

Vocabulary Instruction

When Using Language Doesn't Work, Use Semantic Reasoning

Beth Lawrence, M.A., CCC-SLP & Deena Seifert, M.S., CCC-SLP

Disclosure Statement

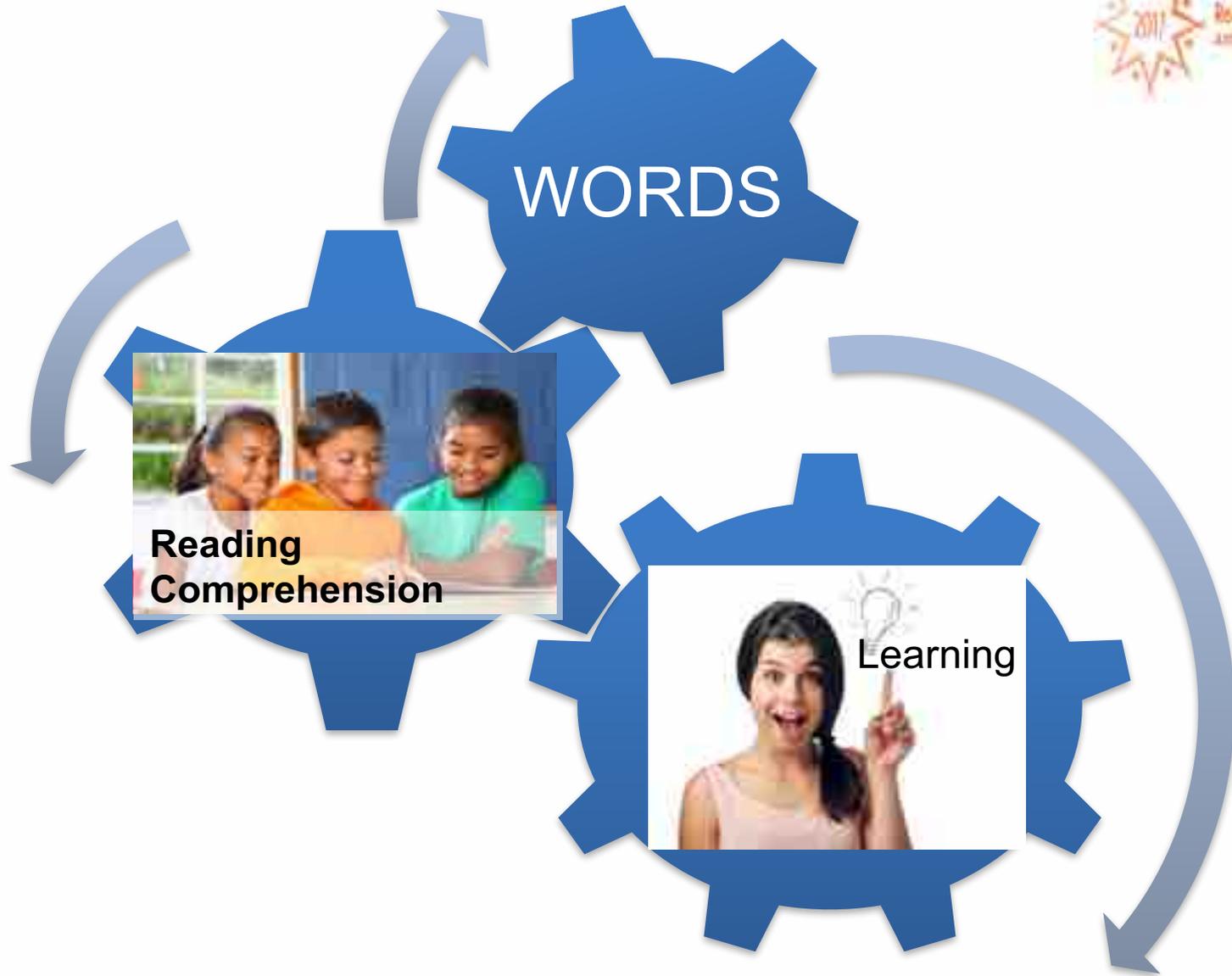
- Beth Lawrence and Deena Seifert are speech-language pathologists. They are co-founders of Communication Apptitude Inc., which has created *InferCabulary*, a web-based vocabulary app, and *WordQuations*, an iPad app. They financially benefit from sales of these apps. The concepts presented in today's course are concepts on which the apps were developed.
- Beth and Deena receive author royalties from *Academic Therapy Publications* for sales of The Test of Semantic Reasoning.

Welcome!



Participants will:

- Describe best practice vocabulary instruction
- Demonstrate understanding of Semantic Reasoning process
- Create InferCabulary and WordQuations lessons



Silverman & Hantraft, 2015

Why Is Vocabulary Important?

- 2/3 of students in the U.S. struggle with **reading comprehension** and **vocabulary** is the building block for comprehension.
- Students need to understand **95-98%** of the words in a given text independently to comprehend text.

Hu & Nation, 2000

- It's one of the 5 major components of reading.

Reading First (Title I, Part B, Subpart 1), 2000 National Reading Panel

Students who Enter Kindergarten with Low Vocabulary



At risk traditional methods



Perform poorly academically

Loftus et al., 2010

How many words do 12th graders need to know for academic success?



50,000

Proctor, Silverman, Harring, & Montecillo, 2012

How many words do **high achieving** 12th graders know (4% of students)



80,000

Eide, 2011

Breadth vs. Depth



BREADTH

number of lexical entries
predicts decoding
Ouellette & Beers, 2010

**D
E
P
T
H**

semantic
representations for
each known word
predicts comprehension
Walley, Metsala, & Garlock, 2003

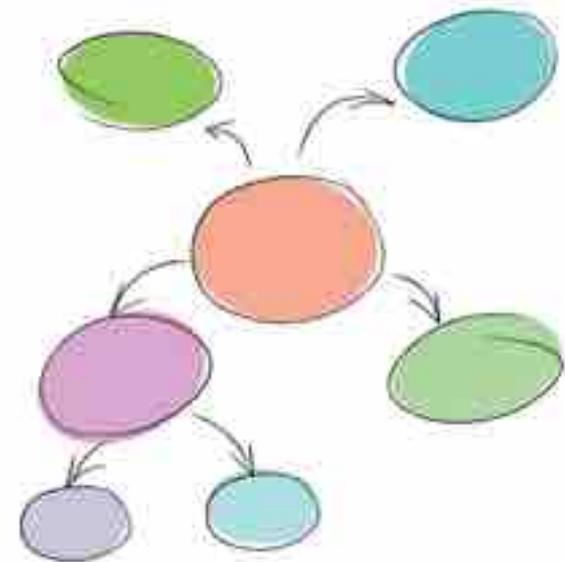
Two Phases

Fast Mapping - *Breadth*



A child's ability to learn a new word or
Concept with minimal exposure to it

Extended Mapping - *Depth*

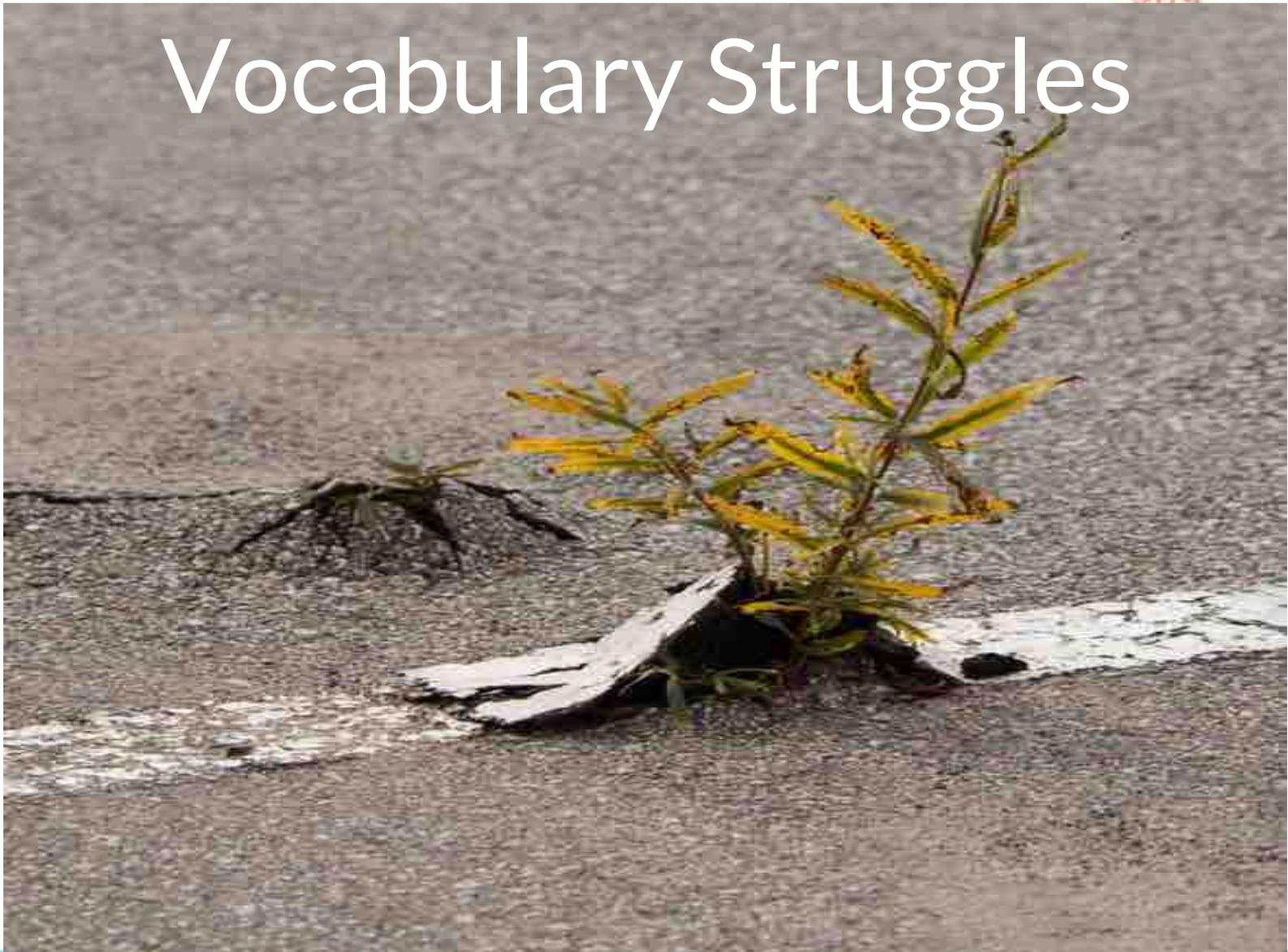


1,600 WORDS

the number of words—at any given time—a student is in process of **learning “deeply”**

Carey & Bartlett, 1978

Vocabulary Struggles



The Problem:



We are *using language* to teach *language* to students who *struggle with language*

Cycle of Word Learning Failure



Fall even farther
behind peers

Reading difficulties lead to
less interest in reading and
less challenging texts

Students enter school with lower
vocabulary due to low SES or
language disorders

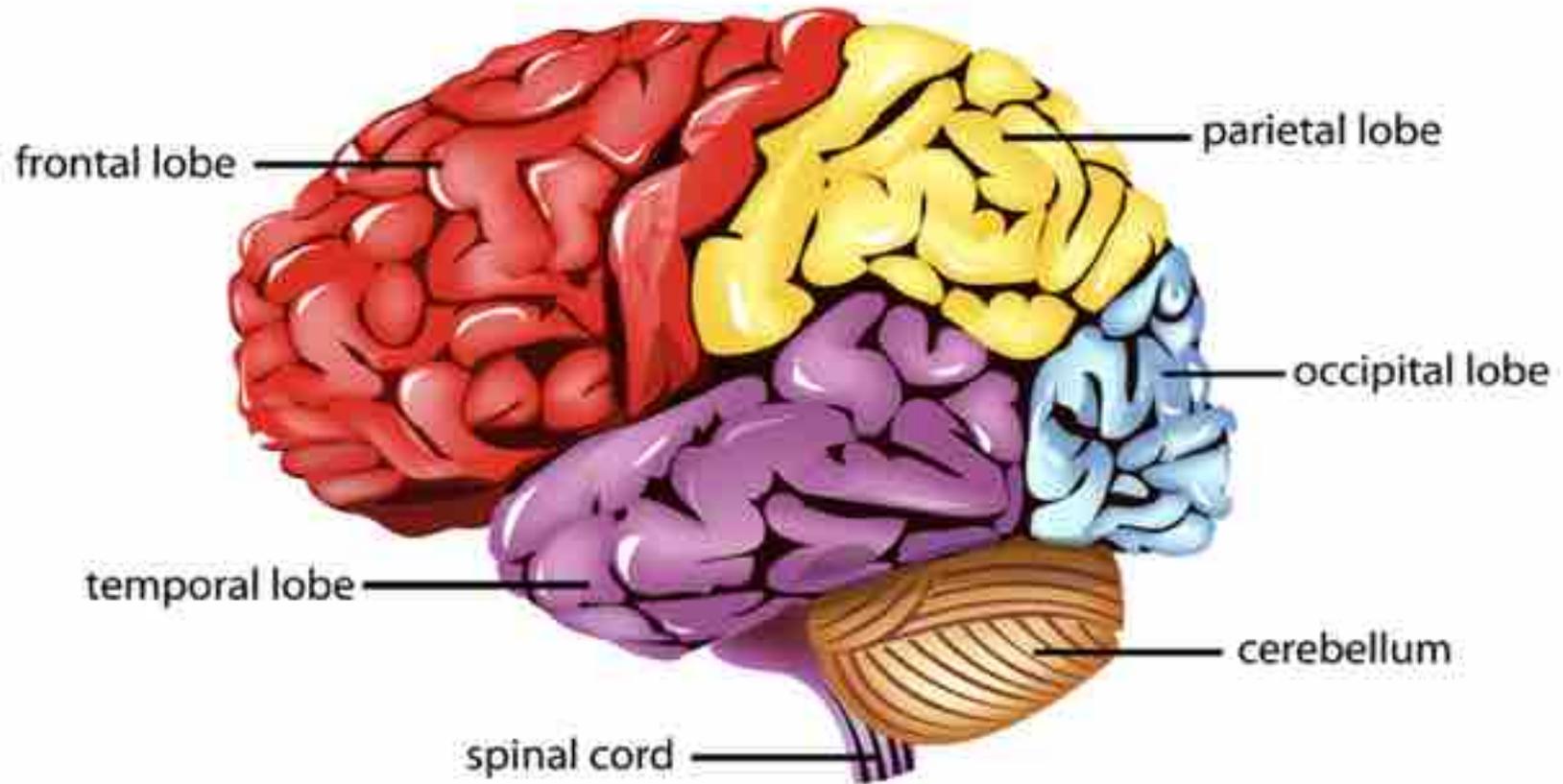


Why do kids struggle?

- Students are **reading less**, therefore they have **limited exposures** to words in a variety of contexts
- Many students enter school with **Language disorders/learning disabilities**
- Not everyone uses **best practice** vocabulary instruction, realizing vocab instruction is a **neurological process**

Vocabulary-Learning is a Neurological Process

Parts of the Human Brain



Don't Drill What is Often Weak: Temporal





Vocabulary Instruction Must Emphasize



1. Active engagement
2. Multiple contexts
3. Using visuals
4. Morphology (parts of words)
5. Semantics (word relationships)
6. Kinesthetic (drama)
7. Repetition

Beck & McKeown, 2013

Pairing Verbal with Visual

What do you see?



Use Multi-Modalities: Occipital



Use Multi-Modalities: Parietal



HweeLing, Lee et al, 2007



Two Vocabulary Methods

InferCabulary	WordQuations
nouns and adjectives	verbs
uses Semantic Reasoning	formula for determining subtle meanings of verb synonyms
higher order vocabulary skills	character motivation and verb choices in writing

WordQuations®

Using features of verbs to
deeply teach verb synonyms

Inspiration For WordQuations



Examples of *glance*

Number the Stars by Lois Lowry



“Her mother shook her head quickly, and **glanced** at the open window covered only by the sheer curtain. Annemarie understood.”

“Another man arrived: an old man, bearded. Quietly he went to the living room and sat down, saying nothing to the others, who only **glanced** at him.”

“Annemarie did instantly as she was told. The basket. The packet, at the bottom. She covered it with a napkin. Then some wrapped cheese. An apple. She **glanced** around the kitchen saw some bread and added that. The basket was full.”

WordQuations®

Break down the synonym into an equation

glance =

Base Word	Speed	Degree	Motive or Emotion
look	quickly	short	curious hurried important

WordQuations helps students master subtle meanings of verb synonyms and infer character motivations

Restart Help

BASE WORD	SPEED	HEAVINESS	MOTIVE	RESULT		
				swagger to walk in a proud way in order to impress someone Play Video		
walk	+	slowly	+	powerfully	MOTIVE	= SYNONYM

Choose one of the MOTIVES from the options below



sad



relaxed



confident



deep in thought



old



tired



oblivious



to explore



excited



bored

Now for a little practice...

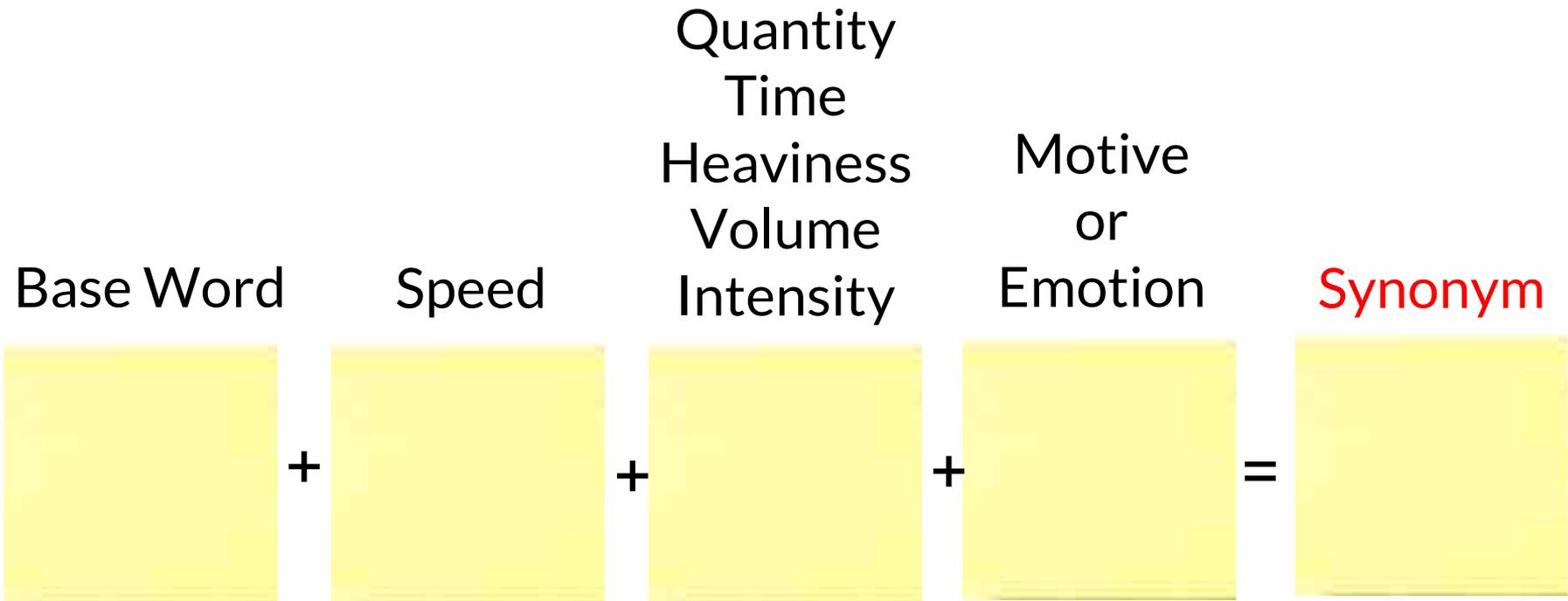


WordQuations®



Base Word	Speed	Quality	Motive \ Emotion	Synonym
walk	slowly	-gently -powerfully	to explore while feeling relaxed	meander
talk	quickly	-loudly -quietly	-worried -confused -oblivious	babble
touch	slowly	-gently -powerfully	-to comfort -to show love -to greet	embrace
look	quickly	short	angry	flash

WordQuations®



Low tech method using sticky notes or index cards

WordQuations Demo 2016



0:27 / 3:06



YouTube



Featuring Ian Antal & Sarah Chin, The Simpletons

IC InferCabulary

Using *Semantic Reasoning Skills* to Learn Word Meanings

The Inspiration for InferCabulary



Independent Research



Independent Research Study

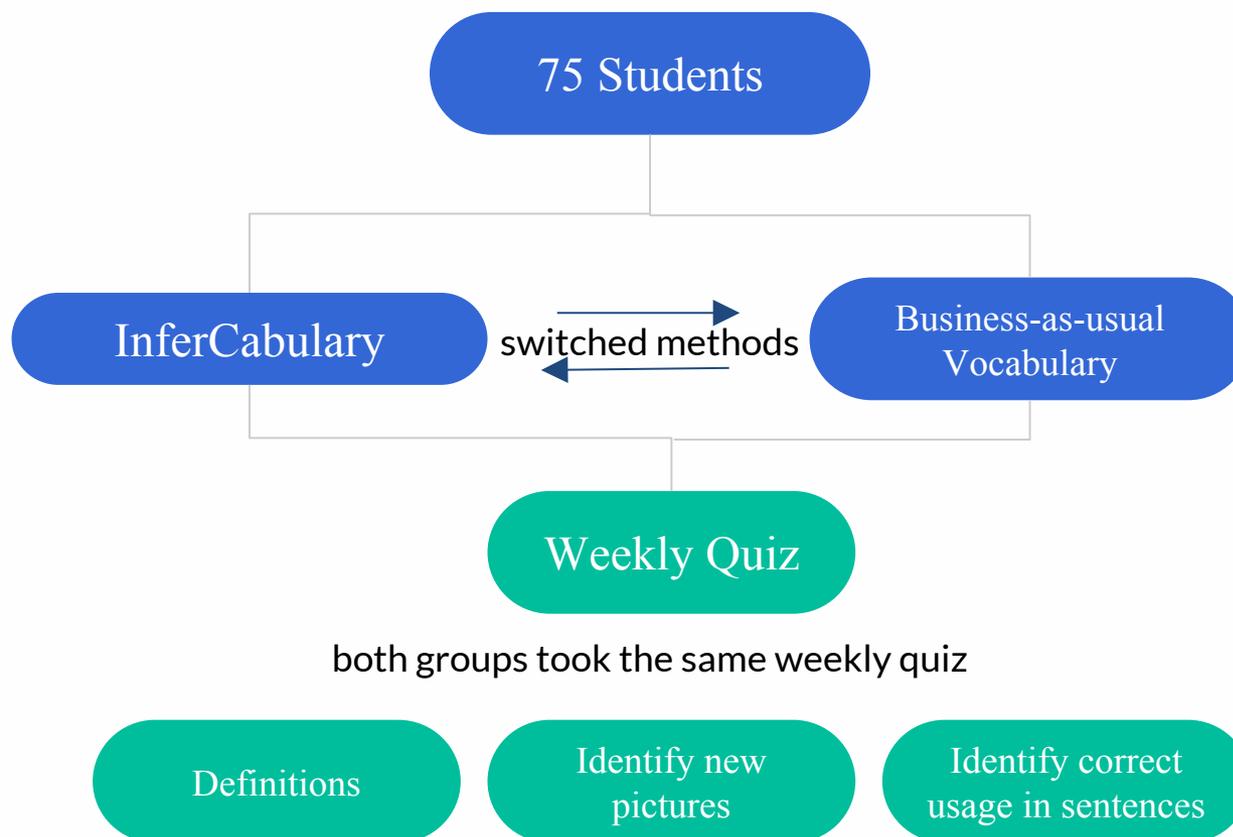


Conducted by Dr. Michael Kennedy
Curry School of Education Nov - Dec 2015

Student Subjects

- Suburban elementary school in Mid Atlantic state
- 80% White, 7% Hispanic, 5% Black
- 10% Free/Reduced Lunch
- Two 5th Grade Teachers
- N = 75 students

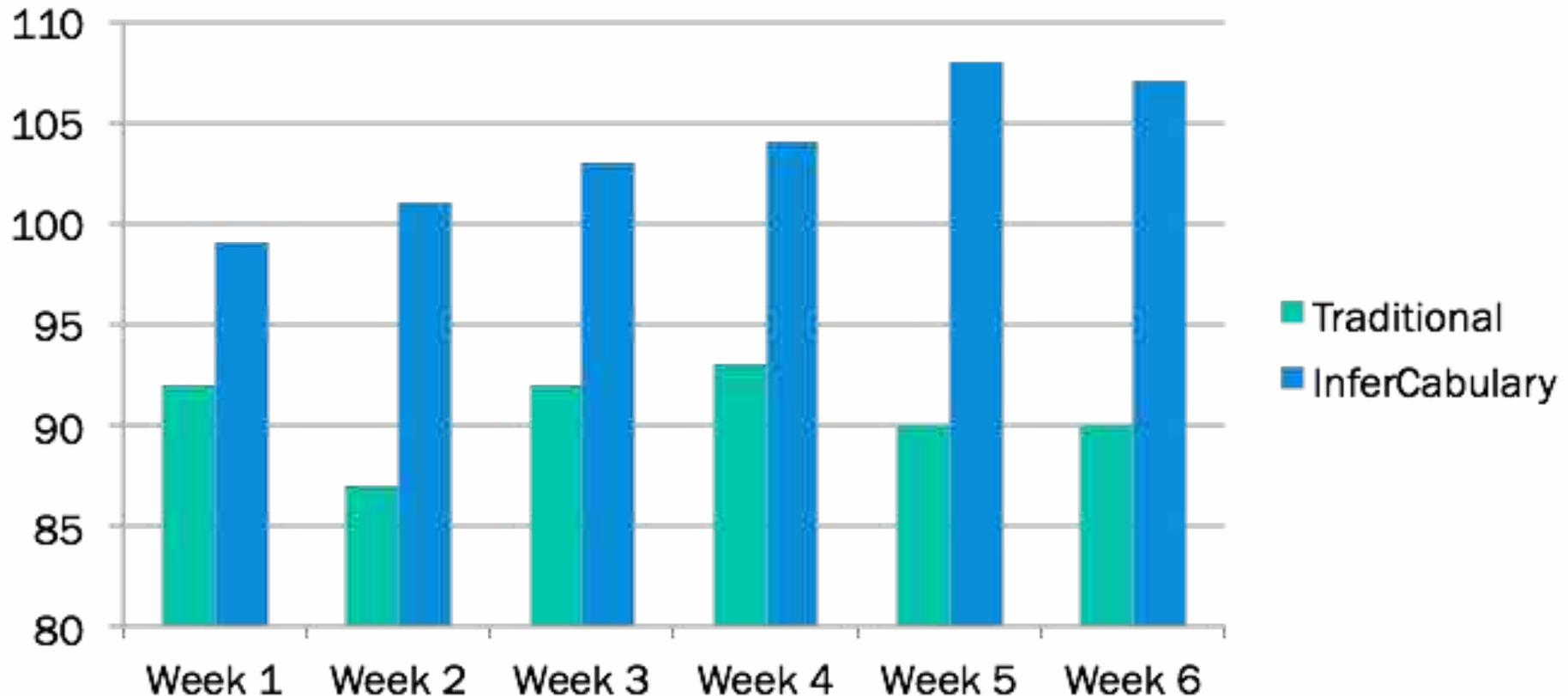
Pilot Study, Fall 2015



Quiz Scores Significantly Higher Weeks Students Used InferCabulary

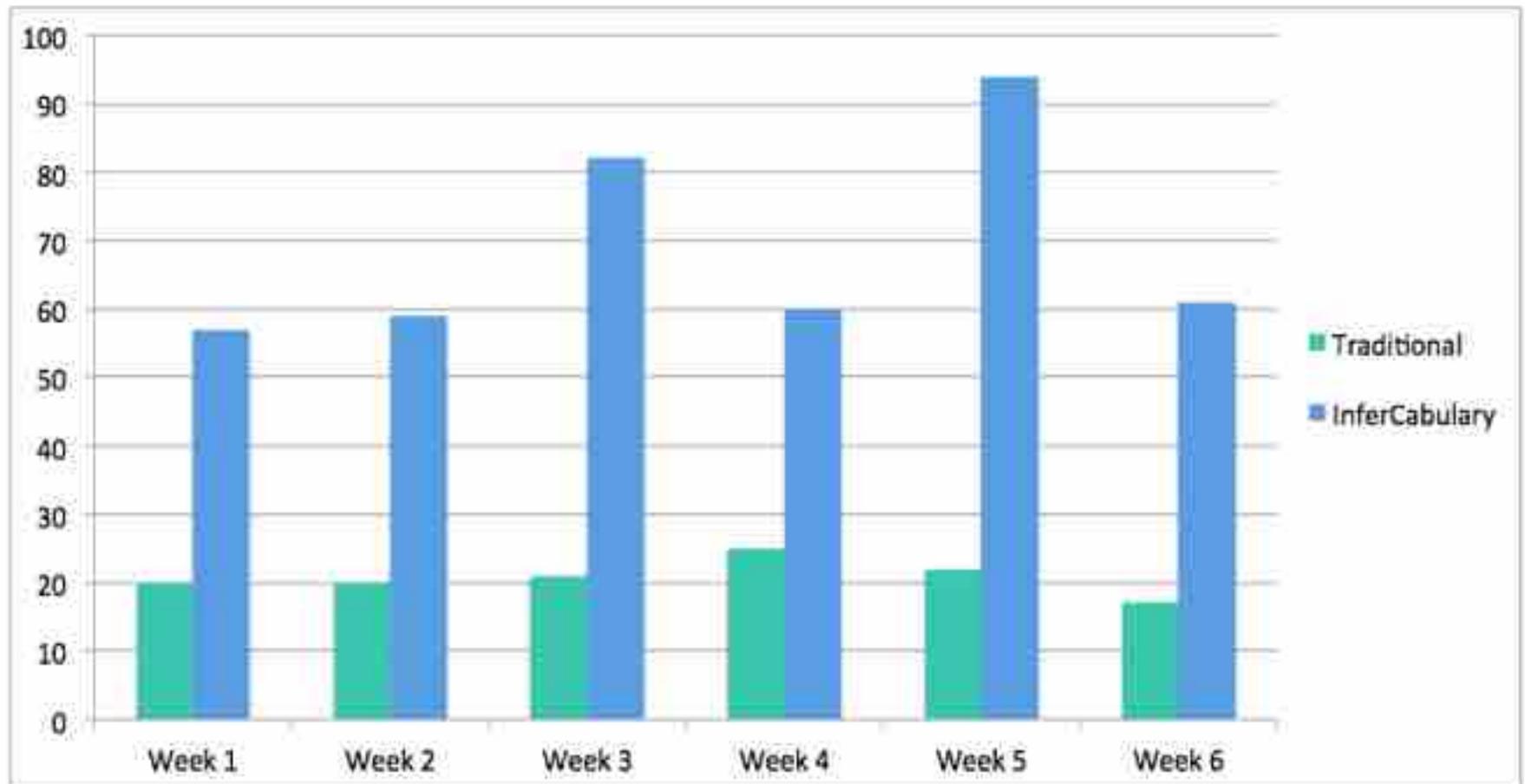


110 Raw Point Max



Statistical Differences were Large to Very Large
(Delta of 1.0 or above with $p = .05$)

Number of Questions Teachers Asked Students During 20 Minute Instruction Blocks



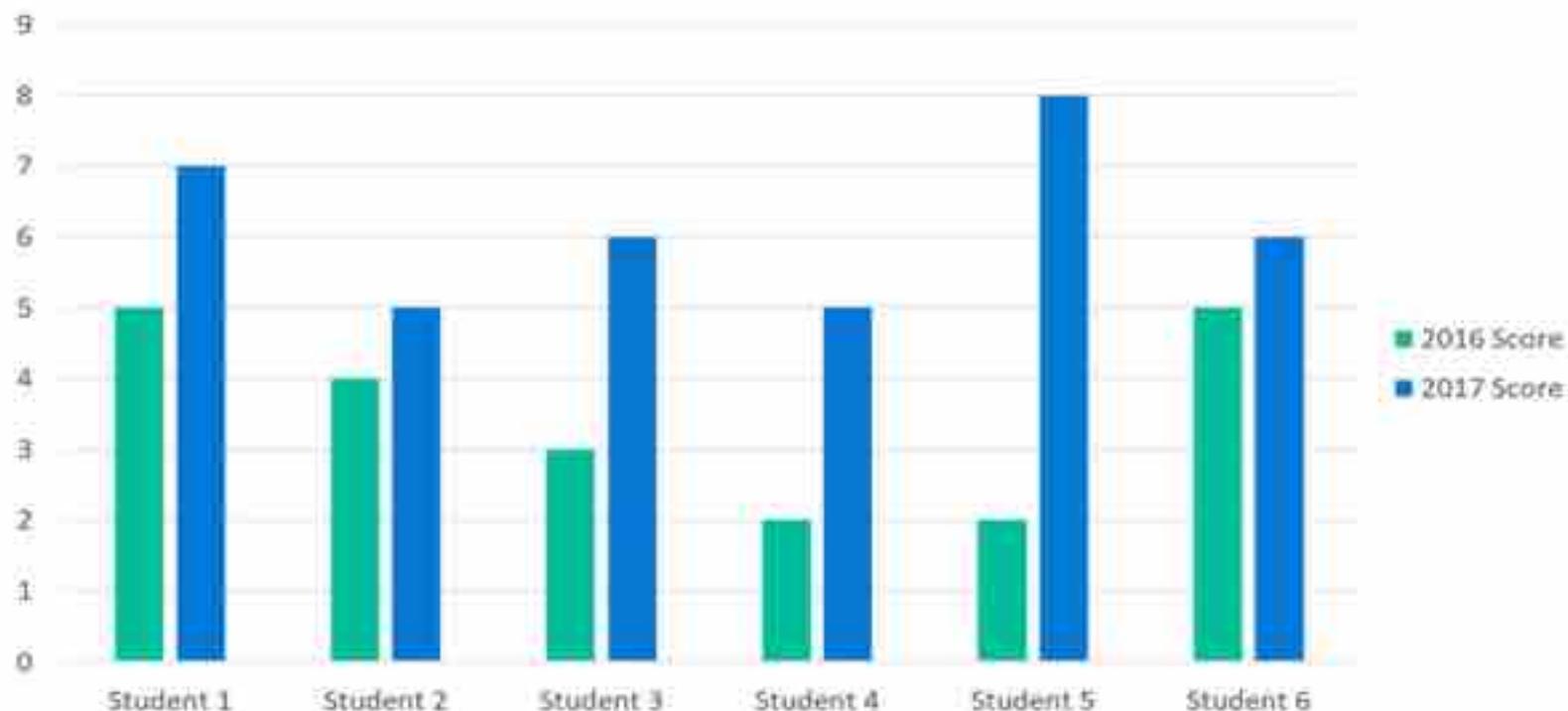
UVA Student Survey Results

(5 Point Scale: 1 = Strongly Disagree, 5 = Strongly Agree)

- The Inforcabulary App helped me learn terms and definitions
 - $N = 75, M = 4.87, SD = .41$
- The Inforcabulary App made learning vocabulary easy
 - $N = 75, M = 4.68, SD = .62$
- I like learning using the Inforcabulary App
 - $N = 75, M = 4.79, SD = .31$
- I enjoyed the pictures in the Inforcabulary App
 - $N = 75, M = 4.91, SD = .22$
- I would like to use the Inforcabulary App on my own
 - $N = 75, M = 4.64, SD = .49$

State Testing Scores Also Show Dramatic Improvement

In a 2016-2017 pilot program with learning-challenged students, we saw dramatic improvement in ERB assessment scores. InferCabulary was used in 2017, but not 2016. Each student improved on end-of-year testing, with 5 being an average performance.



Using Visuals & Critical Thinking

We created InferCabulary to offer a different modality as the **initial method** for teaching nouns, adj. and adv. to **avoid relying on language**-- the primary weakness.

Semantic Reasoning

is the process of using

General Sequential Reasoning

the ability to reason logically known premises and principles

and

Inductive Reasoning

reasoning that takes specific information and makes a broader generalization

paired with

Lexical Knowledge

Semantic Reasoning

is the process of using

General Sequential Reasoning

the ability to start with stated rules, premises, or conditions and engage in one or more steps to reach a solution to a novel problem

and

Inductive Reasoning

the ability to discover the underlying characteristic that governs a problem or a set of materials

paired with

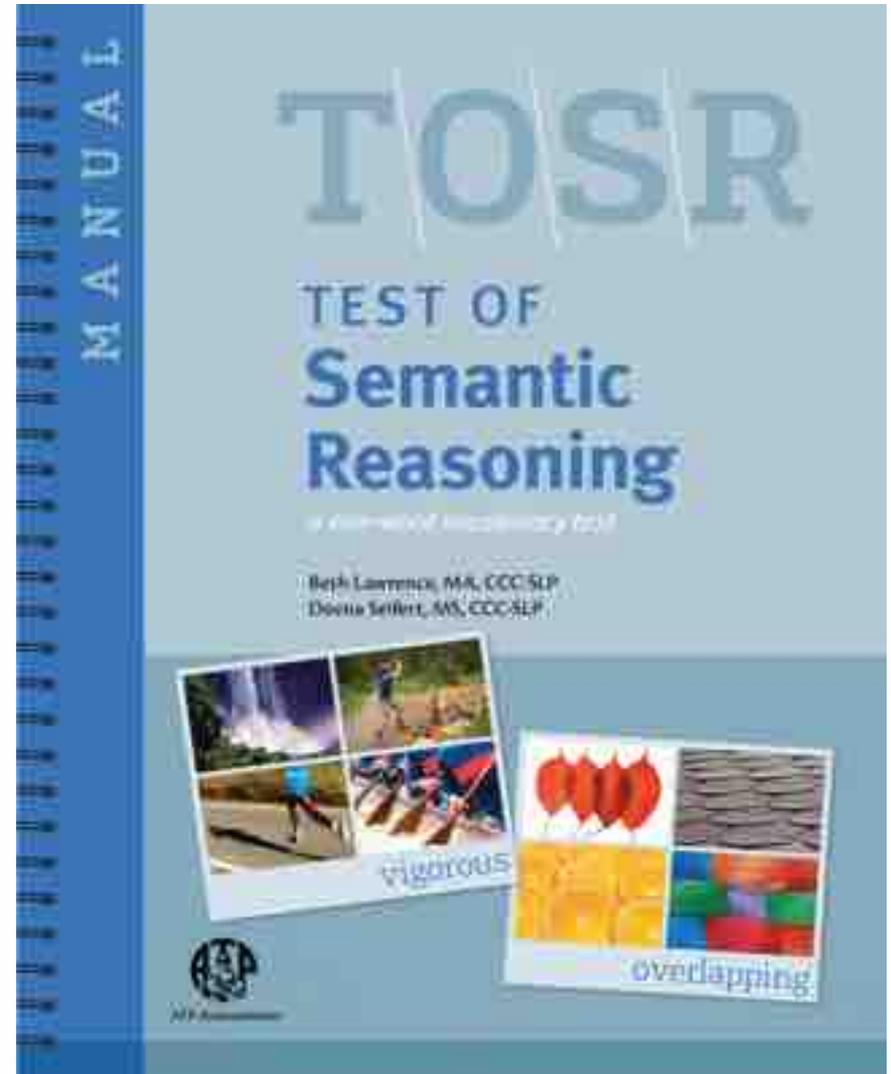
Lexical Knowledge

Test of Semantic Reasoning (TOSR)

Academic Therapy Publications



We discovered that semantic reasoning is a skill that follows age-norm expectations, and that students who struggle with learning also struggle with semantic reasoning.



InferCabulary Example



Students engage in critical-thinking; analyzing images and captions to learn multiple contexts of a word at once.

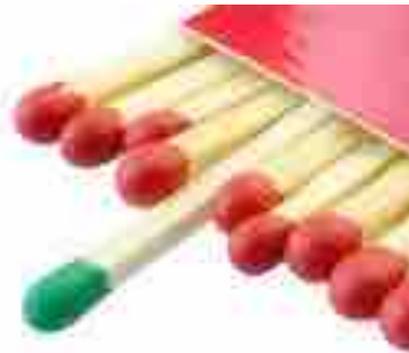
A screenshot of the InferCabulary app interface. At the top, it says "Choose the word that goes with all four pictures!". Below this are four images: a person on a beach, a science lab, two people stretching, and a person reading. To the right is a list of words: acrid, condolence, prudent, bemused. At the bottom right is a "Play" button with a speaker icon. The app interface also shows various icons at the top right, including a search icon, a home icon, and a settings icon.

Low Tech Method

With InferCabulary, students see a PowerPoint page with:

- **6 images** showing examples of the word
- in a **variety of contexts**
- instead of relying on students encountering these multiple contexts in literature over time

Prominent



Oblivious



4 Steps to Create an InferCabulary Lesson



1. Complete **vocabulary rating scale**
2. Write **student-friendly definition**
3. Search for variety of photos for (e.g., Dreamstime, Photospin) by typing word in search box. Use **synonyms**, and **scenario** words, too.
4. **Download images** or draw on the template.

1. Complete Vocab Rating Scale

Words	4 I know it well	3 I know it, but can't say what it means	2 I've heard it or seen it, but not sure what it means	1 I've never heard it before
reluctant			✓	
oblivious				✓
prominent			✓	
protrude		✓		

Use words rated #1 or #2

2. Student-friendly Definition

Many definitions come home looking like this:

prudent [prood-nt] adjective

Wise or judicious in practical affairs;
sagacious; discreet or circumspect; sober

11th grade words in definition to “learn” a 6th grade word

2. Student-friendly Definition

How about this, instead?:

prudent [prood-nt] adjective

describes someone who makes good choices;
wise

English Cobuild Dictionary

using
Google
Chrome



exasperated meaning, exasperated definition | English Cobuild dictionary

exasperated



English



Simple Definition

Search

English-French

English Definition

English Synonyms



exasperated

Search also in: Web News Encyclopedia Images



Click on any word, search it, hear it and so much more...

Collins

exasperated

If you describe a person as exasperated, you mean that they are frustrated or angry because of something that is happening or something that another person is doing. **adj** *oft ADJ by/with/at n*

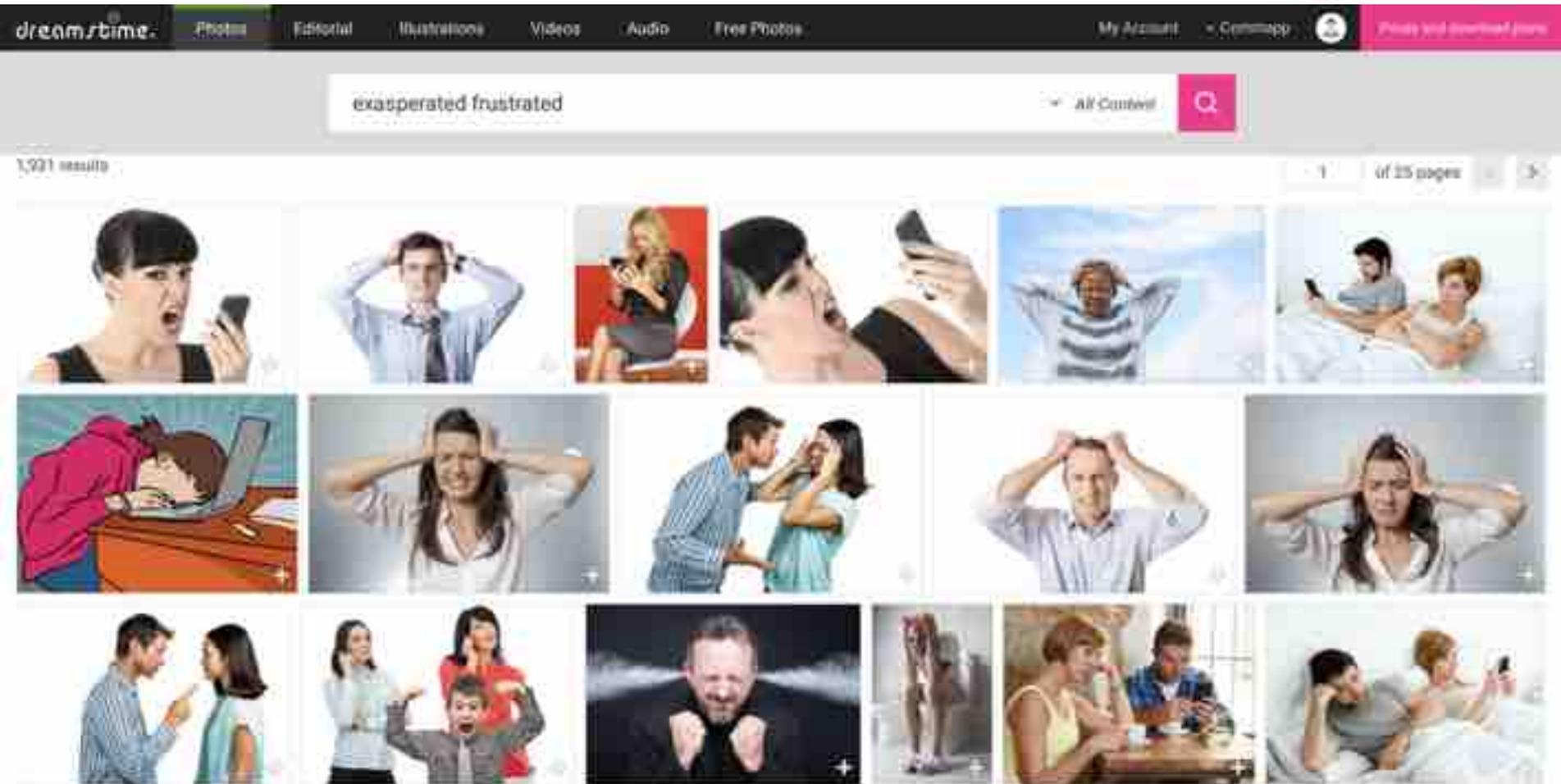
The president was clearly exasperated by the whole saga...

Translation English Cobuild Collins Dictionary



See also: [exasperate](#), [exaggerated](#), [exasperating](#), [exasperation](#)

3. Photo Site



The screenshot shows the Dreamstime.com website interface. At the top, there is a navigation bar with the Dreamstime logo and menu items: Photos, Editorial, Illustrations, Videos, Audio, and Free Photos. On the right side of the navigation bar, there are links for 'My Account', 'Cart', and 'Photos and download page'. Below the navigation bar is a search bar containing the text 'exasperated frustrated'. To the right of the search bar is a search icon and a dropdown menu set to 'All Content'. Below the search bar, it indicates '1,931 results' and '1 of 25 pages'. The main content area displays a grid of 15 thumbnail images showing various people in states of frustration or exasperation, such as holding their heads, shouting, or looking stressed.

Dreamstime.com

4. Download Images or Draw them

word

Definition -

IC InferCabulary

2017
Reading, Literacy & Learning
ANNUAL L&L CONFERENCE

exasperated

Click all the pictures to learn more about this word.





exasperated

[View Definition](#)



I'm so angry because I just lost my job and now my car won't start.



The babysitter is frustrated because he can't get him to stop crying.



I feel incredibly annoyed because I worked so hard on this proposal that got rejected!



I'm frustrated that the babysitter cancelled last minute.



I'm so annoyed that this is the fifth time my computer has crashed this month!



I'm stressed because I waited until the last minute to get all this done.

 Show all Captions

InferCabulary - Base Camp mode



IC InferCabulary

Logout

Dashboard

Fluster

My Account

Support

 unfastened

ICONS: CAPABILITIES: 8/1

Click all the pictures to learn more about this word.



InferCabulary- The Climb mode



IC InferCabulary

Logout

Dashboard

Roster

My Account

Support

Choose the word that goes with the pictures above.

ASCENT

9/17



dispersion

unfastened

incoherent

affability

Play

InferCabulary

Demonstration



Questions?



Beth Lawrence – Beth@InferCabulary.com
Deena Seifert – Deena@InferCabulary.com

Try our Demo at InferCabulary.com

Test of Semantic Reasoning (TOSR)

Academic Therapy Publications



TOSR reliability:

Internal consistency: Cronbachs alpha
from 0.94 to 0.97

Test-retest: $r(86)=0.94$, $p<0.01$

TOSR validity:

Correlation between TOSR and
ROWPVT-4: $r(20)= 0.72$, $p<0.001$

Matched samples:

Specific language impairment:
 $t(34.37)=3.28$, $p=0.002$

Learning disability: $t(29.77)=3.34$,
 $p=0.002$

