

Integrating Academic Language and Content Learning with the SIOP Model

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Academic Language
Research & Training

Objectives

- Content Objective: To explore research on effective practices, such as the SIOP Model, for English language learners in language and content classrooms
- Language Objective: To describe some techniques that strengthen academic language development

English language learners have **Double the Work** to develop academic literacy when they study challenging subject areas through a new language, such as English.

But what is academic language & literacy?



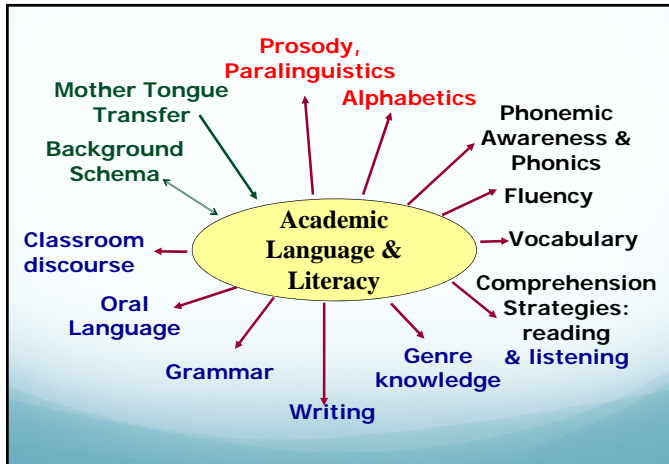
Academic Language in Middle School

TEACHER: What is the chemical formula for water?

SARAI : H I J K L M N O!!

TEACHER: What are you talking about?

SARAI : Yesterday you said it's H to O!



Academic literacy enables students to

- read expository prose and find evidence for claims in texts and articles
- write persuasively about an environmental issue
- argue a point of view on the concept of belonging to the European Union
- take notes from teacher lectures

Keep in Mind

A Catch-22 for Language Learners

It defines legal, yet self-contradictory, and it sets expectations that are impossible to attain. Welcome to NCLB's Limited English Proficient subgroups.

Source: K. Wright

- Most ELLs need 4-7 years to learn English before they reach average academic performance levels.
- But they are tested before they are proficient in English.
- As ELLs, they are by definition not proficient.

Educational Leadership-Nov 06

Q: So How Do We Develop the Academic Language Skills that English Language Learners Need?

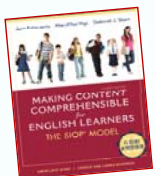
A: Content-based ESL and Sheltered Instruction, like the SIOP Model

In the 1990s

- Language teachers realize **exited ESL students are *not successful* in mainstream** (regular English-medium, subject area) classrooms.
- State and national tests show **ESL students are *far below* the average scores** of native English speakers.
- There was **no systematic model** of content-based ESL or sheltered instruction and **research did not focus on effectiveness of instructional practices**

So, in 1996

- We decided to try to create and test a **replicable and effective model** of sheltered instruction, the SIOP.
- We examined both **teacher implementation** and **student achievement**.
- We have continued that **research for 20 years**.



The SIOP Model is a lesson planning and instructional framework for teaching content comprehensible and academic language concurrently.

8 Components

- | | |
|-------------------------------|-------------------------------------|
| • Lesson Preparation | • Interaction |
| • Building Background | • Practice & Application |
| • Comprehensible Input | • Lesson Delivery |
| • Strategies | • Review & Assessment |

A Note About SIOP

- **SIOP** = Sheltered Instruction Observation Protocol
- **SIOP Model** – lesson planning and delivery
- **SIOP protocol** – lesson observation instrument with rating scale

The SIOP Model Integrates Language and Content in English Class and Content Classes

- **Content-based ESL** – language teacher
- **Sheltered content instruction** – content teacher
- Both types of classes have language and content objectives in each lesson.
- Used in ESL and bilingual programs – any time second language learners study in a new language

Content-Based ESL Lessons

- Target key subject area vocabulary and academic tasks needed in the content classroom (e.g., creating a timeline, taking notes from reference materials).

objectives from math,
 economics, language arts,
 and other subjects.

Sheltered Instruction Lessons

- ESL techniques to make grade-level academic content (e.g., science, history, math) more accessible for second language learners
- At the same time promote the learners' second language development as it is used in the content area.

Is the SIOP Model Effective?

Let's See What Research Has Shown Us

The Effects of Sheltered Instruction on the Achievement of LEP Students

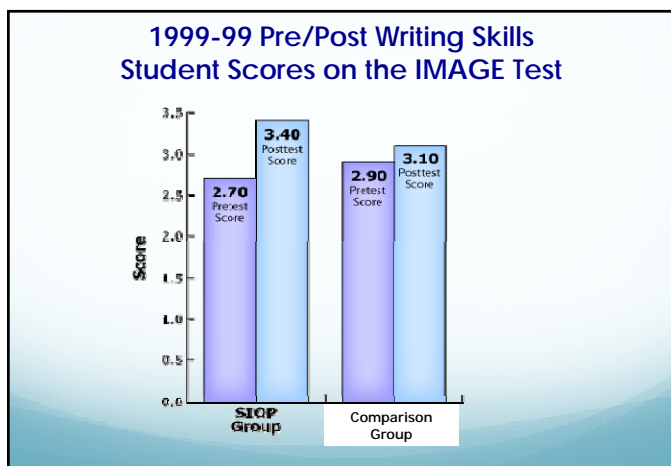
- CREDE (Center for Research on Education, Diversity & Excellence) 7-year research study (1996–2003)
- After several years of field-testing the SIOP, a **validity and reliability study of the instrument** was conducted. Findings showed the SIOP is a highly reliable and valid measure of sheltered instruction (Guarino, et al., 2001).
- 1998-99: Using a prompt for **expository writing**, ELLs in classes with SIOP-trained teachers outperformed and made greater overall gains than ELLs in classes with non-SIOP-trained sheltered teachers on a version of the IMAGE writing test.

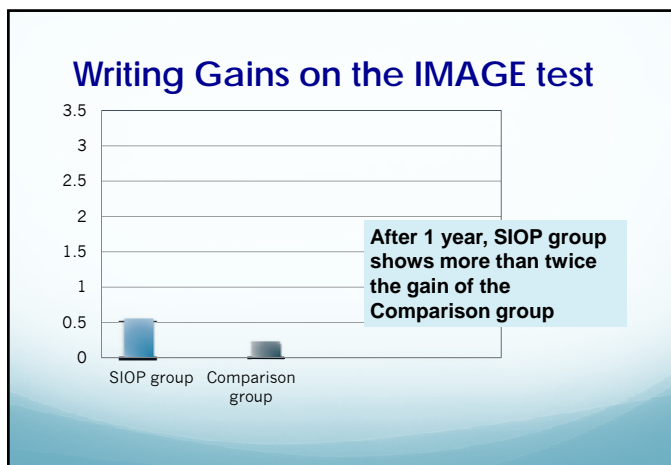
(IMAGE exam: Illinois Measure of Annual Growth in English)

The Sheltered Instruction Observation Protocol (SIOP®)

LESSON PREPARATION

	4	3	2	1	0
1. Content objectives clearly defined, displayed and reviewed with students			Content objectives for students implied	No clearly defined content objectives for students	
<i>Comments:</i>					
2. Language objectives clearly defined, displayed and reviewed with students			Language objectives for students implied	No clearly defined language objectives for students	
<i>Comments:</i>					
3. Content concepts appropriate for age and educational background level of students			Content concepts somewhat appropriate for age and educational background level of students	Content concepts inappropriate for age and educational background level of students	
<i>Comments:</i>					
4. Supplementary materials used to a high degree, making the lesson clear and meaningful (e.g., computer programs, graphs, models, visuals)			Some use of supplementary materials	No use of supplementary materials	
<i>Comments:</i>					

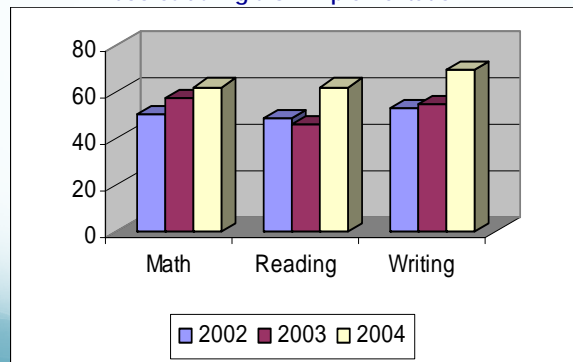




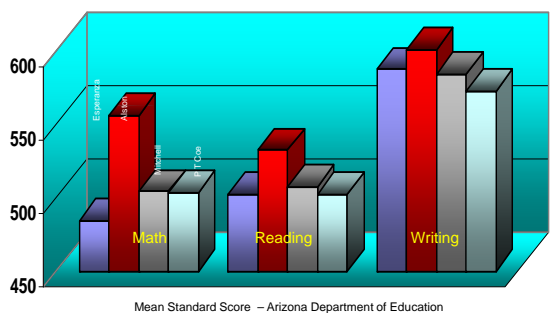
Lela Alston Elementary School – Phoenix, AZ (2002–05)

- Teachers were trained and coached to ensure fidelity to the SIOP Model over 2 years
- Significant growth on state reading, mathematics and writing exams at Grade 3 after 3 years of SIOP implementation schoolwide
- Moved from one of the lowest performing elementary schools in the Isaac (AZ) school district to one of the highest— became a model school for ELLs

Lela Alston School, 2002-04
Arizona's Instrument to Measure Standards (AIMS) Test Scores during SIOP Implementation



Arizona's Instrument to Measure Standards - Spring 2004, Grade 3
Alston (red) + Comparison Schools



New Jersey SIOP Study (2004-6)

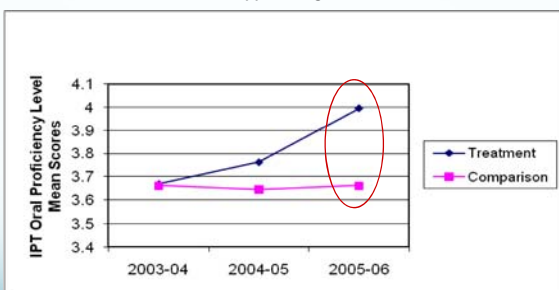
- Teachers can reach high levels of SIOP implementation after 1-2 years (1 year with more support). Sustained, supported professional development (workshops + coaching) works.
- After 1 year, students with SIOP-trained teachers outperformed non-SIOP students within the Clifton district on mean scores for oral, reading, writing IPT tests and for total IPT to statistically significant levels. Same results for Year 2.
- After 2 years, with SIOP-trained teachers in Clifton, students outperformed non-SIOP students in comparison district on mean scores for oral, writing IPT tests and total IPT across districts) to statistically significant levels.

% Teachers with high implementation of SIOP features

	Year 1	Year 2
SIOP Teachers		
- Cohort 1	56%	71%
- Cohort 2	N/A	74%
Comparison	5%	17%

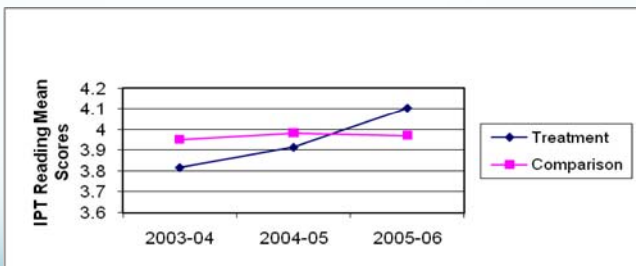
IPT Total Oral Scores for Clifton SIOP and NJ Comparison Group

Center for Applied Linguistics, 2008



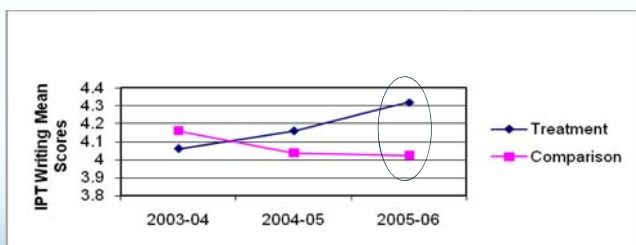
IPT Total Reading Scores for Clifton SIOF and Comparison Group

Center for Applied Linguistics, 2008



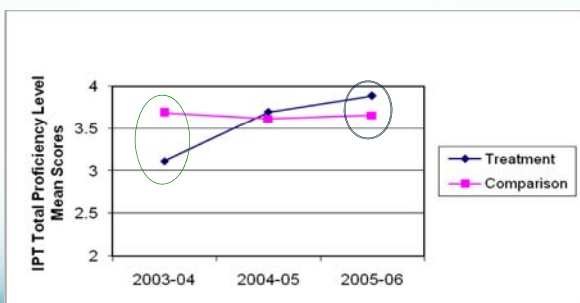
IPT Total Writing Scores for Clifton SIOF and Comparison Group

Center for Applied Linguistics, 2008



IPT Total Mean Scores for Clifton SIOF and NJ Comparison Group

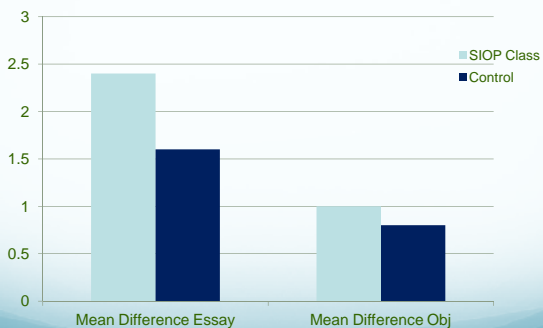
Center for Applied Linguistics, 2008



The Impact of the SIOP Model on Middle School Science

- CREATE (Center for Research on the Educational Achievement and Teaching of English Language Learners) 6-year study (2005-2011)
- The higher the teacher rating on the SIOP protocol, the better the students performed. This is true of both SIOP and control teachers
- For all total scores of the tests the SIOP group outperformed the control
- Groups included ELs, former ELs, native English speakers, and students with disabilities
- Analyses of the data indicated this difference was approaching significance

Difference in Performance Between SIOP and Control Students





School-Wide Intervention (2010-12)

- Curriculum interventions for science, social studies and English language arts infuse SIOP features
- Integration of the SIOP Model for comprehensive professional development
- Significant (positive) treatment effects for all measures (science vocab, science content, social studies content, English writing) except Gates reading comprehension

Let's See What SIOP Instruction Looks Like

Science Standard

- The health, growth, and development of organisms are affected by environmental conditions such as the availability of food, air, water, space, shelter, heat, and sunlight. (5.2g)

SIOP Science Lesson: Growing Plants

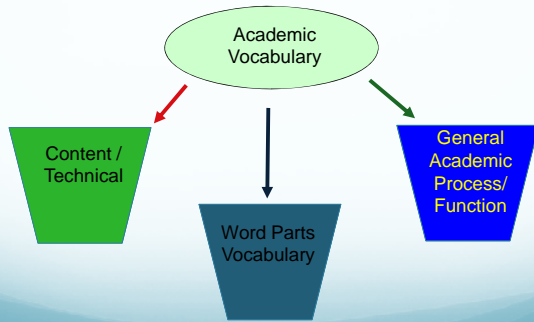
- **CO:** Identify factors that affect plant growth
- **LO:** Write if-then statements about plant growth
- **Vocab:**
HFV: water, grow
Science: plant, root, stem, leaf, soil
Academic: factor, if, then
- **Lang Function:** Causation
"If ____, then ____."
- If the plant has soil, then it can grow.*
- If the plant does not have water, then it cannot grow.*
- **Science Lab**
- **Read and Write:**
Write an observation on index card. Do Mix & Match. Exchange cards.

Vocabulary Development in SIOP Lessons

- Select key vocabulary carefully to pre-teach
- Build conceptual knowledge and add related terms
- Structure opportunities to practice: Read, write and speak the terms, do word work on affixes, explore multiple meaning words
- Tap into cognates, context clues, and on-page supports for unfamiliar words

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Select Key Vocabulary Wisely




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Academic Vocabulary

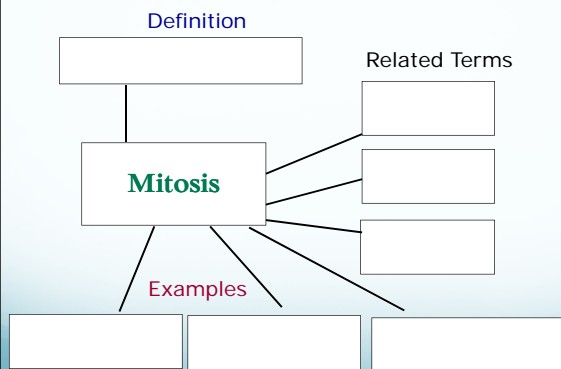
- Subject-specific and technical terms (found in informational and expository texts, e.g., *stem, xylem, phloem, transpire*)
- General academic vocabulary—cross-curricular terms/process & function words (used in all academic disciplines and often on state tests, e.g., *results, occur, discuss, skim, describe, compare, however, unless*)
- Word parts: Roots and affixes (word parts that enable students to learn new vocabulary, e.g., *photo-* = light, as in *photocopy, photograph, photosynthesis*; *un* =not, as in *unhappy*)

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4 Corners Vocabulary

Word/Translation Desert/Desier to	Picture 
Word in context Plants have adapted to a dry climate in the desert.	Definition A dry, hot environment with little vegetation, little rainfall, and no permanent body of water

Concept Definition Map



Shades of Meaning



Teach shades of meaning: gradation and nuances of synonyms

- hungry
- starving
- famished
- ravenous

Take Advantage of English Learners' Native Language for Determining New Words

SPANISH

incapaz
incómodo

ENGLISH

unable
uncomfortable

SPANISH

velocidad
discutir

ENGLISH

velocity
discuss

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Oral Interaction in SIOP Lessons

- Generate discussion topics of high interest and build background and vocabulary
- Encourage students to share ideas and elaborate
- Structure opportunities to practice: Sentence starters, Signal words, Language frames
 - Link classroom discourse and interaction with engaging reading and writing texts

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Signal Words for Language Functions

Comparison

- is similar to
- differs from
- is the same as
- both/neither
- on the one hand/on the other
- but
- in contrast

Academic Language Frames (Seidlitz, 2008)

Cause-Effect	<ul style="list-style-type: none"> • ___ was caused by ... • If ___ happens, then ___ • The result is _____ • Because of ____, _____ affected/aided ___ by
Define/Describe	<ul style="list-style-type: none"> • ___ means ... • ___ is an example of ... • The diagram shows that ... • ___ looks like • It has ___ but doesn't have ...

Express Opinions – Role Play

<u>Partner A</u>	<u>Partner B</u>
<ul style="list-style-type: none"> • I think that ... • In my opinion, ... 	<ul style="list-style-type: none"> • I agree. <i>OR</i> I disagree. • I agree with you and ... • I agree with you but ... • I disagree because ...

Will astronauts land on the moon by 2040?

Practice Oral Presentation Skills

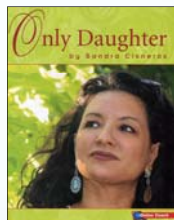
<ul style="list-style-type: none"> • Transition to a new point • List points • Give examples 	<p><i>First of all,</i> <i>Next, I want to tell you . . .</i> <i>Now,</i> <i>Why is she my hero?</i> <i>One reason/factor is . . .</i> <i>Another reason is . . .</i> <i>A final reason is . . .</i> <i>For example, . . .</i> <i>Let me give you an example . . .</i></p>
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Reading Development in SIOP Lessons

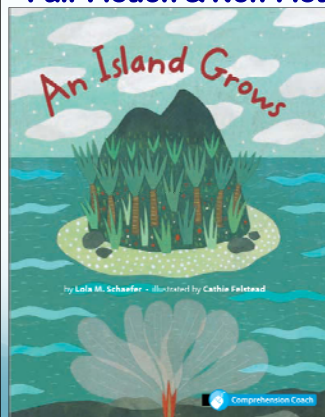
- Build background and vocabulary to support access to text
- Pair fiction and non-fiction to capitalize on content and vocabulary
- Scaffold the reading process, move students towards independence
- Link classroom discourse and interaction with engaging reading and writing texts

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Rich, Diverse & Relevant Literature: Multi-cultural, Multi-subject, Multi-lingual



Pair Fiction & Non-Fiction



Explicit Instruction in Reading Comprehension Strategies

- ❖ Plan and Monitor
- ❖ Determine Importance
- ❖ Make Connections
- ❖ Ask Questions
- ❖ Make Inferences
- ❖ Synthesize
- ❖ Visualize

Same information, different reading levels



Below to On Level



On to Above Level

Give Teachers Time and Support to Get Good at It

SIOP Professional Learning Program

Design

- 6-8 workshop days, spread out over 1 -2 years
- Teacher volunteers, especially year 1
- Classroom observations and lesson plan development
- On-site coaching and feedback
- Collaborative teacher groups
- Set expectations for levels of implementation

SIOP Professional Learning Program

Topics

- Second Language Acquisition Research
- Academic Language of Subject Areas
- SIOP Model Components: Practice
- SIOP Lesson & Unit Design
- SIOP Coaching

Support Teachers to Implement the SIOP Model

- Offer teachers time to visit other classrooms
- Set common planning time and encourage collaboration on lesson planning
- Designate a SIOP coach – ft, pt, duty period
- Offer ongoing (sustaining) professional development
- Use a SIOP walk-through checklist for supportive and specific feedback

How Do We Know If Students Are Successful?

Look at Student Performance

- Oral interaction in class
- Student work displayed on walls
- Student-generated texts
- Performance on assessments
- Growth modeling
- Student attendance

Lessons Learned

- Sheltered instruction can make a difference. Literacy and content achievement rise.
- The greater the teacher level of implementation (= fidelity), the better the student performance.
- Teacher buy-in and administrator support make a difference.
- Ongoing, job-embedded professional learning is needed.
- It takes teachers 1–2 years to reach consistent high levels of implementation.
- Coaching leads to higher levels of implementation.