Welcome to the Webinar!

Word Generation: Helping English Language Learners Strengthen Academic Vocabulary in the Core Content Areas

We will be starting soon.
Word Generation: Helping English Language Learners Strengthen Academic Vocabulary in the Core Content Areas

June 14, 2012
About the Resource Center

The U.S. Department of Education is committed to promoting effective practices, providing technical assistance, and disseminating the resources critical to ensuring the success of charter schools across the country. To that end, the Education Department, under a contract with American Institutes for Research, has developed the National Charter School Resource Center.
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Word Generation:
Helping English Language Learners Strengthen Academic Vocabulary in the Core Content Areas

Claire E. White
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Strategic Education Research Partnership/SERP
June 14, 2012
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, etc.

- Most importantly, we work with practitioners who contribute to the development of tools, resources 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 across the core content areas.
Agenda

- The nature of the problem: Reminding ourselves about struggling readers with a focus on English language learners and low-income children
- The particular challenges of reading comprehension, particularly in content areas
- The crucial role of discussion in promoting academic language
- One approach to building vocabulary and academic language through discussion: Word Generation
- Results: target word gains and writing outcomes
- Conclusion
Adolescent literacy and English language learners

- 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)

- 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)

- 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

<table>
<thead>
<tr>
<th>Effect Size (Standard Deviation Units)</th>
<th>Grade 4</th>
<th>Grade 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle-income children vs. low-income children</td>
<td>0.81</td>
<td>1.24</td>
</tr>
<tr>
<td>English proficient children vs. English language learners</td>
<td>0.99</td>
<td>0.73</td>
</tr>
</tbody>
</table>
A significant part of the achievement gap is a vocabulary gap (true for native English speakers and ELLs)

English language development is a misnomer for many ELLs; little emphasis on promoting or building ORAL language proficiency

Focus on decoding
The nature of the problem: Reminding ourselves about struggling readers with a focus on English language learners and low-income children

The particular challenges of reading comprehension, particularly in content areas

The crucial role of discussion in promoting academic language

One approach to building vocabulary and academic language through discussion: *Word Generation*

Results: target word gains and writing outcomes

Conclusion
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.

- Lack of knowledge of the middle and lower frequency “academic” words encountered in middle and secondary school texts impedes comprehension of those texts.
By using decoding and other skills, students can fluently “read” largely incomprehensible texts and answer “comprehension” questions

- 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)
How do we build oral language proficiency/academic language in English for ELLs?

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

<table>
<thead>
<tr>
<th></th>
<th>Low track classes</th>
<th>Middle track classes</th>
<th>High track classes</th>
<th>Mixed classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes of discussion/lesson</td>
<td>0.70</td>
<td>1.44</td>
<td>3.30</td>
<td>1.42</td>
</tr>
</tbody>
</table>

And it 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, & Nguyen-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.
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Why did we develop a discussion-based cross-content academic language program?

- SERP (Strategic Education Research Partnership) was asked to focus on improving reading comprehension at the middle school level by its first partner (Boston)

- Middle school teachers and administrators identified students’ limited vocabulary knowledge as an obstacle to reading comprehension as did assessment data

- 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 multiple middle schools revealed that:

- Vocabulary is not usually taught in middle school
- If it is, usually falls on the ELA teacher
- If it’s done, usually word lists and memorization
- In other content areas, vocabulary is content-specific
- Texts fail to engage adolescents
- Discussion is rare; IRE prevails
How we responded: 3 levels

- Designed a program to:
  - Build the vocabulary of middle school students through repeated exposure to high frequency academic words in various contexts across all content areas;
  - Promote regular use of effective instructional strategies, especially the importance of discussion across all content area teachers;
  - Facilitate faculty collaboration on a school-wide effort (whole school adoption is highly recommended).
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 (organized discussion).
- Targeted direct teaching can be effective.
- Imparting word learning strategies has long term effects.
Word Generation: Materials

- 3 series (3 years of materials).
- 24 week-long units each focused on a set of 5 target words selected from the Academic Word List (AWL)
- Cross content activities: 15 minutes a day/5 days a week
- Texts written at 6th grade level
- Passages written to engage adolescents in high-level discussions on nationally-relevant topics as well as on topics that are of great interest to this age group
  - Should there be federal funding for stem cell research?
  - Should athletes be paid multi-million dollar salaries?
  - Should amnesty be given to undocumented immigrants?
  - Affirmative action and college admissions
  - 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
Launch
passage
introduces
words

Tuesday-Thursday
Math-Science-Social Studies

Friday
Writing with
focus words
Introduction to weekly passage, containing academic vocabulary, built around a question that can support discussion and debate, (comprehension questions, student friendly definitions included)
# Word Chart

## Unit 2.07

**Should the government fund stem cell research?**

**Focus Word Chart**

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Forms</th>
<th>Examples of Use</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>embryo</td>
<td>(n.) - new organism in a mother’s womb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>paralyzed</td>
<td>(adj.) - unable to move</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>theory</td>
<td>(n.) - an explanation for a set of related facts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>investigate</td>
<td>(v.) - trying to learn about</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>obtain</td>
<td>(v.) - to get</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Math

Unit 2.07
Should the government fund stem cell research?
Problem of the Week

President George W. Bush restricted government funding on stem cell research. On August 9, 2001, he said that scientists could not obtain federal money for research on embryonic stem cell lines created after that date. This paralyzed certain areas of research. Scientists put some scientific investigations on hold.

President Bush believed he had a moral duty to stop new embryos from being destroyed. Each embryo, he pointed out, is a potential human being. His theory was that using embryos for research cheapens human life.

President Obama has a different moral theory. He says human beings have a moral duty to help people who are suffering. Therefore, they should use science to fight disease. In 2009, President Obama lifted President Bush’s restrictions.

Option 1: Each embryo needed to start a stem cell line is made up of about 100 cells. Its mass is about one ten-millionth of a gram. Which of the following shows one ten-millionth?

A) .0001  
B) .00001  
C) .000001  
D) .0000001

Option 2: Each embryo needed to start a stem cell line is made up of about 100 cells. Each person is made up of about 100 trillion cells. Write both numbers in scientific notation. How many orders of magnitude separate the two numbers?

Discussion Question: In 2009, the FDA approved the first clinical trial using embryonic stem cells. A company called Geron Corp planned to inject embryonic stem cells into 8-10 people whose legs were paralyzed by a spinal cord injury. The Geron scientists had a theory that these cells could help repair damaged nerves. Obtaining subjects for the trial would take time, because the scientists wanted to inject the cells within a few days of the injury. They said the trial was primarily an investigation into whether injecting stem cells would be safe. But they also hoped to see whether the stem cells would help patients recover some movement in their legs.

Pretend that you are against stem cell research. What would you say to these researchers to convince them to give up this project?

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Thinking experiments to promote discussion and scientific reasoning

Unit 2.07
Should the government fund stem cell research?
Science Activity

Professor Seemy's class is talking about stem cell research.

"I saw a woman on TV who was paralyzed in a car accident," says Gabriel. "She said stem cell research could help her walk again."

"I saw a guy on TV who opposes stem cell research," says Toni. "He said that scientists kill babies to obtain stem cells."

"That's wrong," says Gabriel. "Scientists get stem cells from embryos that grow in a lab. Embryos aren't babies. They're tiny clumps of cells."

"People have strong opinions about stem cell research," says Professor Seemy. "But they may not understand stem cell science. I have a theory. I bet most people don't even know what stem cells are. Let's investigate!"

Question:
How many people can define "stem cell"?

Hypothesis:
Most people will not know these basic facts about stem cells:
  a. A stem cell is a cell that can become a more specialized cell.
  b. Stem cells become skin, blood, nerve, and muscle cells.
  c. All cells in a person's body come from (or stem from) stem cells.

Materials:
  ▶ 100 adults

Procedure:
1. Show each adult the 3 statements about stem cells.
2. Ask whether the statements are true or false.
3. Calculate the percentage of right and wrong answers for each question.

Data:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Right</th>
<th>Wrong</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>B</td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td>C</td>
<td>10%</td>
<td>90%</td>
</tr>
</tbody>
</table>

Conclusion:
Is the hypothesis supported or not by the data?

What evidence supports your conclusion?

How would you make this a better experiment?
Developing *positions on the issue* set out in the passage, to help the class frame the debate.

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**Unit 2.07**

**Should the government fund stem cell research?**

**Debate the Issue**

- **1. Get ready...**
  - Pick one of these positions (or create your own).
  
  **A**Scientists should focus on finding cures using adult stem cells instead of stem cells from embryos. There are valid ethical concerns about using embryonic stem cells.

  **B**Destroying an embryo to get the stem cells is like murder. This should be a crime.

  **C**The government should pay for embryonic stem cell research. This could be our only hope for treatment of many injuries and diseases that cause suffering and death.

  **D**Scientists should be allowed to do research on embryonic stem cells, but the government should not pay for it because many taxpayers oppose it.

  **E**

- **2. Get set...**
  - Be ready to provide evidence to back up your position during your class discussion or debate. Jot down a few quick notes:

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Give evidence to support your position.

Writing Prompt
Should the government fund stem cell research?

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

Focus Words
embryo | paralyzed | theory | investigate | obtain

A tool to help you think about your own writing!
Remember you can use focus words from any of the WG Units.
Check off what you accomplished:

- [ ] Stated my own position
- [ ] Included 1 focus word

Pretty Good
- [ ] Stated my own position clearly
- [ ] Included 1-2 arguments
- [ ] Included 1-2 focus words

Exemplary
- [ ] Stated my own position clearly
- [ ] Included 1-2 arguments
- [ ] Included 1 counterargument
- [ ] Used 3-5 focus words
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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Conclusion
## Multiple Choice Test Results

<table>
<thead>
<tr>
<th>Grade</th>
<th>n</th>
<th>Mean percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Six</td>
<td>29</td>
<td>65.09</td>
</tr>
<tr>
<td>Seven</td>
<td>46</td>
<td>68.20</td>
</tr>
<tr>
<td>Eight</td>
<td>64</td>
<td>74.67</td>
</tr>
<tr>
<td>Six</td>
<td>104</td>
<td>68.28</td>
</tr>
<tr>
<td>Seven</td>
<td>109</td>
<td>72.24</td>
</tr>
<tr>
<td>Eight</td>
<td>120</td>
<td>75.03</td>
</tr>
</tbody>
</table>
## Multiple Choice Test Results

<table>
<thead>
<tr>
<th>Grade</th>
<th>n</th>
<th>Mean percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1st 12 week words</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pre</td>
</tr>
<tr>
<td>Six</td>
<td>29</td>
<td>65.09</td>
</tr>
<tr>
<td>Seven</td>
<td>46</td>
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<td>72.24</td>
</tr>
<tr>
<td>Eight</td>
<td>120</td>
<td>75.03</td>
</tr>
</tbody>
</table>
## Year 2 results

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th></th>
<th>Post test</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Gain</td>
</tr>
<tr>
<td><strong>Comparison</strong></td>
<td>21.02</td>
<td>6.20</td>
<td>22.97</td>
<td>7.15</td>
<td>1.95</td>
</tr>
<tr>
<td>(n= 294) (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td>18.53</td>
<td>6.17</td>
<td>22.93</td>
<td>7.33</td>
<td>4.4</td>
</tr>
<tr>
<td>(n=632) (5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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).

<table>
<thead>
<tr>
<th></th>
<th>Students who spoke a language other than English at home</th>
<th>Students who spoke English at home</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comparison School (n = 151)</td>
<td>WG School (n = 287)</td>
</tr>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td>Mean</td>
<td>21.10</td>
<td>22.38</td>
</tr>
<tr>
<td>SD</td>
<td>6.40</td>
<td>6.84</td>
</tr>
<tr>
<td>Gains</td>
<td>1.28</td>
<td>3.70</td>
</tr>
</tbody>
</table>
Discussion/Debate and Writing Outcomes (WG)

The more English language learners hear academic language and use them in debates and classroom discussion, the more these all-purpose, fly-under-the-radar, high leverage words, appear in their writing.
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)
  - Practice effect only (no instructional guidance)
Yadarys: Transnational Dominican Student, ELL, LD, 6th grader
“Who is responsible for protecting teens from online predators?”

- 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 meding with people how will like to make a wedsite and the government should make the person how would like to make a wedsite sine a contraket with thing that are iniporeit to have on the wedsite and rules to. I can also justify my perspective by saying that it is the government folt if there is a kid in eney part of the world lays there see one a wedsite that is iniporeit or dangice. The kids can creat koce and tension between them and there parision. The kids will tell and pace on to more kids to see the wedsite and they will become bad kids and they will not be focest on school and the things they do in school like research data and facts or cite there perspectives about things they will mesup there fucher. There life will never be ongoing so that is my biases about who is responsible for protecting teens from online predators.
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 web site and the government should make the person who would like to make a web site sign a contract with thing(s) that are important to have on the web site and rules too. I can also justify my perspective by saying that it is the government’s fault if there is a kid in any part of the world lays there see one a web site that is inappropriate or dangerous. The kids can create chaos and tension between them and their parents. The kids will tell and pass on to more kids to see the web site 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 mess up there future. Their life will never be ongoing so that is my bias about who is responsible for protecting teens from on-line predators.

Word Count: 194
Target Words Used from Previous Weeks

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

Week 1: controversy, perspective, biases, debate
Week 2: research, cite, data
Week 3: on-going
Week 4: tension
Week 6: inappropriate
Week 13: focus
Week 15: 0 (pose, contact, prime, minimum, unmonitored)
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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)
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

- ELLs write impassioned essays on units that spoke to the immigrant experience, second language learning, amnesty was the top-scoring word on the target word measure

- Struggling readers have a new venue from which to present themselves newly as academic, political, and social actors
To conclude..

- Engaging in WG discussion-based weekly activities across content areas can improve word learning for 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.

- Update: IES grant to modify WG for grades 4-8; more discussion.
- Word Generation has been translated into Spanish.
- Word Generation is free and downloadable: wordgeneration.org.
Questions?

Raise your hand or enter your question in the chat box on the left side of your screen.
Thank you for participating.

- This webinar will be archived at the following website:  
  http://www.charterschoolcenter.org/webinars/

- Please share your feedback with us through the evaluation.

- We look forward to your participation in future Resource Center webinars.