

Integrating the SIOP Model in a Pre-Service Agricultural Education Program

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### Introduction

As of 2021, English Language Learner (ELL) students in the United States represent 10.6% of the total public school population, equating to approximately 5.3 million students (NCES, 2024). As this percentage grows, the demand for effective instruction tailored to ELL students becomes increasingly crucial for their academic success (Calderón et al., 2011). Integrating targeted instruction for ELL students into pre-service teacher preparation programs is a necessity (Rizzuto, 2017). In particular, agricultural education programs face unique challenges when addressing the needs of ELL students. A 2020 study examining ELL relationships with agricultural education programs recommended the use of Sheltered Instruction Observation Protocol (SIOP) model by Echevarria et al, 2006 “to incorporate teaching methods that advance the English development of immigrant youth without taking away from the content of the course” (Barajas et al., page 152). The model offers a framework that integrates language development with subject-area instruction, promoting a dual focus on language acquisition and content learning (Echevarría et al., 2012).

The SIOP model's primary objective is to deliver core curriculum while embedding strategies that specifically support second-language learners. Notably, these methods also benefit all students by enhancing comprehension and engagement (Kareva & Echevarría, 2013). The model is structured around eight core components: Lesson Preparation, Building Background, Comprehensible Input, Strategies, Interaction, Practice & Application, Lesson Delivery, and Review & Assessment. Each of these components is supported by 30 key features that guide teachers in delivering lessons that meet both academic and language development goals (Echevarría, Vogt, & Short, 2008). Incorporating the SIOP model into teacher preparation programs, especially in fields like agricultural education, can play a pivotal role in bridging the achievement gap for ELL students (Rivera, 2019). It not only provides a structured approach for addressing language barriers but also ensures that content knowledge remains accessible to all learners, regardless of their language proficiency. This dual emphasis on language and content integration is crucial for fostering academic success in increasingly diverse classroom settings (Echevarría et al., 2012).

### How it Works/Methodology

The University of Kentucky undergraduate program incorporates instruction on the Sheltered Instruction Observation Protocol (SIOP) model through a junior level preparatory course. Within the course, students are introduced to the SIOP model by integrating language acquisition with content learning. Over the course of a week, instructors lead an in-depth examination of the eight components of the SIOP model, which include Lesson Preparation,

Building Background, Comprehensible Input, Strategies, Interaction, Practice & Application, Lesson Delivery, and Review & Assessment.

Students are then tasked with critiquing one of their previous lessons using their newly acquired SIOP knowledge. Following the activity, they complete an ELL lesson integration assignment, that is composed of designing and teaching a lesson on an agricultural subject and incorporating SIOP concepts to promote the learning of English, Spanish, and content knowledge while fostering inclusivity. To ensure success, laboratory instructors meet individually with each student to review their lesson plans prior to the teaching demonstration. Students are assessed on their ability to effectively apply all eight SIOP components during a 15-20 minute lab demonstration, and they complete a self-reflection afterward to evaluate their performance.

### **Results to Date/Implications**

Over the past two years, 25 students have successfully implemented the SIOP model in their ELL-focused lessons. Feedback indicates that students found the SIOP framework valuable for integrating language and content instruction in agricultural education. The assignment has become a key component in preparing future educators to meet the needs of diverse learners. Students find the methodology as a quality approach to teaching non-ELL students and finding positive classroom management results while student teaching.

### **Future Plans/Advice to Others**

Looking ahead, there are plans to expand the lecture time dedicated to SIOP and ELL strategies. Additionally, developing a longitudinal assessment tool to measure the long-term application of the SIOP model by graduates in their teaching practice will be a priority. The enhancements aim to further equip pre-service teachers with the skills needed to effectively support ELL students in diverse classroom settings. Additionally, future research will explore the effectiveness of learning when the SIOP model is utilized within school-based agricultural education classrooms.

### **Costs/Resources Needed**

The primary resources required include SIOP model handouts (18 pages) for each student and a lecture PowerPoint presentation. No significant costs are anticipated beyond the printing of these materials. The faculty attended a 1-day (8 hour) professional development on the SIOP model. The training was a collaboration between the University's College of Education and a local school district that adopted SIOP for their teachers.

## References

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