Supporting English learners in the mainstream classroom: Sheltered instruction and beyond

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OABE– June 28, 2014
what’s hard about science for an English learner?
my list

“especially great vocabulary load”
abstract, dense noun phrases
“the exact relationship between temperature and volume of a gas…”
writing norms in lab reports differ from standard spoken English
everything that’s hard about science
Today’s Agenda

• Provide a short recap of how sheltered instruction addresses content and language needs of ELs

• Share what we learned from our study of one version of sheltered instruction

• Hear what implications you draw from the findings of our study

• Share some of our reflections about more might be needed to help ELs learn science & other content
part research findings
part reflection on findings
sheltered instruction

A program or approach that uses specialized instructional strategies to provide ELs in the mainstream classroom the opportunity to access grade-level content while also building their academic English.
sheltered instruction

SIOP
Sheltered Instruction Observation Protocol

Project GLAD
Guided Language Acquisition Design
Whales here, whales there
Whales, whales everywhere!

Curious whales, skyhopping
Playful whales, breaching
Noisy whales, lobtailing
And motionless whales, leaping

Whales in every ocean
Whales near the coast
Whales far from shore
And whales among their peers

Whales here, whales there
Whales, whales everywhere!
Key program elements

35 instructional strategies

Usable with any curriculum

Intended as a coherent package that builds
• Readiness and motivation to learn
• Content knowledge
• Ability to converse at a high level about the topic
• Ability to read and write at a high level about the topic
what does it look like?
Granite - most abundant intrusive Igneous Rock

Properties/Characteristics
- Made of mineral crystals you can see
- Different colors - minerals
- Large crystals
- Mechanical weathering - breaking rock into smaller bits
- Chemical weathering

Locations where it is found
- Deep in the earth
- Where erosion occurs
- Erosion

Interesting Facts
- Very strong
- Weathers slowly
- Well known Batholiths: Half Dome, Yosemite Valley, Sawtooth Mountains

Uses
- Past: arrowheads, tools
- Present: statuettes, monuments, buildings, countertops

Continental crust
- Batholiths
- Slow cooling, large crystal growth
- Magma chamber
- Formation
- Intrusive rock
- Formed inside the earth, magma cools slowly

Lithosphere
How does this compare to what you do in your school?
I have never had training that has been this good!
Research Questions

What is the impact of Project GLAD® teacher training on fifth-grade students’ achievement in ELA and science?

– For ELs?
– For nonELs?
Study population

30 Idaho schools
   21 districts
   50% located in rural communities

2250 grade 5 students
   65% Free/Reduced-Price Lunch
   33% Latino
   62% White
   13% ELs
Cluster Randomized Trial (CRT)

30 schools agreed to participate

15 received Project GLAD®

15 had “business as usual”
Outcome measures

**English language arts**
- Reading comprehension
- Vocabulary
- Essay writing

**Science**
- Rocks & minerals unit test
- State science test
## Year 1 Outcomes

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<th>ELs</th>
<th>Non-ELs</th>
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<tr>
<td>Comprehension</td>
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<tr>
<td>Vocabulary</td>
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<tr>
<td>Essay writing</td>
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<tr>
<td></td>
<td>(ideas &amp; organization)</td>
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<td>Rocks &amp; minerals</td>
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<td>State science test</td>
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Year 1 Literacy Outcomes
ELs only

Vocabulary Comprehension

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<td>15</td>
<td>459</td>
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<td>4</td>
<td>470</td>
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<tr>
<td></td>
<td>0.24</td>
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What’s an effect size again?

Difference between the Tx and C
Standard deviation of the group
<table>
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<td>.04</td>
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<tr>
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<td>.07</td>
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<td>Rocks &amp; Minerals</td>
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<td>.23</td>
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<tr>
<td>State Science</td>
<td>.12</td>
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Starting lower means you need a bigger boost.
Vocabulary
Comprehension
big picture – year 1

- language benefits for ELs
- reduction of the gap in vocabulary
- no benefits in science
- no benefits (but no harm) to nonELs
Can Project GLAD close that gap?

Multiple years
Additive effect?
Compounding effect?
year 2

same teachers (more experienced)
different students
same tests
## Year 2 Outcomes

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<tr>
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how can that be?!?
implementation

teachers reported use of same number of surveys
observers rated similar level of fidelity
students

somewhat different distribution of English proficiency
bigger impact for students with lowest English proficiency to start
how we teach science

Oregon science standards require a focus on inquiry-based instruction
Powerful science instruction

Inquiry-based
Uses evidence
  • Collect
  • Interpret
  • Communicate
what percent of elementary science lessons require students to supply evidence in support of their claims?

15%
what percent of science lessons are of “high quality”? 

14%
what percent of the time do students spend making presentations to the class?

4%
**Igneous Rock**

- **Granite** - most abundant intrusive
- **Properties/Characteristics**
  - Made of mineral crystals you can see
  - Different colors - minerals
  - Large crystals
  - Mechanical: breaking rock into smaller bits
  - Chemical

- **Locations**
  - Deep in the earth
  - Where erosion occurs

- **Continental Crust**
  - Batholiths
  - Slow cooling, large crystal grains

- **Formation**
  - Intrusive rock
  - Form inside the earth
  - Magma cools slowly

**Interesting Facts**
- Very strong
- Weathered slowly
- Well know Batholiths: Half Dome, Yosemite Valley, Sawtooth Mountains

**Uses**
- Past, present
  - Arrowheads, tools
  - Statutes/membrants, buildings, countertops

**Formation of Granite**

- Rock melts into magma at depth.
- Magma cools slowly to form intrusive rock.
Powerful science instruction

- FOSS kits
- Linguistic scaffolding

(ES = +1.39)

- Project GLAD
- Vocab ES = +0.21
  Comprehension = +0.24
what’s hard about science for an English learner?
what’s hard about science for an English learner?
what’s hard about ______
for an English learner?
More about this study
http://projectgladstudy.educationnorthwest.org/

Contact us
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