

Struggling Adolescent Readers and Vocabulary  
Development across the Content Areas:

*“Word Generation”*

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# Agenda

- Reminding ourselves about struggling readers
- The particular challenges of reading comprehension, particularly in content areas
- Vocabulary focus
- One approach to teaching vocabulary and academic language
- What makes *Word Generation* work?
- Some implications

# The scenario of adolescent literacy

- Only 30% of secondary students read proficiently (nationally)
- 89% of Hispanic and 86% of African American middle and high school students read below grade level (NCES, 2005)
- 96% of 8<sup>th</sup> grade LEP students scored below the basic level (4% scored proficient or advanced on 2005 NAEP)

# 2007 NAEP Grade 8 shows little improvement

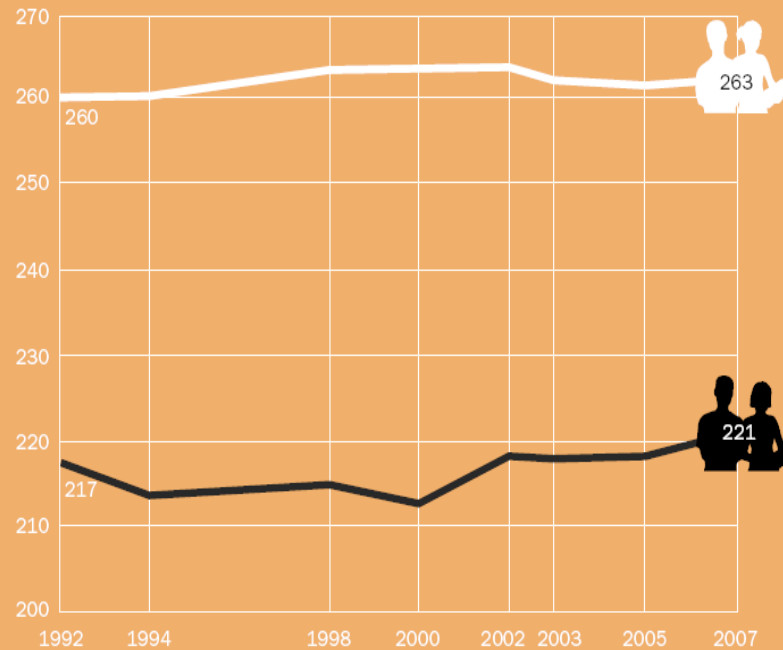
Fourth graders have made progress in reading since 2000.

Fig  
1-2

But eighth-grade reading scores are flat

Source: NAEP data explorer,  
<http://nces.ed.gov/nationsreportcard/nde/>

Reading NAEP Scores



— 8th Grade  
— 4th Grade

## 2007 NAEP: English Language Learners

- 86% scored at basic or below
- 14% scored at proficient
- 57% of adolescent ELLs were born in the US
- According to NCES produced data on dropout rates for 2002 by race and ethnicity, **one third of dropouts were Hispanics.**

# Hypothesis / “adolescent literacy crisis”

- Something happens in the middle schools (engagement, motivation?)
- Greater language demands of secondary texts, particularly vocabulary that occurs across content area texts
- Unfamiliarity with specific academic vocabulary—the words necessary to learn and talk about academic subjects (*analyze, develop, interpret*)

# Poor comprehension outcomes in the middle school

- Poor comprehension outcomes in middle school are not necessarily a product of poor word reading, lack of vocabulary and academic language seem to be
- Lack of knowledge of the middle and lower frequency “academic “words encountered in middle and secondary school texts impedes comprehension of those texts (e.g., Stahl & Nagy, 2006; Stanovich, 1986; Carlo, 2005)

- A significant part of the achievement gap is a vocabulary gap (true for native English speakers and ELLs)

Think about students after the fifth grade;  
pick your favorite reason for struggling  
readers

- Word reading difficulties
- Fluency
- Motivation
- Vocabulary
- Background knowledge
- Syntax
- Text structure

# The Marlup

The marlup was poving his kump. Parmily a narg horped some whev in his kump. “Why did vump horp whev in mh frinkle kump?” the marlup jufd the narg. “Er’m muvvily trungy,” the narg grupped.

“Er heshed vump norpled whev in your tranquil kump.” Do vump pove your kump frinkle?

1. Who was poving his kump?
2. Who juffed the narg?
3. How trungy was the narg?
4. What kind of kump does the marlup have?
5. How would you feel if a narg horped in your marlup's kump? Why?

- Why were you able to answer most comprehension questions?
- Why did you have difficulty with the final question?

- By using decoding and other skills, students can fluently “read” largely incomprehensible texts.
- Struggling readers can seem proficient in comprehension if questions or activities simply require them to "pluck from the text" a satisfactory response.
- The best way to check for real comprehension, background knowledge, and vocabulary is through meaningful interactions with texts

# A brief history: SERP and Word Generation

- In 2004: Boston Public Schools (BPS) partnered with SERP to improve academic achievement in selected middle schools
- 2005-2006 -Surveyed/interviewed middle school teachers and administrators
  - Vocabulary was cited as a recurring problem that interfered with reading comprehension
- BPS reading assessment data (GRADE/SRI) confirmed that vocabulary was indeed a challenge
- A SERP “interventions sub-group” developed a program to improve word knowledge (Word Generation or WG)
- “Word Generation” was piloted in three BPS middle schools (2006-2007) school year; 6 BPS middle schools in 2007-08; this year in 8 BPS middle schools

# Challenges to Vocabulary Instruction

Our initial classroom observations in BPS revealed that:

- Vocabulary is not usually taught
- Instruction is fragmented between content areas
- Texts fail to engage adolescents

# **What is Word Generation?**

# Over-arching goal of WG

- The fundamental goal of the intervention is to create an effective word study program that develops a repertoire of vocabulary-building practices among teachers and students, which become “institutionalized” over time across all subject areas.

## Word Generation: Program Goals

- Build the vocabulary of middle school students through repeated exposure to high frequency academic words in various contexts;
- Promote regular use of effective instructional strategies among teachers;
- Facilitate faculty collaboration on a school-wide effort.

# Word Generation: Materials

- 24 weeks, each focused on a set of 5 target words selected from the Academic Word List (AWL) (15 minutes a day/5 days a week)
- Passages written at 6<sup>th</sup> grade level
- Passages written to engage adolescents in the “national conversation” as well as on topics of great interest to this age group
  - Federal funding for stem cell research
  - Should amnesty be given to undocumented immigrants?
  - Athletes and multi-million dollar salaries
  - Affirmative action and college admissions
  - Should you be able to rent a pet?
  - Should we stay in Iraq?
  - Should there be curfews for teenagers?
  - Junk food: Should it be sold in schools?

# Word Generation: Weekly Schedule

Monday

Passage  
introduces  
words

Tuesday-Thursday

Content-area  
word activities

Friday

Writing with  
focus words

# Day 1 - Launch

- Introduction to passage, containing *academic vocabulary*, built around a *question* that can support discussion and debate

## Should the government pay for stem cell research?

In summer 2003, toddler Kai Harriott of Boston was sitting on her porch, singing with her sister. A gang member shot into the air to scare Kai's neighbors. Kai was hit by a bullet. After being shot, Kai was paralyzed. She could not move from the waist down. Because of her injury, Kai must use a wheelchair. Scientists have a theory that stem cells can someday help people like Kai.

Stem cells are found in different parts of the human body, including in our blood. Stem cells are also found in fertilized human eggs, called embryos. Stem cells from embryos can develop into cells that do many different jobs in the human body. With more research, we may be able to grow replacement parts for humans from stem cells.

If doctors can grow spinal cord cells, people like Kai might walk again. New brain cells could help people who have had strokes or Alzheimer's. Scientists might also learn to grow the cells that make insulin. This could help people with diabetes. But to obtain stem cells, scientists must destroy a human embryo.

Many people think that human life begins when an egg is fertilized. They think destroying a human embryo is murder. They say scientists should only work with stem cells from adults. But stem cells from adults won't grow into many different kinds of human cells. Stem cells from embryos may be our only hope of curing diseases. Investigating stem cells will take years and cost millions. Should the government pay for stem cell research?

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If doctors can grow *spinal cord cells*, people like Kai might walk again. New *brain cells* could help people who have had *strokes* or *Alzheimer's*. Scientists might also learn to grow the cells that make *insulin*. This could help people with diabetes. But \_\_\_\_\_ stem cells, scientists must destroy a human \_\_\_\_\_.

Many people think that human life begins when an egg is *fertilized*. They think destroying a human \_\_\_\_\_ is murder. They say scientists should only work with *stem cells* from a \_\_\_\_\_. But *stem cells* from adults won't grow into many different kinds of human cells. *Stem cells* from \_\_\_\_\_ may be our only hope of curing diseases \_\_\_\_\_ *stem cells* will take years and cost millions. Should the government pay for *stem cell* \_\_\_\_\_?

## Included in Day 1

- A list of five *target words*, both *academic vocabulary* and *content vocabulary*, and their definitions, both kid-friendly and dictionary-like

**Paralyzed** (adj.): Unable to move

**Embryo** (n.): An organism at a very early stage of development; a fertilized egg

**Theory** (n.): A hunch, an unproven idea, or a systematic set of predictions

**Obtain** (v.): To get

**Investigating** (v.): Learning about; exploring

## Also included on Day 1:

- A list of five *comprehension questions*, to guide the class in checking understanding of the passage

### Comprehension Questions:

1. How was Kai Harriott paralyzed?
2. What theories do doctors have about how stem cells could help people?
3. What is an embryo?
4. Why do some people think we shouldn't obtain stem cells from embryos?
5. Should the government pay for the work of scientists who are investigating stem cells?

## Day 2- Social Studies

- Developing *positions on the issue* set out in the passage, to help the class frame the debate.

### Positions:

1. Scientists should not be allowed to investigate cures for disease using stem cells from embryos. This is trying to “play God”.
2. Destroying an embryo to get the stem cells is murder.
3. The government should pay for embryonic stem cell research. This could lead to cures for many injuries and diseases.
4. Scientists should be allowed to do research on embryonic stem cells, but the government should not pay for it because many taxpayers oppose it.

Note: these are **optional**. The class may want to develop its own positions!

## Day 3- Math

- MCAS-type mathematics problems using some of the target words:

1. Some people believe that embryonic stem cell research is important. They think this because scientists use these cells to investigate diseases. Scientists try to find cures for these diseases, and for conditions like paralysis. Other people believe that embryonic stem cell research is wrong. They think this because scientists must destroy embryos to obtain these cells. In a recent poll, 40.75% of people said that the government should not pay for embryonic stem cell research. Which decimal is equivalent to 40.75%?

- A) 4.075
- B) .4075 \*
- C) .04075
- D) .02

- a) Students can work in pairs
- b) Whole class discussion
- c) Open-response (show/explain how you got your answer)

## Day 4- Science

Cloze passages were redesigned in order better to promote discussion and academic language use. Students engage with a brief *gedankenexperiment* designed to provide opportunities for student use of scientific reasoning and academic language in formulating conclusions from the data provided.

*Disclaimer:* These are fictitious data based on actual gun control laws. This is not to be attempted or replicated or quoted in anyway. Professors Lexie Kahn and Paul E. Seemy are Word Generation characters and not real scientists.

*Target Words* subsequently, dominant, import

*Background Information*

*Questions:* Are people more aggressive in countries that allow handguns?

*Hypothesis* Citizens of countries that allow handguns are more aggressive than citizens of countries that do not.

*Materials*

*Procedure*

*Data:*

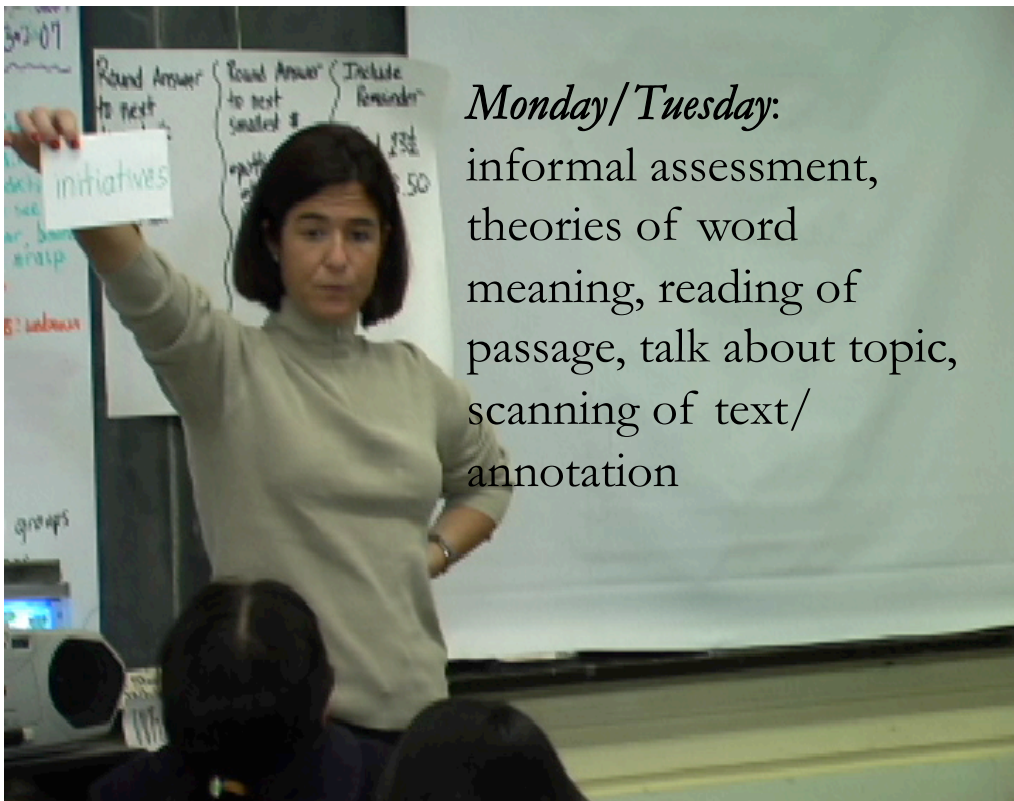
*Conclusion*

*What evidence do you have that supports your conclusion?*

# Day 5- ELA

- Writing Activity:

Should the government pay for stem cell research? Give evidence to support your position.



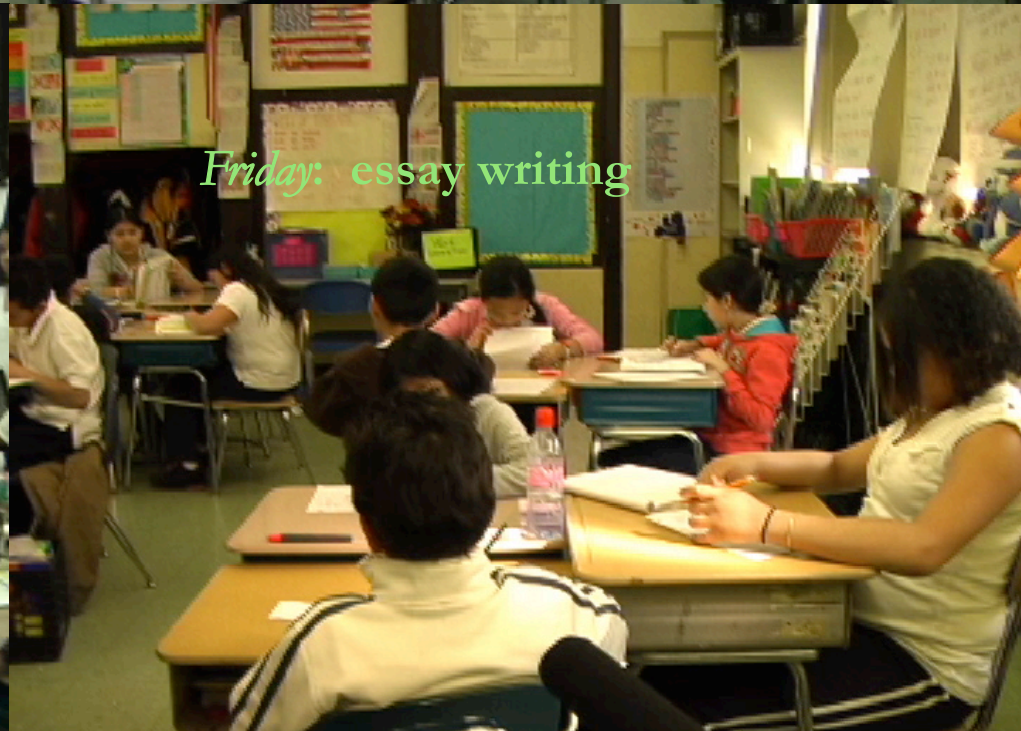
*Monday/Tuesday:*  
informal assessment,  
theories of word  
meaning, reading of  
passage, talk about topic,  
scanning of text/  
annotation



*Tuesday/Wednesday:*  
informal assessment,  
group work relating words  
to world



*Wednesday/Thursday:* debate



*Friday:* essay writing

# Principles of Effective Vocabulary Instruction

Multiple, recurrent exposures

Need to hear words in varied contexts

Opportunities to use the words in speaking and writing

Some targeted direct teaching

Word learning strategies

- Morphological analysis

- Attention to polysemy

- Attention to etymology/cognates to words

Video Clip: (Jen Henderson-DiSarcina)  
Should there be grade requirements to be  
eligible to play sports?



**What is the evidence that Word  
Generation works?**

# School Profiles

- Reilley: 62% Black, 9% White, 18% Hispanic, 9% Asian; 25% special education
- Westfield: 80% Black, 1.8% White, 1.9%; 18% Hispanic, 1.6. Asian; 30% Special education
- Neither made AYP

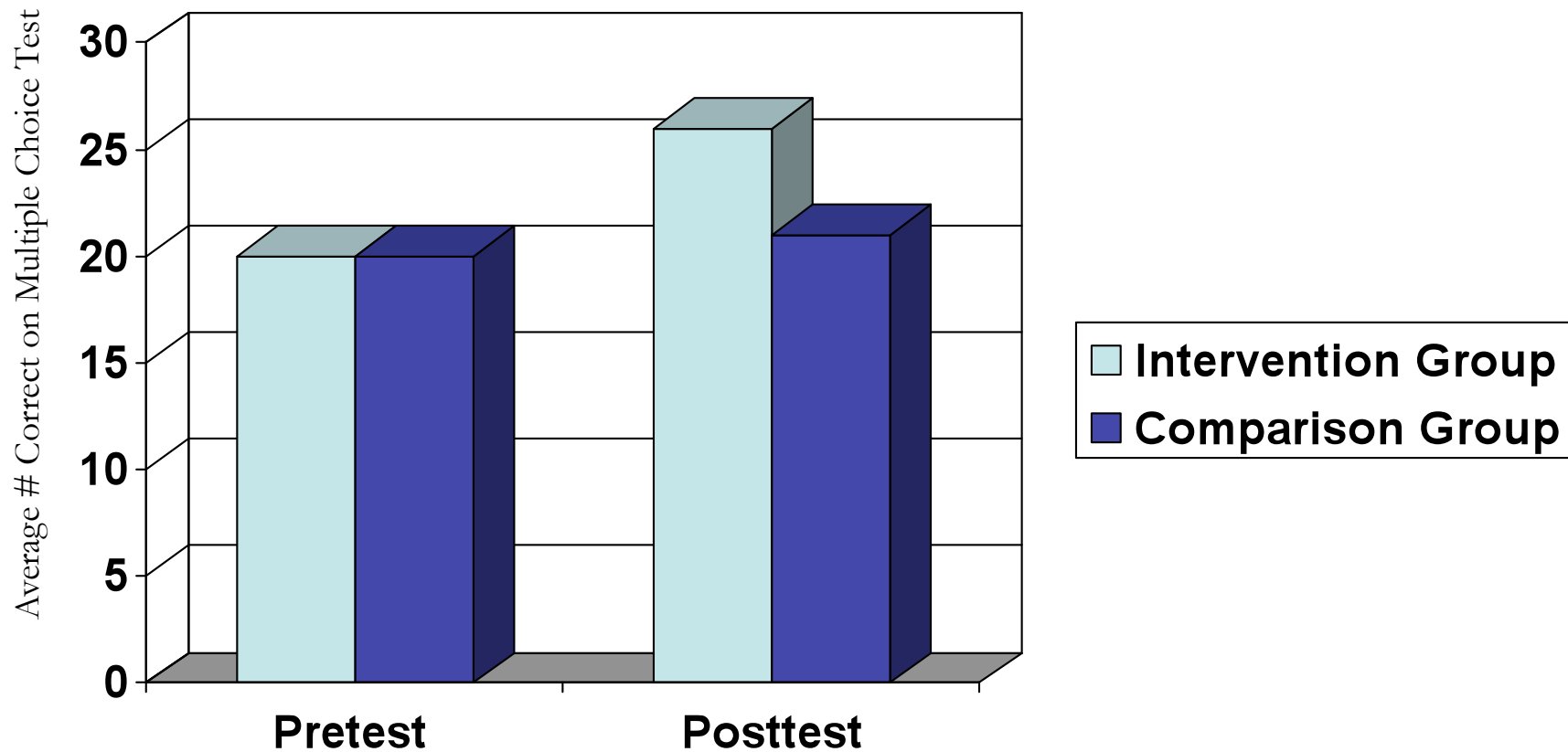
# Survey Results

1. Reilley: high internal accountability; strong teacher responsibility for student learning, strong instructional leadership
2. Westfield: low internal coherence and accountability; weak teacher trust of colleagues and leadership; limited responsibility for student learning and student achievement

# Year 1: Multiple Choice Test Results

	Mean percent correct		Paired T-tests	
	Pre	Post	n	t
School 1 6 <sup>th</sup>	62.41	68.85	29	3.33**
School 7 <sup>th</sup>	65.58	75.22	46	6.03***
School 8 <sup>th</sup>	74.06	83.28	64	6.41***
School 2 6 <sup>th</sup>	70.48	75.13	104	1.78~
School 7 <sup>th</sup>	72.51	77.58	110	2.43**
School 8 <sup>th</sup>	74.11	81.47	120	3.64***

# School 3: Multiple Choice Test Comparison



# Year 2 results

	Pretest		Post test		
	Mean Gain	SD		Mean	SD
• <b>Comparison</b> (n= 294) (3)	21.02	6.20	22.97	7.15	1.95
• <b>Treatment</b> (n=632) (5)	18.53	6.17	22.93	7.33	4.4

Do students use (and re-use) the target WG Words in their Writing?

- On average, 2 of the 5 target words were used in the weekly essays
- On average, 10 past target words were used across the intervention

# Top 4 Learned Words

- **impact** (used 50 times after it was introduced)
- **analyze** (used 40 times after it was introduced)
- **conflicted** (used 33 times after it was introduced)
- **benefit** (used 21 times after it was introduced)

# Writing Quality Results

- Interestingly... most of the growth occurred during the last 10 weeks of the intervention:
  - First 10 weeks = .03 (or .58 points)
  - Second 10 weeks = .04\* (or .81 points)

## *Who is responsible for protecting teens from on-line predators?*

(target words: pose, contact, prime, minimum, unmonitored)

- My perspective about the controversy of the debate is that the government is the person responsible for protecting teens from online predators. Because the government should have a meeting with people who will like to make a website and the government should make the person who would like to make a website sign a contract with things that are important to have on the website and rules to. I can also justify my perspective by saying that it is the government's fault if there is a kid in every part of the world who sees one website that is important or dangerous. The kids can create noise and tension between them and their parents. The kids will tell and pass on to more kids to see the website and they will become bad kids and they will not be focused on school and the things they do in school like research data and facts or cite their perspectives about things they will miss their future. Their life will never be ongoing so that is my biases about who is responsible for protecting teens from online predators.

Yadarys: Resource Room: 6th grader; recent arrival  
from the Dominican Republic

(rewritten and analyzed for target word use from other  
weeks)

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Word Count: 194

# Yadarys: Target word use

biases, cite, contract, controversy, data, debate, focus,  
inappropriate, justify, on-going, perspective, research, site,  
tension

Week 1: controversy, perspective, biases, debate

Week 2: research, cite, data

Week 3: on-going

Week 4: tension

Week 13: focus

Week 6: inappropriate

Week 15: 0 (pose, contact, prime, minimum, unmonitored)

# #1 Benefit of WG: Improved Writing

## Examples of student responses about the benefits of WG.

It got me familiar to new words and my writing got better.

When we go and write something our writing sounded much more mature.

Now I use more Word Generation in my writing.

Before I only used simple and boring words. Now I'm a better writer because my writing has Word Generation words and it makes it more interesting.

I learned new words. I made my writing sound outstanding.

# Teacher comments/survey

- “Helps with building persuasive writing skills”
- “ I had students who quickly improved in their paragraph organization within the context of WG open responses. Having high interest materials to teach vocab acquisition, written expression, and providing evidence to support opinions made my job much easier, as materials were already made at an accessible level.”
- “Math reflections are much longer now.”
- “Saw great results by year’s end.”
- “Open responses improved dramatically.”

# What makes WG work?

- Factors at two levels: School internal coherence and Classroom talk
- Internal coherence: what should be happening?
- Classroom talk: what should you see?

# Internal Coherence and Accountable Talk

# The nature and impact of internal coherence (Elmore)

- **Internal coherence means:** Schools understand that quality of instruction and learning are linked to how the school operates as an organization; high internal coherence correlates with responsibility for student learning and teaching
- **Internal coherence allows:** for an intervention to take root; creates greater lateral accountability by teachers and strong instructional leadership by principals;
- **Word Generation promotes Internal Coherence** by: engaging all content area teachers in a school-wide effort

# Classroom Talk

- Teacher does not dominate the floor
- Teacher uses accountable talk moves
  - Revoicing
  - Inviting students to revoice each other
  - Inviting students to contest each other's views
  - Insisting on warrants for claims
  - Insisting on reactions to claims, not people
- Students engage one another in discussion
- Discussion is text-linked, not just opinion
- Target words and other academic talk features are modeled by teachers and used by students
- Classroom discussion leads to improved writing outcomes

- From this pilot there was positive evidence (student, school, district level)
- Clear gains in target word knowledge
- Improved writing outcomes (Mancilla-Martinez, 2006; Meacham; 2006)
- Teacher participation in improving materials
- Greater faculty collaboration across content areas
- Targeted approach to year 2 for more rigorous evaluation; district selected treatment and comparison schools

Targeting the right words works

Explicit teaching of high leverage vocabulary works

Vocabulary taught by all content area teachers works

Embedding the target words in engaging texts and  
cross content area activities works

Partnership model works

# Updates

- Word Generation 3-day Summer Institute: June 18-20, 2009 (<http://www.gse.harvard.edu/pe/k12/programs/serp.html>)
- Word Generation Website ([wordgeneration.org](http://wordgeneration.org)) launched through April 28 Webinar
- Adaptation of WG for English language learners

Thank you...

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