CREATE
Center for Research on the
Educational Achievement and Teaching
of English Language Learners

The SIOP Model and Professional Development: Supporting Teachers' Instruction of Middle School Learners Across the Content Areas

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Purpose of Session

- Present and explain student achievement data from CREATE SIOP studies.

- Explore connections between CCSS and the SIOP Model with regards to development of academic language through language objectives.

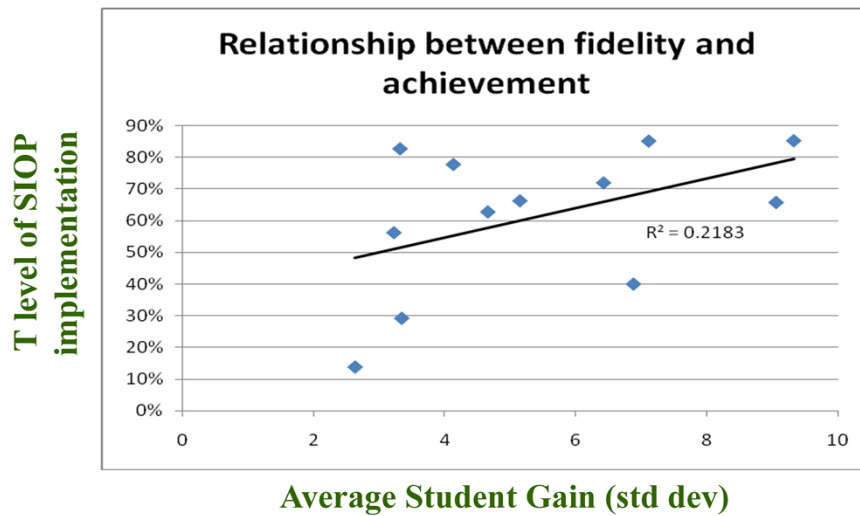- Guided lesson planning based on CCSS and the SIOP Model.

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Agenda

- SIOP overview
- Research findings on SIOP as the framework for CREATE
- CCSS and English learners
- Using the SIOP Model to meet CCSS
- Guided Lesson Planning in the SIOP Model
- Questions

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The SIOP Model (Echevarria, Vogt, & Short, 2008)
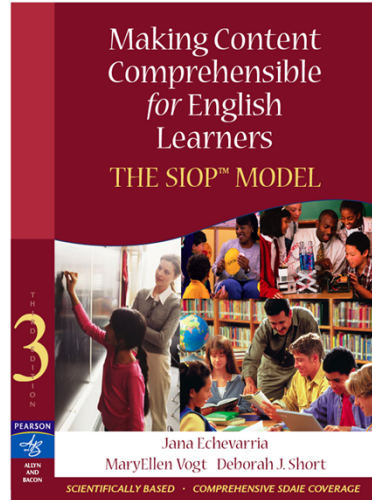
- Preparation
- Building Background
- Comprehensible Input
- Strategies
- Interaction
- Practice & Application
- Lesson Delivery
- Review & Assessment

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4

Relationship: Average Teacher Performance and Student Outcomes

Relationship between fidelity and achievement

T level of SIOP implementation

$R^2 = 0.2183$

Average Student Gain (std dev)

(Echevarria, Richards-Tutor, Chinn, & Ratleff, 2011)

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5

5

Common Core State Standards

- Unlike some state standards that were generated from the bottom-up (starting with Kindergarten), CCSS are generated from top-down (starting with what students need to know to be college and career ready).
- All but five states have adopted the CCSS.

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ELA Standards

- ELA standards are broken into four categories: reading (literature, informational text, foundational skills), writing, listening and speaking, and language
- ELA is organized K-5 and then 6-12 (6,7,8,9&10,11&12)
  - Grade 5
    - Reading Standards for literature-Compare and contrast two or more characters, settings, or events in a story or drama…
    - Listening and Speaking-Summarize the points a speaker makes and explain how each claim is supported…
  - Grade 8
    - Writing-Conduct short research projects to answer a question…
    - Language-Determine or clarify the meaning of unknown or multiple meaning words or phrases…choosing flexibly from a range of strategies

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7

Mathematics Sample Standards

- Mathematics Standards include standards for mathematical practice and standards for mathematical content
- Standard for mathematical practice include eight standards and are for ALL grade levels
  - Reason abstractly and quantitatively
  - Use appropriate tools strategically
- Standards for mathematical content are listed by grade level K-8 and then by topic for high school
  - Grade 5: Apply previous understandings of multiplication to multiply a fraction by a whole number or a fraction
  - Algebra: Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters

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8

8

CCSS and English Learners

- Think-Pair-Share: Based on what you know, how do the CCSS differ from your current state standards? What do you think the benefits to ELs will be? What do you think the challenges for ELs will be?

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Lesson Preparation Component

Features

- Content objectives

- **Language objectives**

- Grade-level concepts

- Supplementary materials

- Adaptation of content

- Meaningful activities link content & language

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Writing Language Objectives for SIOP Lessons

- Determine **key content vocabulary**, **concept words**, and other words as needed.
  - SWBAT verbally describe **acute** and **obtuse angles** to a partner.

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Writing Language Objectives
for SIOP Lessons

- Decide which **language skills** are needed to accomplish the lesson's activities.
  - SWBAT **write** about similarities and differences of acute and obtuse angles.

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Writing Language Objectives for SIOP Lessons

- Consider the **language functions** students will use in the lesson.
  - SWBAT verbally justify how he/she solved a problem.
  - SWBAT argue a position on a proof of two lines being parallel.

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Writing Language Objectives for SIOP Lessons

- Identify possible **grammar** or **language structure** connections.
  - SWBAT will be able to read the names of geometric figures and determine the shape based on the root word and affixes.

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Mathematics Sense-Making and Language Use	
Key CCSS for Mathematical Practice 1: Make sense of problems and persevere in solving them	
Analytical Tasks	• Explain to self a problem's meaning, look for entry points to solution, and plan solution pathway • Analyze givens, constraints, relationships, and goals • Make conjectures about form and meaning of solution • Consider analogous problems • Monitor effectiveness of current selected solution strategy and decide when to pursue a different solution strategy • Check answers using different methods • Understand others' approaches to solving complex problems and identify correspondences between them • Create coherent representation of problems, considering units • Monitor use of resources such as time and effectiveness of current selected solution strategy • Monitor and evaluate reasonableness of intermediate and final results
Receptive Language Functions	• Comprehend the meaning of a problem as presented in multiple representations, such as spoken language, written texts, diagrams, drawings, tables, graphs, and mathematical expressions or equations • Comprehend others' talk about math problems, solutions, approaches, and reasoning • Coordinate texts and multiple representations
Productive Language Functions	Communicate (orally, in writing, and through other representations) about concepts, procedures, strategies, claims, arguments, and other information related to problem solving: • Create, label, describe, and use in presenting solutions to a math problem multiple written representations of a problem[26] • Explain in words orally or in writing relationships between quantities and multiple representations of problem solutions • Present information, description of solutions, explanations, and arguments to others • Respond to questions or critiques from others • Ask questions about others' solutions, strategies, and procedures for solving problems

Lesson Planning to Meet the Language Demands of the CCSS

Common Core State Standard	7.NS Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers
Lesson Topic	Adding and subtracting positive and negative integers
Mathematical Process	Make sense of problems and persevere in solving them
Learner Tasks	• Students work with a partner to solve word problems involving profits and losses on the stock market • Student pairs create their own word problems involving profits and losses and square up with another pair to share

16

Lesson Planning to Meet the Language Demands of the CCSS, con 't

Possible Content Objectives	• Students will create word problems involving profits and losses • Students will calculate problems involving profits and losses • Students will compare and order positive and negative integers
Language Demands of Task	• Vocabulary like gains, losses, integers, rational numbers, add, subtract, absolute value, invest, profit • Representing mathematical equations in writing • Correct use of past tense to write word problems • Justifying and explaining (orally and in writing) the thinking behind their solutions • The language of comparison (e.g., Toyota had bigger losses on Monday than Kia) • Adding and subtracting positive and negative integers
Mathematical Process	Make sense of problems and persevere in solving them

17

Lesson Planning to Meet the Language Demands of the CCSS, con 't

Possible Language Objectives	•Students will draft word problems involving profits and losses •Students will orally explain their solutions •Students will justify their solutions in writing •Students will orally present their word problems to peers
Instructional Language/Scaffolds	• Sentence frames for creating the word problems • Review of signal words to solve word problems • Word walls/word banks • Colored tiles • Number lines • Strategic partnering of students • Business section of the newspaper
Assessment	• Oral language checklist to capture academic language used during peer discussions • Rubric to score the word problems students created

SIOPizing a Lesson

- Turn to the *Using Positive and Negative Numbers in Context* lesson in the handouts.
- Quickly scan the lesson.
- With your elbow buddy
  - List three SIOP components/features that are present
  - List three SIOP components/features that are absent

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19

SIOPizing a Lesson

What could we do to make this lesson more effective for English learners?
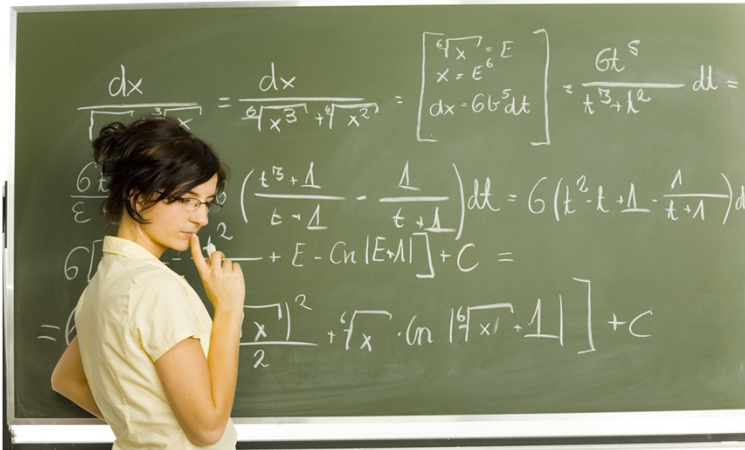
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Questions?

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21

Resources

- Council of Chief State School Officers. (2012). F*ramework for English Language Proficiency Development Standards corresponding to the Common Core State Standards and the Next Generation Science Standards.* Washington, DC: CCSSO.
- Echevarria, J., & Short, D. (2011). *The SIOP Model: A professional development framework for a comprehensive school-wide intervention.* Center for Research on the Educational Achievement and Teaching of English Language Learners (CREATE) Brief. http://www.cal.org/create/resources/pubs/professional-development-framework.html.
- Echevarria, J., Richards-Tutor, C., Chinn, V., & Ratleff, P. (2011). Did they get it? The role of fidelity in teaching English learners. *Journal of Adolescent and Adult Literacy*, 54 (6) 425-434.
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22

Research Briefs available at
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