESSING RESPONSIVENESS TO PHONEMIC CUEING

• Do not cue with just the first sound.

• The first sound is not enough phonological information to get the speaker to the word's address in the phonological lexicon.

• Cue with the first syllable or consonant vowel combination.

PHONEMIC CUEING

PROCEDURE

● The examiner provides the child with the initial consonant vowel combination or syllable of the erred target word.

EXAMPLE :

● *"chec"* for checkers or *"pea"* peanut

PHONEMIC CUEING PROCEDURE

PURPOSE - To assess whether the cue aids the students retrieval of the target word.

UNDERLYING ASSUMPTION

The cue makes the word-form search more effective by possibly improving the link between the target word's meaning (lemma) and word's form (lexeme.)

Phonemic Cueing is Thought to Jump Start the search for the sound form of the target word. It directs the speaker to the word's address in the phonological lexicon.

Imitation

PROCEDURE

- Student imitates erred multisyllabic target words after the examiner's segmented model.

EXAMPLE – Target Word Octopus

- Student Repeats - ak- t∂ -p ∂ s).

IMITATION PROCEDURE FOR MULTISYLLABIC WORDS

PURPOSE

Checks the status of the motor programming and execution systems for speech and, thus, can be used to help determine if a child's failure to produce a known word is due to a problem in word finding or is speech motor in origin.

Imitation helps us differentiate between phonological substitutions due to articulation or motor programming or due to lexical access or word finding.

Imitation

Error Pattern 3 (commonly known as a twist of the tongue) results in phonological substitutions that appear to be articulation or motor speech difficulties.

Imitation is used to determine whether an error on a TWF-3/ TAWF multisyllabic word is a phonological substitution due to word retrieval difficulties or do to oral motor difficulties.

Learner's with Word Finding Difficulties are able to articulate the target word. They have an intact motor system.

THE DIAGNOSTIC RULE WHEN ASSESSING IMITATION

- Do not check imitation of the target word as a unit as that task is confounded with having to retrieve the entire phonological sequence.

- Check learners oral motor skills through imitation of each syllable, not the entire word. Imitation of the entire word requires retrieval of the targets phonological schema which is beyond articulation of the individuals sound units.

TARGET WORD SUBSTITUTION ANALYSIS

PROCEDURE

The examiner compares the student's target word substitution with the target word looking for features or attributes in common.

PURPOSE

To formulate an hypothesis as to the potential disruption site in the lexical process

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TARGET WORD SUBSTITUTION ANALYSIS

FOUR SUBSTITUTION CATEGORIES ARE CONSIDERED

SEMANTIC – Suggest Error Pattern 1
NO RESPONSE TYPE – Suggest Error Pattern 2
PHONEMIC – Suggest Error Pattern 3
PERCEPTUAL –misunderstood the item

TARGET WORD SUBSTITUTION ANALYSIS

EXAMPLES From The TWF-3

"subrine" for submarine = phonological substitution of the target word

"coat" for vest = semantic substitution

EXAMPLES From The TAWF-2

"hoppytscot" for hopscotch = phonological substitution of the target word

"mixer" for blender = semantic substitution

Secondary Characteristics Tally

An Informal Observation Procedure for Systematically Noting Gestures and Extra Verbalizations Present During the Naming Tasks

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SECONDARY CHARACTERISTICS TYPICAL OF ERROR PATTTERN 2

Gestures

Iconic Gesture - a mime of the target word's function or associated action *(hands to eyes to indicate binoculars).*

It indicates knowledge of the target word's concept (indicates lemma is stored).

SECONDARY CHARACTERISTICS TYPICAL OF ERROR PATTERN 2

Gesture of Frustration –miscellaneous, random, or idiosyncratic gestures *(facial grimace, finger snapping, or table tapping).*

Indicates the student is engaged in the word search process (indirectly indicates the target word is stored).

SECONDARY CHARACTERISTICS TYPICAL OF ERROR PATTERN 3

Extra Verbalizations

Metalinguistic Comments – oral verbalization of the target words first sound or a comment about its length (it is a long word).

These comments indicate knowledge of the target words phonology.

SECONDARY CHARACTERISTICS TYPICAL OF ERROR PATTERN 3

For Example:

▪ *"It starts with wh"* for *wishbone*

▪ *"It is a long word."* for *thermometer*

**SECONDARY CHARACTERISTICS TYPICAL
OF ERROR PATTERN 2**

Meta Cognitive Comments

Oral verbalization that the student is searching for a known
target word.

SECONDARY CHARACTERISTICS

For Example:

"I know it, but I can't think of it;

Time fillers such as "um, It's um, er ____" ; or

Empty words such as "oh, it's a, ____".

Indicates that the lemma and lexeme are stored, student knows the
target word and is engaged in a word search process.

**OBJECTIVE 5:
COMPREHENSIVE APPRO...
TO WF INTERVENTION FOR
SEMANTIC AND FORM BASE
WF ERROR PATTERNS WILL BE
EXPLAINED**

WFIP 2

Word-Finding Intervention Program

SECOND EDITION
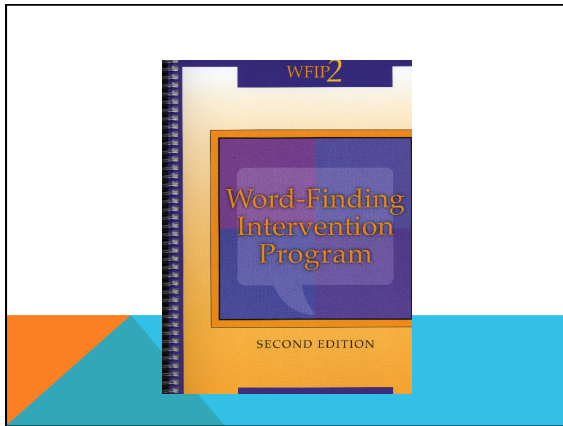
COMPREHENSIVE WORD-FINDING INTERVENTION IS 3-FOLD

Retrieval Strategy Instruction

Differentiated Instruction

Self Advocacy Instruction

RETRIEVAL STRATEGY INSTRUCTION

Designed to teach students SELF DETERMINATION, MNEMONIC and METALINGUISTIC WF strategies to facilitate retrieval of specific words in single word and discourse retrieval contexts.

These retrieval strategies need to be individualized, that is matched to the learners error patters.

RETRIEVAL STRATEGY INSTRUCTION

Requires a Paradigm Shift

Instruction is not focused on receptive language, that is increasing the storage strength of a word.

Rather it is focused on lexical access or expressive language, increasing the retrieval strength of a <u>known</u> word.

EVIDENCE BASED INTERVENTION
GERMAN, SCHWANKE, AND RAVID (2012)

Using a pretest-posttest design, we studied treatment outcomes for second graders with WFD.

INTERVENTION STUDY

Students received:

Treatment 1. Single Focus semantic receptive language instr. (S) (teaching meanings only) on 10 words;

Treatment 2. Dual Focus semantic-based (S) vocabulary instruction + phonologically-based retrieval strategies (S & P) on 10 different words.

TREATMENT WORDS

Experiment	**Solid Figure**
Geometry	**Sphere**
Transmit	**Cylinder**
Vibration	**Angle**
Humidity	**Congruent**
Plane Figure	**Hypothesis**
Cone	**Environment**
Hexagon	**Volume**
Vertex	**Amplify**
Symmetry	**Precipitation**

SUMMARY

Greater expressive language normalized gains were revealed for learners with WFD following the S & P approach to instruction as compared to the S approach.

CONCLUSION

For learners with WFD, expressive language was enhanced when phonological-based retrieval strategies were added to the semantic-based teaching paradigm.

Thus, learners with WF difficulties need a dual focus approach to vocabulary instruction, teaching word meanings and teaching retrieval strategies.

DIFFERENTIATED ASSESSMENT AND INSTRUCTION

Provides assessment and instruction accommodations to reduce the retrieval load inherent in school assessments, classroom activities, and classroom discourse.

Needs to be individualized based on learners WF error patterns.

SELF ADVOCACY INSTRUCTION

Designed to help students develop their "self determination skills" around their WF abilities.
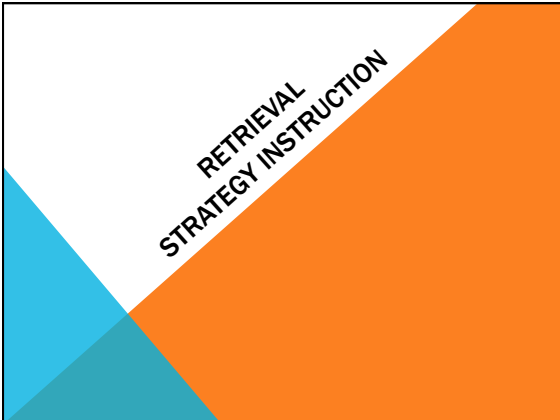
Students become aware of their:

1. WF error patterns;
2. Corresponding Retrieval strategies; and
3. Language based instructional accommodations needed to succeed in school.

Needs to be individualized based on learners specific WF error patterns.

RETRIEVAL STRATEGY INSTRUCTION

SELF-DETERMINATION RETRIEVAL STRATEGIES FOR ERROR PATTERN 1, LEMMA RELATED SEMANTIC ERRORS

Self Monitoring Strategy

▪ Teaches the student self awareness of their Lemma Related Semantic Errors

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ERROR PATTERN 1, LEMMA RELATED SEMANTIC ERRORS

Self-Correction Strategy

• Teaches the student to self-correct their fast inaccurate WF errors.

STRATEGIES TO REDUCE LEMMA RELATED SEMANTIC ERRORS

These two strategies are taught by having students watch videos of their discourse, and:

• identify their fast inaccurate WF errors, and
• self-correct these errors.

RETRIEVAL STRATEGIES FOR ERROR PATTERN 1, LEMMA RELATED SEMANTIC ERRORS

Strategic Pausing

- The learner is instructed on the appropriate and constructive use of pausing.

- The learner is taught to screen and disregard competing semantic neighbors (lemmas) to reduce fast inaccurate responses.

RETRIEVAL STRATEGIES FOR ERROR PATTERN 1, LEMMA RELATED SEMANTIC ERRORS

Strategic Pausing

Pausing Occurs at two vulnerable points in the T-Unit:

Before the subject in the noun phrase - ...Mary will be late.

Before the object, adjective, or preposition in the verb phrase - The food is very ...spicy.

STUTTERING THERAPY

Like in stuttering therapy where a pause is inserted before the anticipated disfluency, we would ask the learner to insert a pause before anticipated WF slip.

RETRIEVAL STRATEGIES FOR ERROR PATTERN 2, FORM RELATED BLOCKED ERRORS AND ERROR PATTERN 3, FORM AND SEGMENT RELATED PHONOLOGIC ERRORS

METALINGUISTIC CUEING STRATEGIES

Metalinguistic Cueing is a retrieval strategy in which the learner focuses on the syllabic structure of the target word.

METALINGUISTIC REINFORCEMENT STRATEGY

<u>Syllable Dividing</u>

Students are taught to segment target words to aid retrieval of the syllabic (metrical) frame and phonological content of multisyllabic words.

SYLLABLE-DIVIDING, MNEMONIC CUE,
REHEARSAL STUDY FORM

1._____(Target Word)

2. ☐ ☐ ☐ ☐ ☐

(Syllable Dividing)

3.

(Think Same-sounds or Familiar Word Cues)

4. Rehearse Target Word as a Unit

5._____

(Rehearse Target Word in a Sentence)

FROM; WORD FINDING INTERVENTION PROGRAM, SECOND EDITION (WFIP-2)

1.___thermometer_____(Target Word)

2. | ther | mom | e | ter | |

(Syllable Dividing)

3.

(Think Same-sounds or Familiar Word Cues)

4. Rehearse Target Word as a Unit

5._____

(Rehearse Target Word in a Sentence)

MNEMONIC CUEING STRATEGIES

MNEMONIC-CUEING STRATEGIES

- Mnemonic Cueing is based on or knowledge of memory processes.

- It is a retrieval strategy in which the learner is taught to associate or link a form based cue word with the target word to aid retrieval of the target word

MNEMONIC CUEING RETRIEVAL STRATEGIES

A. **SAME-SOUNDS CUE**

B. **SAME-SOUNDS SYLLABLE CUE**

C. **FAMILIAR- WORD/PHRASE CUE**

MNEMONIC CUE RETRIEVAL STRATEGIES

Same Sounds Cue

Here the student is taught to link a prompt word that sounds like the target word:

- a phonological neighbor of the target word; or

- a homonym.

MNEMONIC CUE RETRIEVAL STRATEGIES

B. Same-Sounds Syllable Cue

Students are taught to link a word that is a phonological neighbor or homonym of the evasive syllable(s) to aid future retrieval of that syllable (link mom/ ther-*mo*-me-ter).

1.____thermometer_____(Target Word)

2.

| ther | mom | e | ter | |

(Syllable Dividing)

3.

mom

(Think Same-sounds or Familiar Word Cues)

4. Rehearse Target Word as a Unit

5._____
(Rehearse Target Word in a Sentence)

1.____**stratus**_____(Target Word)

| stra | tus | | | |

(Syllable Dividing)

3.

strap

(Think Same-sounds or Familiar Word Cues)

4. Rehearse Target Word as a Unit

stratus, stratus, stratus,

5. A stratus cloud is straight flat and long.

(Rehearse Target Word in a Sentence)

1.___**experiment**_____(Target Word)

2.

| ex | per | i | ment | |

(Syllable Dividing)

3.   X spear   mint

(Think Same-sounds or Familiar Word Cues)

4. Rehearse Target Word as a Unit

experiment, experiment, experiment

5. In science we do experiments.

(Rehearse Target Word in a Sentence)

1.____hexagon_____(Target Word)

2. hex | a | gon | | |

(Syllable Dividing)

3.

X is gone

(Think Same-sounds or Familiar Word Cues)

4. Rehearse Target Word as a Unit

hexagon, hexagon, hexagon

5. **I study hexagon shapes in math.**
(Rehearse Target Word in a Sentence)

MNEMONIC RETRIEVAL STRATEGIES

C. Co-Occurring Phrase Cue

Here the student is taught to link a phrase that contains the target word to aid future retrieval of that word (link blue jeans to blue, link ba,ba, black sheep for black**)**

1._____Blue_____(Target Word)

2. Blue | | | |

(Syllable Dividing)

3.

Blue Jean

(Think Same-sounds or Familiar Word Cues)

4. Rehearse Target Word as a Unit

blue, blue, blue

5. This color is blue.
(Rehearse Target Word in a Sentence)

Source: Nickie Vaggelatos and Casey [illegible] 1st grade teachers at South Park Elementary, Northbrook, IL.

REHEARSAL STRATEGIES

Elaborative Rehearsal is used to enable automaticity in applying the strategies and accessing the words in isolation and in sentences.

Rehearsal Activities.

Students are taught to think of their mnemonic cue while they rehearse the target word as a unit in isolation, in sentences, and in discourse.

Use technology to support rehearsal of target words.

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1. _____Hypothesis_____ (Target Word)

2.

| hy | poth | e | sis | |

(Syllable Dividing)

3.

High Pot Sis

(Think Same-sounds or Familiar Word Cues)

4. Rehearse Target Word as a Unit   hypothesis, hypothesis, hypothesis

A hypothesis is a prediction.

5. _____
(Rehearse Target Word in a Sentence)

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1. **Target Word** - density

2. **Metalingustic Reinforcement - Syllable Dividing**

| den | si | ty | | |

3. **Mnemonic Cue**   Denver   city

(Think Same-sounds or Familiar Word Cues)

4. **Rehearse Target Word as a Unit** – density, density, density

5. **Rehearse Word In a Sentence** - There is a formula for measuring density.

SYNONYM AND CATEGORY SUBSTITUTING

This is an adult strategy where you:
- look down the road of the upcoming sentence,
- identify the word that is evasive, and
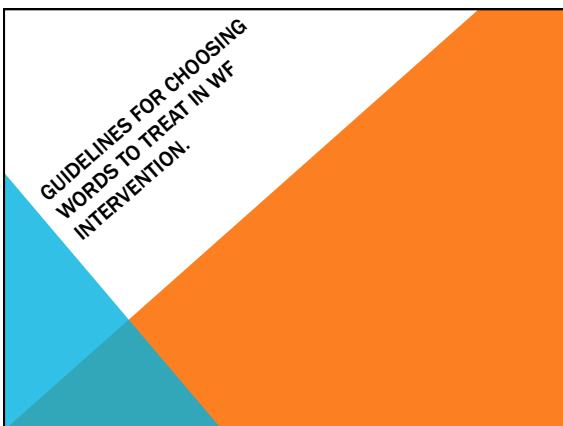- then substitute either a synonym or category word rather then go into a WF block.

SYNONYM AND CATEGORY SUBSTITUTING

Intervention focuses on both:
- teaching synonyms and category names of evasive target words to increase students' word selection choices (stored lemmas and forms), and
- teaching how to substitute these synonyms and category words for elusive target words in the discourse.

GUIDELINES FOR CHOOSING WORDS TO TREAT IN WF INTERVENTION.

GUIDELINES FOR VOCABULARY THEMES

Vocabulary Should Be Drawn From:

- known words with which the learner displays difficulty retrieving;

- academic words from the classroom curriculum;

GUIDELINES FOR VOCABULARY THEMES

- home or recreational experiences;

- social situations; and, if appropriate,

- the learner's work environment.

GUIDELINES FOR VOCABULARY SELECTION

Consider the following phonological lexical factors of words as they make some words harder and other words easier to retrieve.

- Word length
- Phonological Probability
- Target Word Frequency
- Neighborhood Density

DEFINITION OF PHONOLOGICAL LEXICAL FACTORS

Word Length:
- How long the word is.

Phonological Probability
- How frequent is the phonological sequence

DEFINITION OF PHONOLOGICAL LEXICAL FACTORS

Word frequency
- Counts of how often the word occurs in the language, transformed into a log scale

Neighborhood Density
- Refers to how many words contain sounds that are similar to the target word.

NEIGHBORHOOD DENSITY

- For example *hum* is located in a dense neighborhood (many neighbors), as there are many other words in English that are similar to it (*bum, dumb, numb*, *him*, and *hug*, among others).

- *In contrast, void* is located in sparse neighborhood and has very few neighbors (*voice* and *avoid*).

NEIGHBORHOOD DENSITY

▪ For example *hum* is located in a dense neighborhood (many neighbors), as there are many other words in English that are similar to it (*bum, dumb, numb, him*, and *hug*, among others).

• *In contrast, void* is located in sparse neighborhood and has very few neighbors (*voice* and *avoid*).

RESEARCH STUDY

Impact of Lexical factors on Children's word-finding Errors
(German & Newman, 2004; Newman, German, & Jagielko, 2018)

LEXICAL FACTORS STUDIED

▪ Word length

▪ Phonotactic Probability

▪ Target Word Frequency

▪ Neighborhood Density

FINDINGS FOR SEMANTIC BASED WF ERRORS

Error Pattern 1, Lemma Related Semantic Errors (Slip of the Tongue Error Pattern)

Children were likely to have lemma related semantic errors on shorter, high frequency words with more neighbors (resided in dense neighborhoods).

FINDINGS FOR FORM BASED WF ERRORS

Error Pattern 2, Form Related Blocked Errors (Tip of the Tongue Error Pattern)

Children were likely to have word form-related (blocked) errors on low frequency words, and words with fewer neighbors (Resided in Sparse Neighborhoods).

FINDINGS FOR FORM BASED WF ERRORS

Error Pattern 3, Form and Segment Related Phonologic Errors (Twist of the Tongue Error Pattern)

Children were likely to have word form segment-related phonologic errors on longer words that are low in frequency, low phonotactic probability, and resided in less dense neigborhoods.

PRACTICAL IMPLICATIONS OF THIS RESEARCH

Knowing the type of word-finding errors learners are likely to make on specific words can guide your selection of what words in the curriculum need to be treated for which children.

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TNANK YOU
YOU HAVE BEEN A GREAT AUDIENCE
KEEEP IN TOUCH
DGERMAN@NLEDU

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