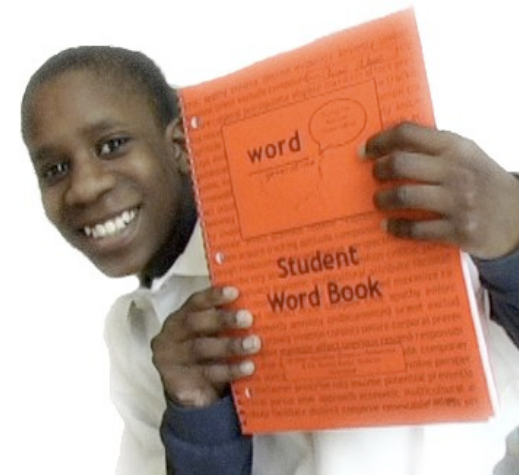

Developing Academic Language across the Content Areas: *Word Generation*

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Word Generation Summer Institute
Strategic Education Research Partnership/SERP
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The Strategic Education Research Partnership (SERP)

- Organization that brings together researchers and practitioners to solve problems together in real time
- Work regularly with superintendents, academic superintendents, directors of literacy, administrators, (and most importantly) with *practitioners* together with experts in the field to contribute to the development of tools and materials that are field tested in the schools

Purpose of this presentation

- ❑ To discuss how gaps in vocabulary in middle school students, particularly English language learners and low-income students, interfere with comprehension of content area texts
- ❑ To introduce the *Word Generation* curriculum – a program designed to teach academic vocabulary daily across the core content areas through discussion-based activities

Agenda

- The nature of the problem: Reminding ourselves about struggling readers with a focus on English language learners and low-income children
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- The crucial role of discussion in promoting academic language
- One approach to building vocabulary and academic language through discussion: *Word Generation*
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The scenario of adolescent literacy and achievement

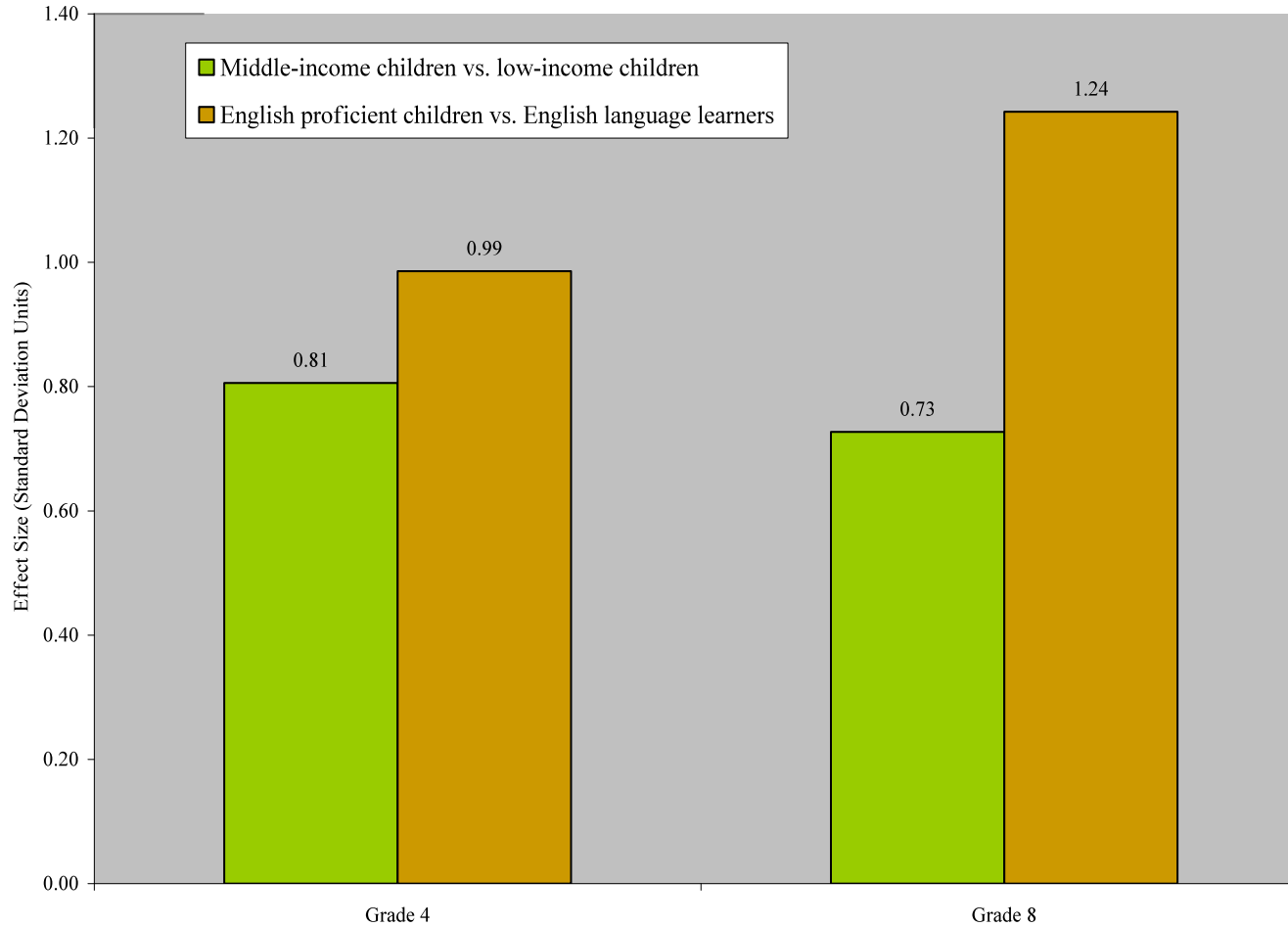
- ❑ Only 30% of secondary students read proficiently (nationally)
- ❑ 89% of Hispanic and 86% of African American middle and high school students read below grade level (NCES, 2007)
- ❑ 96% of 8th grade LEP students scored below the basic level; in other words, only 4% scored proficient or advanced on 2007 NAEP)
- ❑ 85 percent of low-income students who attend high-poverty schools and who took the 2009 NAEP reading test don't read proficiently by the time they reach fourth grade (Daggett & Hasselbring, 2007)
- ❑ Dropout rate for 2007: 21.4% Hispanic (NCES, 2009)

Adolescent English language learners

- ❑ 57% of **adolescent ELLs** were born in the US ((Batalova, Fix, & Murray, 2005)
 - This suggests many English-language learners are not learning the core content in English despite many years in US schools (August, 2006)
- ❑ Over 75% of ELLs are classified as low-income; with potentially limited L1 academic skills (although immigration is varied in terms of educational backgrounds and SES)
- ❑ The achievement gap between ELLs and non-ELLs is most striking at the middle and high school level (Education Week, 2009)
- ❑ Massachusetts: Since TBE was voted out, the high school dropout rate nearly doubled for students still learning to speak and write in English (Gaston Institute, UMASS, 2009)

TABLES/FIGURES

Figure 1: Achievement Gap on the 2007 NAEP Grade 4 and Grade 8 Reading by Family Income and English Language Learner Status



What happens?

- A look at K-4 outcomes

Grade 3 –Almost all kids (99%) of every ethnic/racial group have basic word reading skills (ECLS-K)

Skill Tested	Fall Kindergarten				Spring First Grade				Spring Third Grade			
	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian
Reading												
Letter Recognition	.749 (.378)	.600 (.424)	.546 (.446)	.790 (.349)	.999 (.029)	.994 (.060)	.998 (.034)	.999 (.004)	1 (0)	1 (0)	1 (0)	1 (0)
Beginning Sounds	.370 (.377)	.206 (.307)	.227 (.329)	.415 (.397)	.984 (.076)	.949 (.146)	.970 (.100)	.988 (.062)	.999 (.001)	.999 (.003)	.999 (.002)	.999 (.001)
Ending Sounds	.216 (.302)	.105 (.216)	.121 (.233)	.265 (.341)	.956 (.120)	.885 (.214)	.922 (.165)	.965 (.109)	.999 (.006)	.996 (.016)	.998 (.009)	.999 (.004)
Sight Words	.032 (.148)	.013 (.095)	.013 (.094)	.077 (.245)	.861 (.288)	.696 (.397)	.763 (.3630)	.891 (.261)	.995 (.042)	.975 (.099)	.988 (.065)	.997 (.028)

By Grade 3, there are racial/ethnic gaps in comprehension and literal inference items:

White = 86%, Black = 64%, Hispanic = 76%, Asian=87%

Skill Tested	Fall Kindergarten				Spring First Grade				Spring Third Grade			
	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian
Words in Context	.012 (.093)	.004 (.052)	.004 (.176)	.523 (.410)	.322 (.380)	.394 (.399)	.624 (.406)	.972 (.127)	.890 (.248)	.944 (.180)	.987 (.079)	
Literal Inference	.004 (.047)	.001 (.025)	.002 (.041)	.009 (.068)	.19 (.315)	.077 (.201)	.112 (.246)	.285 (.369)	.861 (.266)	.636 (.375)	.762 (.330)	.870 (.234)
Extropolation	0 (.006)	0 (.004)	0 (.006)	0.001 (.007)	0.032 (.084)	0.011 (.040)	0.017 (.053)	0.049 (.106)	0.353 (.282)	0.144 (.178)	0.234 (.239)	0.329 (.272)
Evaluation	0 (.013)	0 (.012)	.001 (.020)	.002 (.016)	.056 (.154)	.017 (.083)	.029 (.108)	.106 (.220)	.560 (.365)	.267 (.309)	.406 (.367)	.501 (.364)

Hypothesis/Fourth grade slump

- May in part be due to an increase in the cognitive and linguistic demands of grade level texts rather than a decrease in student skill
 - Early reading instruction focuses mostly on word reading
 - Greater demand for academic vocabulary knowledge in the later grades
 - ELL students with lower vocabulary and limited proficiency with the L2 have greater difficulty with comprehension

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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, refer, claim, develop, interpret*)
- ❑ We tend to focus on the unusual (*hollyhock, sarcophagus*) or on discipline-specific vocabulary/concepts (*antebellum, slope, isotopes*)
- ❑ L2 learners navigate all of the above with the added burden of acquiring English and mastering grade-level content simultaneously

Poor comprehension outcomes in the middle school

- ❑ Poor comprehension outcomes in middle school are not necessarily a product of poor word reading but a lack of vocabulary and academic language (e.g., Buly & Valencia, 2003; August & Shanahan, 2006)
- ❑ 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

Why are you able to read the following text?

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?

Comprehension Questions

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?

By using decoding and other skills, students can fluently “read” largely incomprehensible texts and answer “comprehension” questions

- ❑ Struggling readers and second language learners can seem proficient in comprehension if questions or activities simply require them to “pluck” a satisfactory response from the text.
- ❑ Background knowledge, vocabulary, and real comprehension must be checked by more meaningful interactions with texts
- ❑ Fast-paced, low-level question answer routines are the norm in most classrooms serving ELLs (Zhang, Anderson, & Nguyen-Jahiel, 2009)

-
- We need classroom discussion that provides struggling readers and ELLs with opportunities for developing language skills that gives them greater access to texts, to ideas, to higher-level thinking, to participation in national conversations

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Academic Discourse

- ❑ Gamoran & Nystrand study, (1991) showed that the amount of time engaged in discussion was the strongest predictor of achievement scores in 16 middle and high schools
- ❑ Applebee, Langer, Nystrand & Gamoran,(2003) Replication study over a period of two years, looking at the impact of discussion-based approaches in 20 middle and high schools researchers found growth in abstraction and elaboration in writing (specifically about literature)

Evidence concerning the role of discussion

Classroom discussion is rare and brief

(Applebee, Langer, Nystrand & Gamoran, 2003)

	Low track classes	Middle track classes	High track classes	Mixed classes
Minutes of discussion/lesson	0.70	1.44	3.30	1.42

And it has always has been (Gamoran & Nystrand, 1991)

Discussion-based reading programs/ pedagogical approaches

- Book Clubs, Literature Circles, Instructional Conversations, and Collaborative Reasoning have been used successfully to develop ELLs reading comprehension and develop their higher order thinking skills
- These programs/approaches provide valuable opportunities for language development and improved reading comprehension

Language rich discussions/CR with ELLs (Zhang, Anderson, & Ngyuyen-Jahiel, 2009)

- ❑ Found that over a four-week period (8 discussions), ELL fifth-graders who participated in the peer-led, open format discussion approach, (CR) resulted in improvements on listening and reading comprehension measures as well as in the production of more coherent narratives with more diverse vocabulary and text evidence
- ❑ Doubled the ELL students' rate of talk

Theory of Action

**Teacher skill
in promoting
discussion
and debate**

**Discussion
and debate**

- **Perspective taking**
- **Complex reasoning**
- **Academic language skills**

- **Deep reading comprehension**
- **Analytic writing**
- **Productive participation in
discussion and debate**

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Why a word study program?

- ❑ The district and the Strategic Education Research Partnership have been engaged in a multi-year collaboration focused on improving reading comprehension at the middle school level
- ❑ Middle school teachers and administrators in the Boston Public Schools identified students' limited vocabulary knowledge as an obstacle to reading comprehension
- ❑ This led to the design and development of a cross-subject vocabulary program with discussion as a primary focus for developing academic language for the middle school

Challenges to Vocabulary Instruction

Our initial classroom observations in middle school classrooms revealed that:

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

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, especially the importance of **discussion** across all content areas teachers;
- ❑ Facilitate faculty collaboration on a school-wide effort.

Research base: Principles of Effective Vocabulary Instruction

Students need multiple, intentional exposures to language/words for internalization

Students need to hear and use high leverage words in varied contexts

Students need opportunities to use the words in speaking and writing

Targeted direct teaching can be effective

Imparting word learning strategies has long term effects

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 6th grade level
- ❑ **Passages written to engage adolescents in high-level discussions on nationally-relevant topics as well as in topics that are of great interest to this age group**
 - Should there be federal funding for stem cell research?
 - Whose responsible for protecting teens from on-line predators?
 - Should amnesty be given to undocumented immigrants?
 - Politics and Privacy: do we need to know everything about a candidate?
 - Should you be able to rent a pet?
 - Should there be curfews for teenagers?
 - Junk food: Should it be sold in schools?

Word Generation: Weekly Schedule

Monday

Paragraph
introduces
words

Tuesday-Thursday

Math-Science-Social Studies

Friday

Writing with
focus words

Day 1 - Launch

Introduction to weekly passage, containing academic vocabulary, built around a question **that can support discussion and debate**, (comprehension questions, student friendly definitions included)

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?

Day 2 - Science

Thinking experiments to promote discussion and scientific reasoning

Topic: not directly related to stem cell research but clearly a link could be made

Target Words:

Background Information: Countries have different views about citizens carrying guns. In some countries the import and export of guns is illegal. Subsequently, no citizen can own a gun in those countries (text continues).

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 3 - Math

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

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

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

Day 4- Social Studies

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

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

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.

Day 5 - ELA

□ Writing Activity:

Should the government pay for stem cell research?

Give evidence to support your position.

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Year 1 Pilot Schools

Westfield

Middle School

- 80 % Black
- 16% Hispanic
- 1.8 White
- 1.6 Asian
- 29% Special Education
- MCAS

Reilley

Middle School

- 62% Black
- 18.1 % Hispanic
- 9.3% White
- 8.9 % Asian
- 25% Special Education
- MCAS

Multiple Choice Test Results

		Mean percent Correct 1 st 12 week words	
Grade	n	Pre	Post
W	Six	65.09	77.82
	Seven	68.20	82.75
	Eight	74.67	85.02
R	Six	68.28	77.02
	Seven	72.24	79.04
	Eight	75.03	83.96

Multiple Choice Test Results

		Mean percent Correct 1 st 12 week words		
Grade	n	Pre	Post	
W	Six	29	65.09	77.82
	Seven	46	68.20	82.75
	Eight	64	74.67	85.02
R	Six	104	68.28	77.02
	Seven	109	72.24	79.04
	Eight	120	75.03	83.96

Year 2 results

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

40 items...represents 4.5 word gain.. Taught 120.. Infer they gained approximately 14 target words through participation in all the weekly activities; students who gained more words also did better on the MCAS

Descriptive statistics also suggest that students who spoke a language other than English at home improved more than monolingual English students on measures of target word knowledge (Snow, Lawrence, & White, 2009)

	Students who spoke a language other than English at home				Students who spoke English at home			
	Comparison School (n = 151)		WG School (n = 287)		Comparison School (n = 168)		WG School (n = 410)	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
<i>Mean</i>	21.10	22.38	18.56	22.26	21.32	23.03	18.70	22.32
<i>SD</i>	6.40	6.84	6.46	7.06	6.81	7.36	6.49	7.12
<i>Gains</i>	1.28		3.70		1.71		3.62	

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

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)
 - Practice effect only (no instructional guidance)

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Website: wordgeneration.org

“Should there be grade requirements to be eligible to play sports?”



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Serendipitous discoveries from WG classroom discussion and debates...

- ❑ Teachers are impressed by the sophistication of students' ideas
- ❑ Students value the opportunities for discussion, especially of more student-centered topics (although students were passionately engaged in debates around genetically modified foods and doctor-assisted suicide and federal funding for stem cell research)
- ❑ Struggling readers had a new venue from which to present themselves newly as academic, political, and social actors

Challenges discovered

- ❑ Launching/managing discussion is not part of teacher repertoires
- ❑ This is not a skill prioritized on state standards or through certification procedures
- ❑ Learning to do it is not easy (though it is possible)

To conclude..

- ❑ Engaging in WG discussion-based weekly activities across content areas can improve word learning for struggling readers and L2 learners on target word measures and their use in persuasive essays
- ❑ Embedding debate and discussion-based classroom activities as well as systematic vocabulary instruction school-wide has the greatest potential to accelerate the reading achievement of low-income children and especially English language learners

Thank you.. (white.claire@gmail.com)

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MA DESE Sponsor of WG Summer Institute

Literacy Partnership District Partners (737/738 grantees)

- Boston
- Cape Cod Collaborative
- New Bedford
- Worcester
- Marlboro

Word learning strategies

1. attend to affixes (morphological analysis)

de-construct-ing

2. multiple meanings (polysemy) (*volume*)

-origins of words (etymology) from sarx "flesh" (see [sarcasm](#)) + phagein "to eat" (see [-phagous](#)).

3. attend to cross-linguistic relationships (variable-*variable*)

4. highlight words that cross content areas (*interpret, refer, claim, investigate*)