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Evaluation of a High School Sheltered Instruction Observation Protocol (SIOP) Implementation

Samuel L. Ray
Utah State University

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EVALUATION OF A HIGH SCHOOL SHELTERED INSTRUCTION OBSERVATION PROTOCOL (SIOP) IMPLEMENTATION

by

Samuel L. Ray

A dissertation submitted in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

in

Education

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UTAH STATE UNIVERSITY
Logan, Utah

2011
ABSTRACT

Evaluation of a High School Sheltered Instruction Observation Protocol (SIOP) Implementation

by

Samuel L. Ray, Doctor of Education
Utah State University, 2011

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Department: School of Teacher Education and Leadership

Many school systems across the USA have implemented sheltered instruction observation protocol (SIOP) strategies to help their English language learners (ELLs) master core content while they learn English. Most studies have reported positive results from using SIOP strategies with ELLs. Elementary and middle school studies were available, but studies of SIOP implementation in a comprehensive high school were lacking. This action research project was initiated by teacher leaders (department chairs) and the school principal. It included a year of combined SIOP training and implementation. After the first academic year of utilizing SIOP school-wide, an anonymous electronic survey was used to collect information on teacher implementation, the teachers’ perceptions of students’ success, and teacher plans for future use of the SIOP model.

This study was implemented in a comprehensive high school in the Rocky
Mountain region. The research questions were: To what degree, do teachers having received in-service training in SIOP, report implementing the various components of the program in their daily instruction? After one school year of implementing the SIOP model, what are teachers’ perceptions regarding the effectiveness of using the SIOP model with students? How does SIOP need (number of ELLs per class), class size, years of teaching experience, teaching subject, or prior English as a second language (ESL) training relate to a teacher’s perception of SIOP effectiveness scale? Is the level of implementation related to the teacher’s perceptions of effectiveness? Do teachers plan to use the SIOP model in the future?

Teachers reported a high degree of implementing SIOP strategies. They perceived the strategies improved student learning in most cases. There was no statistically significant relationship found between the degree of SIOP implementation and perceptions of the effectiveness of SIOP. Correlational analyses indicated that SIOP need (number or ELLS per class), class size, years of teaching experience, teaching subject, and prior ESL training did not affect the degree of implementation or perceptions of the effectiveness of the SIOP model in this comprehensive high school.
## CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td></td>
<td>iii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td></td>
<td>vii</td>
</tr>
<tr>
<td>CHAPTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. INTRODUCTION</td>
<td>Evaluation of a High School SIOP Implementation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Problem Statement</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Purpose, Significance, and Future Implications</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Sheltered Instruction and SIOP Defined</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Research Questions</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>9</td>
</tr>
<tr>
<td>II. LITERATURE REVIEW</td>
<td>Professional Development</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Literature Search Methods for SIOP-Related Studies</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>SIOP Studies</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Other SIOP-Related Articles</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>SIOP Manuals</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>43</td>
</tr>
<tr>
<td>III. METHODS AND DATA ANALYSIS</td>
<td>Study Design</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>Action Research</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Survey Research</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Research Questions</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Participants and Training</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Survey Instrument</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Data Collection</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Analysis</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Reliability/Validity</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Limitations</td>
<td>58</td>
</tr>
<tr>
<td>IV. FINDINGS</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Question #1</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Question #2</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Question #3</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Question #4</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Question #5</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>Survey Comments</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Summary of Findings</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>V. DISCUSSION</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>Research Questions</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>Lessons for Practitioners</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>Implications for Future Research</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>Looking to the Future</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>REFERENCES</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td>APPENDICES</td>
<td>108</td>
<td></td>
</tr>
<tr>
<td>Appendix A: List of Acronyms</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>Appendix B: Sheltered Instruction Protocol</td>
<td>112</td>
<td></td>
</tr>
<tr>
<td>Appendix C: Survey Instrument</td>
<td>117</td>
<td></td>
</tr>
<tr>
<td>CURRICULUM VITAE</td>
<td>131</td>
<td></td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dissertations/Master’s Thesis</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>Articles (Report of a Study)</td>
<td>30</td>
</tr>
<tr>
<td>3.</td>
<td>SIOP Model Implementation Descriptive Statistics</td>
<td>61</td>
</tr>
<tr>
<td>4.</td>
<td>Implementation Frequency of the Eight SIOP Components</td>
<td>63</td>
</tr>
<tr>
<td>5.</td>
<td>Teachers’ Perceptions of the Effectiveness of SIOP with Students</td>
<td>64</td>
</tr>
<tr>
<td>6.</td>
<td>Perceptions of SIOP Need Descriptive Statistics and Mean Scores on Perceptions of SIOP Effectiveness Items</td>
<td>66</td>
</tr>
<tr>
<td>7.</td>
<td>Class Size and Mean Scores on Perceptions of SIOP Effectiveness Items</td>
<td>67</td>
</tr>
<tr>
<td>8.</td>
<td>Years of Teaching and Mean Score on Perceptions of SIOP Effectiveness Items</td>
<td>68</td>
</tr>
<tr>
<td>9.</td>
<td>Prior ESL Training and Mean Scores on Perceptions of SIOP Effectiveness Items</td>
<td>68</td>
</tr>
<tr>
<td>10.</td>
<td>Subject Taught and Mean Scores on Perceptions of SIOP Effectiveness Items</td>
<td>70</td>
</tr>
<tr>
<td>11.</td>
<td>Teachers’ Perceptions of Future Use</td>
<td>72</td>
</tr>
<tr>
<td>12.</td>
<td>Teachers’ Desire for Additional Training</td>
<td>73</td>
</tr>
</tbody>
</table>
CHAPTER I
INTRODUCTION

In the age of school accountability, many schools have struggled to help all of their students achieve academic grade level mastery. The U.S. Department of Education (as cited in Fratt, 2007) reported that English language learners (ELLs) were 1 in 20 American students in 1990, 1 in 9 in 2007, and projected to represent 1 in 4 in 2025 (p. 60). With the number of ELLs on the rise, addressing their needs is essential for schools to make adequate yearly progress (AYP) and to achieve the aims of “Race to the Top,” the Obama administration’s replacement for No Child Left Behind (NCLB). For a complete list of acronyms defined, see Appendix A.

Evaluation of a High School SIOP Implementation

The setting for this study was a comprehensive high school in the Rocky Mountain region serving a student body approaching 50% poverty (free/reduced lunch), over 27% Hispanic and just short of 35% minority. Almost 30% of the students spoke a language other than English in the home. At the time of this study the school served almost 300 students on an Individual Education Plan (IEP) under the Individual with Disabilities Act (IDEA) and another 300 students who received or at one time received ESL services. Many of these students struggled academically due to lack of academic vocabulary. This school has a rich academic tradition serving middle class students with educated parents for many decades, so the change in demographics has been a challenge for teachers. As these educators sought ways to better meet the needs of their students,
they turned to a very popular teaching and learning model, the sheltered instruction observation protocol (SIOP). For a actual copy of the protocol, see Appendix B.

**Problem Statement**

Many ELLs and students from low socioeconomic (SES) backgrounds lack the academic language skills necessary to succeed in many grade-level high school core academic classes. Research studies suggest that the ELL students of teachers using sheltered instruction observation protocol (SIOP) show significantly increased academic gains over students of teachers not using SIOP (Echevarria, Short, & Powers, 2006). Educators at schools that used SIOP have also noticed that students from low SES also benefit from teachers’ use of SIOP strategies (Pascopella, 2008). Schools, districts and even state departments of education have adopted SIOP strategies (Echevarria, Short, & Vogt, 2008).

Several studies have been conducted to explore the implementation of elementary and middle school SIOP instruction in sheltered classrooms with ELL students. Only one study has been found that included training high school teachers, but the effectiveness of high school SIOP implementation was not evaluated (McBride, 2007). Increasingly, the SIOP model has been used in high schools around the nation, but no studies have evaluated high school application of the SIOP model.

**Purpose and Significance**

This was a self-study or action research project undertaken by a comprehensive
high school located in the Rocky Mountain region. Action research is “an enquiry undertaken with rigor and understanding so as to constantly refine practice” (Koshy, 2005, p. 1).

The school in this study was starting the fifth year of training in each of the Center for Research on Education, Diversity and Excellence (CREDE) standards, one per year. The CREDE (2010) standards, as outlined on the CREDE home site hosted on the University of California, Berkley Graduate School of Education website include:

1. Joint productive activities or teacher and students producing together
2. Language development or developing language and literacy across the curriculum
3. Contextualization or making meaning: Connecting school to students' lives
4. Challenging activities or teaching complex thinking
5. Instructional conversation or teaching through conversation

Having completed training in each of the other standards, the school leaders sought a meaningful way to address language development across the curriculum, specific to their struggling students. The teacher leaders (department chairs) in this study, in collaboration with the principal, decided to pursue a school-wide year of SIOP professional development to train teachers in this standard. About a dozen teachers at the school had participated in SIOP training and desired a refresher, while many of those not yet trained desired a chance to receive the training. The teachers requested an evaluation of the professional development experience to determine future use of the model at the school. The teacher leaders desired SIOP training, but sought to limit their participation in the peer coaching part of the model to one observation a year rather than once per month to
limit their time commitment. The principal agreed to prepare a survey to evaluate the effectiveness of the SIOP implementation.

As a partner with teachers, the school principal was the primary action researcher, and the teachers gave input regarding their professional experience as secondary action researchers. The survey provided a forum to determine how much teachers implemented the SIOP model, how they perceived its effectiveness and if the teachers desired future training to more fully implement the SIOP model. Koshy (2005) described action research as practical research concerning the practices of people within their setting to “improve practice—either one’s own practice or the effectiveness of an institution” (p. 9). This study was undertaken by professional educators to improve their practice and institution. Therefore it was a practitioner driven, action research study of professional practice.

While there has been considerable research about SIOP use with younger students, high schools are unique environments. High school teachers in traditional schools often “function as a collection of independent contractors united by a common parking lot” (Eaker, DuFour, & DuFour, 2002, pp. 10-11). High school teachers as content specialists often see more than 200 students per term and rarely see the same student for more than four hours per week. So, while the SIOP model has been evaluated in elementary self-contained classrooms and in middle school interdisciplinary teams (Echevaria et al., 2006) an assessment of a school-wide implementation of SIOP strategies in a comprehensive high school is needed.

This SIOP implementation included an August, full day of SIOP exposure
conducted by an out-of-state SIOP trainer at a district in-service. The one-day training was for all secondary teachers, except special education and career and technical education (CTE) teachers who were in separate training sessions that day. All other trainings included all certified staff to include teachers, counselors, principals, and media specialists. The following day, an on-staff certified SIOP trainer, following *Using the SIOP model: Professional Development Manual for Sheltered Instruction* (Short, Hudec, & Echevarria, 2009) conducted an additional two hours of introduction to SIOP teaching activities. Each teacher was also given a copy of *Making Content Comprehensible for Secondary English Learners: The SIOP Model* (Echevarria, Vogt, & Short, 2010).

Throughout the year, the certified SIOP trainer on the school staff also conducted monthly training focused on one of the eight SIOP components each month. Following SIOP training each month, departments met to determine how each component fit in their subject area, determined their implementation strategy for the coming month, reported on their previous month’s implementation and shared from the assigned monthly reading. The assistant principals also volunteered to provide nonevaluative peer observations for all teachers to provide some of the benefits lost through lack of teacher peer observations. This SIOP implementation was a fairly standard professional development model outlined in SIOP manuals and used by most districts evaluated in the SIOP studies reported in this literature review (Echevarria et al., 2008).

The first step of this study was to discover if this implementation model would work in a high school with independent content specific teachers serving as many as 200 students per term. Several studies have sought ways to improve effective implementation
of the SIOP model in lower grades (McBride, 2007; Montes, 2005; Pelliccioni, 2009; Torres, 2006). Montes reported that even after years of implementation, daily practice was not significantly impacted in elementary classrooms, so lasting effect was a serious consideration.

Specifically, this study sought to determine the extent of teacher implementation of the SIOP model, teachers’ perception of SIOP effectiveness scale with students, and teachers’ desire for future use of the SIOP model in a comprehensive high school. In highly individualized high school classrooms teachers must have used the SIOP model appropriately before an accurate measure of the SIOP implementation for improved student achievement could be assessed. Comparison of comprehensive student achievement data was not possible in this study because of seriously flawed state testing results due to computer system failures the year immediately prior to and after the SIOP implementation. Rather, this research sought teacher perception of effectiveness because teacher buy-in is essential for continued use of a model. This study lays the foundation for future quantitative analysis of high school student achievement assessment for schools using SIOP intervention strategies.

**Sheltered Instruction and SIOP Defined**

Sheltered instruction (SI) is a professional development model designed to improve teaching ELLs core content while students learn English. Rather than place ELLs in mixed mainstream classes for math, science, social studies, and other academic classes, sheltered instruction places students in an ELL only core content class with an
English as a second language (ESL) endorsed or trained content teacher. The teacher then modifies instructional practice to help ELLs learn the content while building their limited English skills. The SI model, typically used to teach ELLs core content with primarily English instruction, adds vocabulary instruction and practice to proven best teaching practices. According to the literature, this model not only helps ELLs stay current in content classes while learning English, but it also increases English acquisition (Short & Echevarria, 2004/2005).

The SIOP was drafted in the early 1990s to improve the effectiveness of sheltered instruction. According to Echevarria, Vogt, and Short, (2004), in 1996 CREDE, funded by the U.S. Department of Education, included a study of sheltered instruction. The CREDE team developed an explicit model of sheltered instruction (SIOP) and used the model to train teachers and conduct field experiments to evaluate the effects of sheltered instruction (see Appendix B). A preliminary study in 1997 validated the SIOP model as a reliable measure of SI (Echevarria et al., 2004, p. 16).

SIOP began as a way to observe and measure elements of effective sheltered instruction for ELL students. It evolved into a framework for developing lesson plans and guiding instructional delivery. The current framework is composed of thirty features grouped into eight main components. The eight components as outlined by Echevarria and colleagues (2004) are described below.

1. Preparation includes language/content objectives, use of supplementary materials and meaningfulness of activities.
2. Building background focuses on making connections with student background, prior learning and developing vocabulary.
3. Comprehensible input considers adjusting teacher speech, modeling academic
tasks and using multimodal techniques to enhance comprehension.

4. Strategies emphasize teaching learning strategies to students, scaffolding instruction and promoting higher order thinking skills.

5. Interaction encourages elaborated speech and student grouping for language and content development.

6. Practice/application extends language and content learning.

7. Lesson delivery ensures teachers deliver instruction to meet planned objectives.

8. Review/assessment reviews key language, content concepts, assesses student learning and provides feedback on student output. (p. 17)

SI has been a widely used model for helping ELLs master core content while accelerating English language acquisition. SIOP was considered to be a successful structure to maximize the effectiveness of SI, but it has been increasingly implemented more broadly, school-wide, district-wide and even statewide as an instructional model (Echevarria et al., 2008). However, no research was found regarding high school SIOP implementation and little research concerning mainstream use of the SIOP model.

**Research Questions**

This study describes and analyzes a school-wide teacher implementation of the SIOP model at a comprehensive suburban/urban high school in the Rocky Mountain region. The research questions addressed are as follows.

1. To what degree, do teachers having received in-service training in SIOP, report implementing the various components of the program in their daily instruction?

2. After one school year of implementing the SIOP model, what are teachers’ perceptions regarding the effectiveness of using the SIOP model with students?
3. How does SIOP need (number of ELLs per class), class size, years of teaching experience, teaching subject, or prior ESL training relate to a teacher’s perception of SIOP effectiveness scale?

4. Is the level of implementation related to the teacher’s perceptions of effectiveness?

5. Do teachers plan to use the SIOP model in the future?

Summary

In an effort to improve student achievement, a high school in the Rocky Mountain region undertook a year of full-faculty SIOP training and then evaluated teachers’ perceptions of implementation with a survey. SIOP is a flexible collection of teaching strategies, designed to help teachers maximize the learning of ELLs and has been promoted as a program to improve learning for other students as well. This self-study or action research project, seeks to improve student learning by exploring the use of SIOP by teachers in all discipline areas in a comprehensive high school.
CHAPTER II

LITERATURE REVIEW

The literature review establishes a framework to guide this study with an overview of professional development literature, including the use of professional learning communities and action research. This chapter then contains a description of search methods used to locate literature specifically on the SIOP model and an overview of the studies that were located. Finally, an analysis of these SIOP research studies along with a discussion of other SIOP literature is shared.

Professional Development

Given that this study looked at the implementation of a school-wide SIOP model, as approved by teacher leaders, it was important to review the knowledge base about professional development. Professional development is a very broad field. It encompasses not only the field of education, but other professions as well. In this section the researcher reviews only educational approaches to professional development. The researcher provides an historical perspective for a baseline followed by a report on a large secondary analysis on professional development. A study on SIOP professional development specifically and an overview of current professional development in professional learning communities (PLCs) and action research are also shared. Finally, it contains a section focused on most recent professional development texts.
Historical Perspective

There has been much research concerning teacher professional development. However, “most staff development reports are simply statements of participant satisfaction, which are then used to determine the success of the program” (Wade, 1984/1985, p. 84).

Wade (1984/1985) reviewed 300 journal articles from 1968 through 1983 and selected 91 to include in her meta-analysis. Only articles concentrated on K-12 public school teachers, that included adequate quantitative data related to the study questions (enough to calculate mean effect size) were included in the analysis. Through this process, she identified 28 variables of teacher behavior and grouped them into eight categories.

The effect level or goals of the training was the first category. This category included variables related to participant reactions, increases in learning, change in behavior of the participants, and results in terms of impact on the classroom. The reaction variable, which assessed how positively the participants felt about the in-service training, yielded a moderately effective .42 mean effect size. The learning variable (usually measured through pre-post tests) yielded a large mean effect size of .90. Behavior variables, which measured whether participants changed their behavior or not had a moderately large .60 mean effect size. Finally, the variable results, which determined whether there was an impact in the classroom, had a moderate .37 mean effect size. All other variables discussed in the categories below were examined in terms of whether they had an impact on the goal of the training variables mentioned above.
Duration was the second category. Studies in this category examined time spent training and professional development training spread over time. The effect size for the time spent in training variable, which included a range from a few hours to 30 hours, was not statistically significant. Training spread over time, from less than six months to more than six months, also reflected no statistically significant effect for length of treatment.

The third category was training group characteristics, which included elementary or secondary teachers only, combined secondary/elementary teachers, voluntary or required participation and group size. Elementary teachers had a greater effect size for training than secondary teachers. Combined groups of secondary and elementary teachers, yielded a moderately large .67 mean effect size, which was higher than either elementary or secondary teachers alone. Voluntary or required participation showed no significant difference in effect size. Group size (1-20, 21-40, 41-60, or 60+) did not reflect a significant effect size difference either.

Location and scheduling of training, included on-site, off-site, during and out of school training. None of the variables, onsite, off site, during or outside of school time provided a statistically significant effect size.

Sponsorship compared the funding support for the training program. Programs funded by state, federal or university dollars yielded a moderately large .69 effect size, significantly more than teacher-initiated programs.

Participant incentives compared rewards for participation. Selective process or designated representative yielded a large .76 mean effect size, which was the largest effect size of any incentive studied. There was a possibility that this effect size was
biased because the strongest teachers volunteered or were selected. College credit and release time both produced moderate effect sizes, while pay incentive and no incentive showed only small positive effects sizes.

Structure compared independent study, workshops, courses, mini courses and institutes. Independent study showed the largest mean effect size .98, possibly because it included highly motivated teachers. Workshops, courses, mini courses, and institutes showed similar moderate mean effect sizes. There do not appear to be important differences between these formats.

Various professional development instructional techniques were evaluated to determine if some instructional activities were more effective than others. The most effective techniques were observation, microteaching, video-audio feedback, and practice. Observation yielded an impressively large .81 effect size, microteaching yielded almost as large an effect size at .78, video-audio feedback yielded another impressive .64 mean effect size, and practice yielded a moderately large .55 mean effect size. Other instructional techniques such as discussion, lecture, games/simulations, field trips, and coaching all yielded significantly smaller effect sizes.

Regarding who delivered the instruction, self-instruction provided the highest effect; support staff and college personnel moderate effect; and teachers and state department representatives produced only small gains. “In classes where participants were encouraged to teach each other through classroom presentations, group work, and discussion sessions, a lower effect size results” (Wade, 1984/1985, p. 53).

Wade (1984/1985) suggested that “there is no magic formula,” but she made
suggestions to improve effectiveness. These suggestions included the following.

1. Combine elementary and secondary teachers in professional development opportunities where possible.

2. Encourage state, federal and university initiated programs; use incentives of enhanced status or college credit where possible.

3. Provide opportunities for self-instruction and independent study as alternatives.

4. Encourage instructors to set goals for participants.

5. The use of observation, microteaching, practices and audio/video feedback when possible. (p. 53)

This meta-analysis outlined the foundation for professional development traditionally used for the last few decades. It is focused more on training teachers, rather than the more current model of teacher driven professional development. It also does not address student learning.

**Recent Secondary Analysis**

Desimone, Smith, and Phillips (2007) updated the body of professional development literature to understand how policy implementation affected teaching and learning. They performed a secondary analysis of how policy influenced almost 4,000 math (high stakes) and science (low stakes) teachers’ participation in professional development using a three-tiered hierarchical model. They reported, “Teachers with more influence on school policy are more likely to engage in interactive professional development” (p. 1110). They found that evaluating teachers for evidence of improvement and student achievement decreased participation in professional development. They also reported that consistency of professional development was
unrelated to participation, but teacher turnover did have a significant negative association with participation in professional development. “Specifically, an increase in the percent of teachers in a school who had been there for 3 or more years was associated with an increase in content-focused professional development for both math and science” (p. 1111).

In summary, Desimone and colleagues (2007) concluded, “The carrot is more effective than the stick” (p. 1113). They discovered that authority or policy persuasiveness, improved teaching and learning more than power or accountability. They suggested a focus on content, instructional strategies, and professional collaboration concerning curriculum and instruction was important when considering professional development programs. They found that stability or lack of teacher turnover was associated with effective professional development. These authors further suggested that allowing teachers significant influence over school policies, and encouraging teacher leadership within the school and control of their classrooms are more important than principal evaluation and other methods of external control. In short, teachers need to take the lead in improving their teaching.

**Recommendations from SIOP Professional Development**

Two studies were found that looked specifically at SIOP professional development. The first, by Friend, Most, and McCrary (2009), was a mixed-methods study. The quantitative portion of this study had significant methodological flaws, but the qualitative portion, specifically focused on SIOP professional development, is relevant.
The qualitative portion of the study considered seventy middle-level teachers’ perception of professional development, specifically SIOP training, and therefore had value in this section. The authors conclude that teachers in the study said they believed the SIOP training was more effective than previous training and many teachers perceived the strategies learned in SIOP training were effective with ELLs.

Based on their findings, Friend and colleagues (2009) recommended SIOP training include a five course, methods based training cycle, focused on best practices, assessment, diversity, linguistics, second language acquisition, and followed up by an action research project to apply and assess implementation. This professional development program encouraged the use of cooperative learning with heterogeneous grouping, academic language, key concept vocabulary, first language tools, and hands-on activities with authentic materials, demonstrations, modeling, explicit teaching and background knowledge.

In the second SIOP professional development study, Kraft (2005) sought to determine if a relationship existed between the teachers’ sense of efficacy with diverse students, and the support and training teachers’ received from their respective induction programs, as measured by the SIOP model. Kraft found that induction programs needed to help novice teachers serving diverse students create and implement lessons with language objectives and provide more training on instructional strategies that support meeting those objectives.

This dissertation study, as an action research project, is similar to the professional development design outlined by Friend and colleagues (2009) and Kraft (2005). It
follows the generally accepted professional development model for improving the teaching of ELLs through the use of SIOP training.

It was interesting to compare ideas for SIOP implementation to the recent professional development secondary analysis provided by Desimone and colleagues (2007). Friend and colleagues (2009) used a model that empowered teachers with new skills, and asked them if they were effective. In their model, teacher perception rather than administrative or outside expertise was most highly valued. Since the SIOP model relied on teacher self-assessment and peer coaching, rather than administrative evaluation, the SIOP model was all about empowering teachers, rather than controlling teacher behavior. In this way the SIOP model matched recommendations by Desimone and colleagues.

**Professional Learning Communities**

Historically, teachers have worked independently, initially in one-room schools and later behind closed classroom doors. Other professions have a long history of learning from each other through not only conferences, but through daily collaboration in every aspect of their professional practice. Professional learning communities developed as a way to help teachers work collaboratively. They began in the midst of the standards based movement as a way to improve student academic performance through teacher professional empowerment. They have focused on student achievement based in research proven practice, all driven by teacher collaboration.

Professional development in the twenty-first century has often evolved into structured adult learning also known as professional learning communities (PLCs). PLCs
were specifically undertaken to better serve students and improve student learning. After conducting a synthesis of research, Marzano (2003) suggested that professional development activities should be designed to promote continuous growth for adults in the school, and improve the effectiveness of teaching and learning. Aligned with Marzano’s description including student learning, Robbins and Alvy (2004) stated, “Professional Development consists of any activity that directly affects the attitudes, knowledge base, skills, and practices that will support individuals in performing their roles—present or future--to serve students” (p. 135). This broader, more current approach to professional development expanded beyond the traditional teacher focused in-service model discussed earlier in the meta-analysis by Wade (1984/1985).

where all colleagues engage in ongoing exploration of three questions.

1. What do we want each student to learn?
2. How will we know when each student has learned it?
3. How will we respond when a student experiences difficulty learning? (p. 33)

Teachers, administrators, and support personnel answer question one, by consulting state frameworks, district guidelines and school K-12 articulation as they develop school-wide curriculum maps. Teachers answer question two through the development of common formative and summative assessments in all subjects. Answers to question three, most often teacher determined, come from teacher expertise; the professional literature; and grade level, department, or school-wide collaboration and training.

Answering all three of these PLC questions has been considered professional development in the schools of the twenty-first century. According to DuFour and colleagues (2005), PLC activities require shared leadership, collaboration and building relationships of trust, where teachers work together, rather than close the door and do their own thing.

McLaughlin and Talbert (2001), high school PLC pioneers, described the high school PLC classroom.

Teaching practice reflects a teacher’s ideas about each leg of the classroom triangle—conceptions of subject matter and knowledge, beliefs about students in the class, and notions of effective pedagogy. Most consequential for what happens in the classroom, however, appears to be a teacher’s view of the student’s abilities, motivation, interests, and engagement with school. (p. 40)

In this context, professional development must include traditional subjects, such as content and pedagogy, but also an understanding of the students teachers teach.
In summary, many national experts and many school systems nationwide and abroad have embraced the tenets of PLCs. PLCs are more than traditional in-service, they embody development of the professional. PLCs have helped teachers define what students should be able to know and do, how to assess mastery, and how to intervene when students do not learn as expected. The many teachers and schools adopting SIOP are likely seeing it as a program that will help them minimize the number of students who experience difficulty learning plus it provides a structure through which student needs can be addressed once identified. It works well within the PLC model, which is focused on improving student learning.

**Action Research**

Johnson (2008) described educational action research as a systematic search that can be simple yet rigorous. He goes on to say the action research must be well planned. He also claims that action research can vary in length and formality. Finally, he says action research uses no experimental or control groups and therefore the study has limited generalizable application (pp. 29-31).

Koshy (2005), on the other hand, defined five features of action research as a methodology.

1. Rejects positivist notions of rationality, objectivity and truth in favor of a dialectic view of rationality,
2. Employs interpretive categories as a basis for language frameworks, which teachers explore and develop in their own theorizing,
3. Provides a means for distorted self-understanding to be overcome by analysis of practice,
4. Links reflection to action, and
5. Involves self-critical communities where truth is determined by the way it relates to practice. (p. 24-25)

Action research is based on the idea that practitioners can study and by so doing improve their practice. So in education, action research is teachers at the classroom level, and principals at the school level, studying their ongoing practice in an effort to constantly improve.

Action research is structured to be effective. According to Johnson (2008), action research involved five essential steps.

1. Ask a question, identify a problem or define an area of exploration.
2. Decide what data to collect, how to collect and how often.
3. Collect and analyze data.
4. Describe how findings can be used and applied.
5. Report and share findings with others. (p. 28)

Action research does not begin with a desired outcome rather the goal must be to fully understand. Action research can be simple, but it must be planned and systematic. Action research is not designed to prove a point, rather to understand an idea. Learning from action research may or may not apply outside the original context. In summary, action research is designed to empower teachers to close the gap between the theory they learned at the university and their personal classroom practice through scientific study.

Action research empowers teachers to develop professionally as individuals, teams through professional learning communities, or as whole schools. It allows teachers to construct knowledge about their students and their teaching, which is empowering (Johnson, 2008, p. 49). Action research therefore is personally directed professional
development, for practitioners, by practitioners, to improve student academic achievement. It is the assessment component of professional learning communities.

**Recent Professional Development Texts**

This section discusses two professional development texts. One text is from a leading American author and the other is from an international perspective.

A recognized scholar in the field of professional development, Zepeda (2008) in her recent professional development text, *Professional Development: What Works*, dedicated entire chapters to learning communities, job embedded learning, teacher coaching, teacher study groups, lesson study, and learning circles. These ideas all closely align with PLC, action research, and SIOP approaches to professional development. She listed essential elements to include when training teachers, recommended professional development that is ongoing, and suggested professional development opportunities that not only provide training, but also provide practice, and feedback. Zepeda also recommended professional development that is school based and embedded in teacher work. She encouraged teacher collaboration, advocated for teacher discussions focused on student learning, and required that professional development support school and teacher initiatives, while endorsing professional development rooted in best practices. Zepeda supported constructivist approaches, and recognized teachers as professional learners, provided time for follow-up support, and required professional development that was accessible and inclusive (p. 27). Zepeda clearly outlined a teacher driven, student achievement focused professional development model that aligned well with PLCs as the framework for teacher interaction, action research for assessment and SIOP...
implementation as teacher best practices.

From an international perspective, Groundwater-Smith and Mockler (2009) from the University of Sydney, provided insight into modern professional development in Teacher Professional Learning in an Age of Compliance: Mind the Gap. She spent most of the book building the case for change and outlining obstacles, but she also dedicated a chapter to learning communities. She outlined how teacher professional judgment has been lost over the years and suggested that teacher inquiry was a vital link in successful professional development and reform. She went on to report on teacher inquiry models in several different countries. She grounded all of this discussion within the context of student accountability as the title suggested. The idea of teacher driven in-service grounded in student achievement was not an American idea alone; rather other nations arrived at similar conclusion and implemented similar reforms.

Professional development in the twenty-first century has evolved significantly since the in-service training detailed by Wade (1984/1985). It has been more teacher driven and teacher assessed. Now professional development should be determined with teachers and by teachers. The focus has not only been on content and pedagogy, but has also included a better understanding of the needs of the students. Current professional development also includes self-evaluation, peer collaboration, and various levels of action research, where teachers implement new strategies, assess student learning and determine the effectiveness of the new strategies through self-study. Interestingly enough, the SIOP model included all of these components as teachers used formative assessment to adjust their teaching to meet students’ needs (Echevarria et al., 2008).
Literature Search Methods for SIOP-Related Studies

Literature was obtained by searching the Utah State University libraries including: Education Full Text, ERIC via EBSCO Host, Academic Search Premier, Professional Development Collection, and Digital Dissertations. Key terms used in searching the databases were, Sheltered Instruction Observation Protocol and SIOP. Nine student applicable research studies that provided credible evidence, eight dissertations (Ardisana, 2006; Dietzler, 2008; McBride, 2007; Miner, 2006; Montes, 2005; Pelliccioni, 2009; Read, 2008; Torres, 2006), and one master’s thesis, Dennis (2004) were identified (see Table 1). Five journal articles describing research studies (Echevarria et al., 2006; Honigsfeld & Cohan, 2006; Pascopella, 2008; Settlage, Madsen, & Rustad, 2005; Whittier & Robinson, 2007) concerning SIOP implementations were also found (see Table 2). Nine scholarly articles (Echevarria, 2008; Fratt, 2007; Hansen-Thomas, 2008; Honigsfeld & Cohan, 2006; Short, 2000; Short & Echevarria, 1999, 2004/2005; U.S. Department Education, 2009) describing the SIOP model were also located.

A linked search starting at the Center for Applied Linguistics (CAL-SIOP) site revealed six commercial publications. These commercial publications that were reviewed are listed below.

1. Implementing the SIOP model Through Effective Professional Development and Coaching (Echevarria et al., 2008).
<table>
<thead>
<tr>
<th>Study</th>
<th>Research question</th>
<th>Design/method</th>
<th>Sample/characteristic</th>
<th>Findings</th>
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| Ardisana (2006) | 1. How does academic language level change after learning strategy instruction in math as measured by Stanford English language proficiency (SELP)?
  2. Is there a correlation between opportunity to learn and use of learning strategies on written tests?
  3. What are teacher impressions about strategies for opportunity to learn and student academic language ability? | 1. Compare ELL treatment to control using SELP, pre-post ELL to non-ELL using six-traits and pre-post treatment to control using six-traits.
  2. SIOP scores used to measure opportunity to learn and compared with test results above.
  3. Teacher interviews and feedback forms from teachers and students. | N = 136 students in treatment group and 176 student in control group for a total of 312 mostly Hispanic, low-income ELLs and non-ELLs from a rural southwest district. | 1. No difference in growth on SELP scores between treatment and control groups.
  2. Treatment group got higher SIOP score and positive Pearson r between use of strategies and writing score.
  3. Teachers were pleased and gained insights; their students were able to work together, use more strategies and write better papers. |
| Dennis (2004)   | 1. Will students whose teachers’ use the SIOP model score higher on content-based vocabulary/comprehension tests?
  2. Do teachers consider their teaching more effective when using the SIOP model? | 1. Pre/posttest of vocabulary knowledge and comprehension, comparing a SIOP to non-SIOP lesson
  2. Teacher reflection questions to measure teacher perceptions of SIOP effectiveness | N = 62 sheltered middle school students in, ~30% ELL school
 N = 2 experienced bilingual teachers, both certified CLAD and SIOP | 1. Students in SIOP lessons gained significantly more vocabulary development and comprehension than those in non-SIOP lessons.
  2. Teachers also considered their lessons more effective when they used SIOP to plan and implement lessons. |
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| Dietzler (2008) | 1. Does reading achievement differ between two-way immersion (TWI) and English Only (EO) SIOP taught students? | 1. Comparison of state reading scores  
2. Comparison of administrator perceptions on TPAI  
3. Teacher perception of instruction measured by the SIOP  
4. Principal perception of teaching evaluated by the SIOP model. | 1. $N = 35 - 3^{rd}$ grade rural Spanish speaking ELLs in North Carolina (17 EO and 18 TWI students)  
2 - 4. $N = 2$ principals | 1. EO tested 1.5 point higher than TWI, but not statistically significant difference on $3^{rd}$ grade reading scores.  
2-4. EO teacher and principal evaluations matched, but not TWI evaluations. |
| McBride (2007)  | 1. Did TDOC participation affect teacher implementation of SIOP?  
2. What effect did TDOC have on teacher thinking and beliefs? | Observation, interview and self-ranking questionnaire  
$N = 4$ volunteer K-6 teachers in a collaboration team (TDOC) model, used to implement the SIOP model | | 1. SIOP use increased for all four teachers.  
2. Collaboration was the key to implementing SIOP skills. |

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<td>Miner (2006)</td>
<td>To what degree does the SIOP model influence:</td>
<td>Quasi-experimental study (treatment and control group) observations, surveys, and interviews of principals, teachers, specialists, coaches and students Also comparison of OSA math and reading results</td>
<td>$N = 4$ elementary principals, (2 treatment and 2 control) $N = 41$ elementary 3rd-5th grade teachers (22 treatment and 19 control) $N = 3$ ESL specialists in the 4 schools, one covered two schools. $N = 2$ teacher/coaches (one in each treatment school, not in control schools) $N = 89$ Hispanic 3rd-5th grade ELLs (3-4 per class in each school).</td>
<td>1. Teacher pre-efficacy was not different, but post efficacy was higher for teachers using SIOP (treatment group). 2. Students in treatment classes were more interactive and involved than control classes. 3. No significant difference between students in the treatment and control groups on OSA for reading or math tests.</td>
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<td>Montes (2005)</td>
<td>1. Will lesson study (LS) focus faculty on state and local standards?</td>
<td>Case study – Qualitative Data: interviews (ELL efficacy), observation/field notes (SIOP), videotape (SIOP) Quantitative Data: Formal observation protocol, and pre/post questionnaire to evaluate LS and SIOP participation</td>
<td>$N = 8$ teachers (4 preservice and 4 veteran) participating in 2nd and 6th grade two-way immersion certified in Cross-cultural Language Academic Development (CLAD) or Bilingual CLAD (BCLAD)</td>
<td>1. LS following SIOP training improves lesson planning and effectiveness. Sixth-grade team focused on standards, second-grade team did not. 2. LS does not change daily practice 3. Stronger collaboration for veteran teachers 4. Pre-service teachers gain confidence teaching ELLs using SIOP driven LS, thus TPE progress.</td>
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<td>Pelliccioni (2009)</td>
<td>What do suburban middle-school mainstream content-teachers’ report for effective instructional practices used to advance ELLs’ academic literacy (sub questions for each of the eight SIOP components)?</td>
<td>Single case-study design: surveys including open-ended questions, and focus group interviews using critical incident technique</td>
<td>$N = 7$ mainstream content teachers (3 were 6th grade, 4 were 7th grade) who teach mainstream and ELL students</td>
<td>All teachers used all eight components of SIOP. (All seven reported full use of all eight components, except, three used most of component 5, one used part of component 8.) Teachers reported using SIOP, but did not explain how in interviews or essays, so claims are questionable.</td>
</tr>
<tr>
<td>Read (2008)</td>
<td>1. What is the impact of SIOP on instruction for ELLs?</td>
<td>1. Survey and observation to evaluate the effectiveness of SIOP instruction.</td>
<td>1, 3 and 4. $N = 26$ SIOP trained 3rd-5th grade teachers.</td>
<td>1, 3 and 4. Teacher perception of SIOP was 80% positive, most instructional practice changed.</td>
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<td>2. What is the impact of SIOP on reading scores?</td>
<td>2. Comparison of ELL reading growth on the Delaware Student Testing Program (DSTP) for SIOP trained and non-trained teachers’ classes.</td>
<td>2. $N = 85$ students (35 students of SIOP trained teachers and 50 students of non-SIOP trained teachers).</td>
<td>2. Students in SIOP teachers’ reading results improved more than non SIOP (small sample and not statistically significant)</td>
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<td>4. Do SIOP trained teachers change their practice?</td>
<td>4. Observation of SIOP trained teachers</td>
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| Torres (2006)| 1. What do principals know about SI and SIOP?                                     | Case study of three principals using the collaborative inquiry method                              | N = 3 principals (K-4) in Hillside PS who previously participated in SIOP training and were willing to participate in the study | 1. Principals knew basics of SI.  
2. Principals felt less than adequate with SIOP teacher evaluation.  
3. Both first and second use of SIOP were inadequate.  
4. Improve interrater reliability, discuss Likert scale changes and provide critical/positive feedback on classroom objectives and observed lessons.                                                                                                                                                                                                 |
|              | 2. How do principals assess use of SIOP rubric?                                    | Data protocol procedure, using triangulation of multiple sources of information (feedback from seminars, field notes and pre/post observations) |                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                  |
|              | 3. How do principals compare their 1st and 2nd use of the SIOP rubric?              |                                                                                                  |                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                  |
|              | 4. How can SIOP be modified to help principals evaluate teachers?                   |                                                                                                  |                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                  |
### Table 2

**Articles (Report of a Study)**

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<tr>
<th>Study/article</th>
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<th>Design/method</th>
<th>Sample/characteristic</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Echevaria et al. (2006)</td>
<td>Does Sheltered Instruction (SI) improve content achievement for ELLs and are there significant ELL achievement differences with SIOP trained teachers vs. non-SIOP trained teachers?</td>
<td>Control group comparison study on both East and West coasts, with control group comparison Pre/posttest IMAGE test and multiple year observation using the SIOP evaluation rubric</td>
<td>N = 241 SIOP taught ELLs 6th-8th grade (pre/post tested) N = 77 sheltered non-SIOP ELLs, in East and West Coast schools (somewhat matched groups)</td>
<td>Statistically significant improvement in three of five achievement areas and on total test scores for students in SIOP classrooms. Increased fidelity to SIOP strategies improves ELL instruction.</td>
</tr>
</tbody>
</table>
| Honigsfeld & Cohan (2006) | 1a. In what ways did SIOP and lesson study (LS) effect teacher knowledge, skills and disposition?  
1b. In what ways did SIOP and LS impact ELLs?  
2. What are the outcomes of combining LS and SIOP for professional development? | Quantitative measures included descriptive statistics and cross-tabulation SIOP self-checklist, LS rubric and questionnaire Qualitative measures included lesson study reports, notes and interviews | N = 22 teachers, members of the NY Intensive Teacher Institute (ITI) cohort on Long Island working with ELLs in a high need school district | 1a. Change in cognition about teaching ELLs, effective SI, and commitment to ELLs growth.  
1b. LS and SIOP enhance both the teaching of and learning for ELLs.  
2. One year later, SIOP used to a greater extent |
| Pascopella (2008) | Does 1 year of middle school-wide SIOP training improve communication and math scores for ELLs and students in poverty? | Trained all middle school teachers in SIOP skills, and then compared state communication and math scores on the state test from 2006 to 2007. | N = 1,700 students with nineteen different languages (41% ELL) in a Missouri Junior High School | Percentage of ELL students and students in poverty who scored proficient in communication and math increased after teachers were trained in SIOP activities. |

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<tr>
<td>Settlage et al. (2005)</td>
<td>Do inquiry learning and SIOP blend well while instructing science to ELL students?</td>
<td>Teacher team conducted Action Research using first person inquiry, examination of student written work, and teacher created student assessments.</td>
<td>$N = 50$ 2nd grade science students in rural Utah, 32% ELL, 24% fluent ELL, 44% native English Speakers, 80% overall economically disadvantaged.</td>
<td>Substantial but not insurmountable discrepancies in the order of implementation of similar components in inquiry and SIOP methods.</td>
</tr>
<tr>
<td>Whittier &amp; Robinson (2007)</td>
<td>Do Lego robots help ELL students taught using SIOP master state evolution core standards?</td>
<td>Pre/posttest: Students built robots (specialists or generalists) then tested natural selection, adaptation and niche specialties.</td>
<td>$N = 29$ Title I, middle school ELL science students (27 Spanish speaking, 2 Tagalog) taught using the SIOP model.</td>
<td>Significant gains on pre/post tests (26.9% - 42.3%). Final paper student average was 3 of 4 possible points, but there was no non-SIOP group for comparison.</td>
</tr>
</tbody>
</table>
2. *Making Content Comprehensible for Secondary English Language Learners: The SIOP model* (Echevarria et al., 2010).

3. *Making Content Comprehensible for English Language Learners: The SIOP model* (Echevarria et al., 2004).


The following sections of the literature review will discuss SIOP studies specifically. Research as well as more practitioner-related articles and books will be addressed.

### SIOP Studies

To facilitate an understanding of the studies on SIOP, two tables were constructed to summarize their research questions, design, participants involved, and findings. Tables 1 and 2 provided an overview of dissertations, thesis, and research articles published about the SIOP model. For complex studies, the research questions were numbered and corresponding numbers were used under design method, sample characteristics and findings for clarification.

This analysis reviewed the research studies by the categories at the tops of the columns in Tables 1 and 2. This was followed by a review of the highest quality study
conducted on the SIOP model and a brief outline of a criticism regarding use of the SIOP model.

The studies reviewed in Tables 1 and 2 range in time from 2004 to 2009. The only extensive control group comparison study came from the same three authors who developed the protocol (Echevarria et al., 2008). This team, with some additional coauthors, was also responsible for numerous published books used to implement the SIOP model. Another study, Dennis (2004) was a master’s thesis chaired by Echevarria. The inbred nature of the model’s evaluation and marketing is reason to carefully review the claims reported in their studies. However, as can be seen in Tables 1 and 2, their work is also generally supported by the findings of other researchers.

Research Question

Examining the research questions exploring SIOP provides interesting insight. Nine studies (Ardisana, 2006; Dennis, 2004; Dietzler, 2008; Echevarria et al., 2006; Honigsfeld & Cohan, 2006; Miner, 2006; Pascopella, 2008; Read, 2008; Whittier & Robinson, 2007) considered the effectiveness of at least significant portions of the SIOP model. Although studies varied in terms of quality, all nine found that the SIOP model supported student content learning.

Several studies looked at SIOP from different angles. Dietzler (2008) compared English only (EO) SIOP instruction to the resource intensive and successful two-way immersion (TWI) model. The study found SIOP students scored higher, although the difference was not statistically significant. Two studies, Pelliccioni (2009) and Torres (2006), described SIOP implementation and looked for ways to improve implementation.
of the SIOP model. Two studies, Honigsfeld and Cohan (2006) and Whittier and Robinson (2007) looked at SIOP combined with at least one other program, and evaluated the effectiveness of each program along with the combined effectiveness. Finally, Settlage and colleagues (2005) implemented both the SIOP and inquiry learning models and discussed the challenges of implementing both models.

The research questions included inquiry into the effectiveness of SIOP and the effectiveness of SIOP combined with other approaches in upper elementary and middle school level classrooms and students. No research questions examined high school student achievement and few studies looked at whole school implementation.

**Design/Method**

Most of the research studies on the SIOP model used mixed research method. Five studies used surveys (Honigsfeld & Cohan, 2006; McBride, 2007; Miner, 2006; Pelliccioni, 2009; Read, 2008). Five studies used interviews or focus groups (Ardisana, 2006; Honigsfeld & Cohan, 2006; McBride, 2007; Miner, 2006; Montes, 2005), which were combined with surveys in many cases. Also, five case studies (Dietzler, 2008; Miner, 2006; Montes, 2005; Pelliccioni, 2009, Torres, 2006) were found. Pretest and posttest were compared by Dennis (2004); Echevaria and colleagues (2006); and Whittier and Robinson (2007). Echevarria and colleagues were unique in that they used a multiple control group comparison design. The Comparison of pretest to posttest results was considered a respected quantifiable method when used correctly, but as discussed below, these studies had limitations. Ardisana (2006), Dietzler (2008), and Miner (2006) used a quasi-experimental design; they compared two not necessarily equivalent groups.
Settlage and colleagues (2005) used action research. They compared teacher-developed assessments, subjectively graded by the teachers (not standardized assessments). While their methodology was useful for addressing the needs of their own second graders, their findings are not generalizable.

Despite the range of research designs, the 2009 U.S. Department of Education What Works Clearinghouse (WWC) reported that none of the seven separate studies they reviewed met their rigorous research standards. Only two of the studies they found had an eligible design. Of those, the WWC contended that appropriate evidence standards were not met by Echevarria and colleagues (2006) because the intervention and comparison groups were not shown to be equivalent at baseline. The other eligible study by Miner (2006) also “does not meet the WWC standard because the measures of effect cannot be attributed solely to the intervention—there was only one unit of analysis in one or both conditions” (p. 2). They did not consider Dennis (2004); Guarino and colleagues (2001), or Pascopella (2008) for review because the WWC required use of a control group in a study, to be eligible for use in their reports. The other two studies, which were cited by the WWC (but not reviewed), were unpublished reports unavailable through the electronic searches available to this researcher. Neither met WWC eligibility standards.

Given the lack of studies meeting evidence standards, the WWC concluded that they were as of yet, unable to draw conclusions about the educational effectiveness of SIOP. At that time, given the lack of high-quality studies with equivalent control groups, the WWC withheld their endorsement. While positive outcomes for students being taught with SIOP were evident in the literature, more and better studies are definitely needed in
order for the U.S. Department of Education to endorse SIOP. Interestingly, even without rigorous WWC approved research, the SIOP model is widely used and popularly considered to be a research-based model (Echevarria et al., 2008).

Sample

There were seven studies that considered elementary students (Ardisana, 2006; Dietzler, 2008; McBride, 2007; Miner, 2006; Montes, 2005; Read, 2008; Torres, 2006), more than at any other level. Five studies (Dennis, 2004; Echevarria et al., 2006; Pascopella, 2008; Pelliccioni, 2009; Whittier & Robinson, 2007) considered middle school students, middle school teachers or both. Honigsfeld and Cohan (2006) did not identify the academic level of teachers or principals studied. Not even one study was identified in a high school setting. This clear lack of high school studies found in the body of literature on SIOP made the need for this study of a high school SIOP implementation important.

Based on the samples used in these studies, more quantitative studies are needed with pretest posttest methods with large sample sizes to more fully substantiate the claimed student achievement gains of using the SIOP model. In addition, high school studies are needed to validate the SIOP approach in the complex classrooms of a comprehensive high school. Current research to support the incorporation of SIOP into comprehensive high schools is lacking.

Findings

The purposes and findings of these studies were diverse, but generally supported a
positive impact for SIOP. Six of the studies (Honigsfeld & Cohan, 2006; McBride, 2007; Miner, 2006; Montes, 2005; Pelliccioni, 2009; Torres, 2006) evaluated or sought ways to improve the implementation of the SIOP model. These studies reported various levels of support for use of the SIOP model, while none provided contrary evidence. Three studies (Honigsfeld & Cohan, 2006; McBride, 2007; Montes, 2005) focused on ways to maximize the effectiveness of the SIOP professional development model by combining it with other approaches, specifically lesson study and collaboration. Lesson Study and SIOP were reported to be complimentary approaches. Two studies (Dietzler, 2008; Settlage et al., 2005) compared SIOP to other ELL approaches. Dietzler (2008) found that students in the English only SIOP program performed as well as students in the highly respected dual immersion model while Settlage and colleagues found combining SIOP and inquiry instructional models to be challenging but not impossible.

Studies evaluating the effectiveness of the SIOP model include dissertations by Ardisana (2006), Dennis (2004), Dietzler (2008), Miner (2006), and Read (2008) and other scholarly studies conducted by Echevarria and colleagues (2006), Honigsfeld and Cohan (2006), Pascopella (2008), and Whittier and Robinson (2007). While not all learning gains in these studies were statistically significant, differences between SIOP and non-SIOP classrooms favored SIOP. Researchers were optimistic that SIOP has the potential to improve teaching and learning. Those looking at teacher development also noted positive change. Read (2008) found that teachers responded positively to SIOP training. Further, he found that teachers implemented the model as a result of training/coaching and that student reading scores improved, although the improvement
was not statistically significant. The study by Miner (2006) found increased teacher efficacy and student participation, but not statistically significant differences on state reading and math test results. The dissertation by Dietzler (2008) compared English only SIOP based instruction to two-way immersion (known for exceeding regular education student gains). Although SIOP students scored higher than two-way immersion students, the difference was not statistically significant.

Although these studies suggest the effectiveness of SIOP, due to design limitations, questions remain regarding the impact of the SIOP model on ELL achievement. Also, these studies looked at teacher efficacy and the teaching and learning of ELLs in sheltered classes, few of the studies addressed mainstream use of the SIOP model and none studied the application of the SIOP model in high school classes, both of which need future research.

In conclusion, these studies give reason to believe that the SIOP model supports academic learning for ELLs, but not irrefutable evidence. One study found a successful model that differed from the SIOP model, but none found evidence to question the effectiveness of the SIOP model.

**Highest Quality**

The most quantitatively rigorous study was the matched group study conducted at middle schools on both East and West coasts by Echevarria and colleagues (2006). Thus, it will be discussed separately in this section. This study design included multiple schools in multiple districts in multiple states. The researchers used ESL endorsed teachers in both treatment and control groups. In addition, they measured academic achievement of
ELLs in sheltered classes utilizing national assessments. For all of these reasons, their conclusions have been widely recognized. Their results using the Illinois writing test reported that three of the five academic areas and overall scores showed statistically significant academic improvement. The other two subcategories showed improvement, just not quite enough improvement to meet the standard of statistical significance.

The U.S. Department of Education WWC (2009) reported that the groups in this study were not adequately matched prior to the beginning of the study, thus questioned the results. The school populations varied by more than 20% for total minority students and within minority groups, the control group was 10% more Asian, and 10% less Hispanic than the intervention group. Finally regarding sample size, the control group only included seventy-seven students (Echevarria et al., 2006). Statistically significant gains of a group comprised of more Asian students (Asian achievement scores are often higher than Caucasian students) compared to a small group of students significantly more Hispanic (Hispanic students often score the lowest of all ethnic groups on student achievement tests), could be explained by sampling bias alone. For these reasons, the results of this study should be used cautiously. However, a number of other studies have also suggested that SIOP improved student achievement. The lack of contradicting studies does, provide some support for the effectiveness of the SIOP model.

Criticism

Although no direct criticism of the SIOP model was found, Settlage and colleagues (2005) found inquiry learning improved academic achievement for ELLs and questioned whether or not SIOP was always the best practice. They pointed out
significant differences such as opposite order for main components of the two models (inquiry learning and SIOP). They reported inquiry strategies helped ELLs equal non-ELL student achievement in science (once corrected for linguistic deficiencies). They also pointed out that inquiry starts with the activity and ends with vocabulary and objectives, while SIOP uses the opposite order for the beginning and end of lessons. Echevarria (2008) wrote an article responding to the success of inquiry learning and its contrast with SIOP found by Settlage and colleagues. Echevarria responded to the criticism by claiming the SIOP model was misapplied in the study conducted by Settlage and colleagues. She further suggested that where SIOP was effectively applied, ELLs show academic gains. Although other approaches clearly work for ELLs, no studies were found that reported that the SIOP model failed to improve student learning.

**Other SIOP-Related Articles**

To better understand the SIOP model, the following articles were found that outline the need for, or implementation of, the SIOP model. These articles concern second language acquisition, explanation of studies listed above, reports of various application of the SIOP model, or background information about the development of SIOP.

An international second language acquisition expert, Ellis (2008), outlined 10 general principles of instructing for second language acquisition. These principles are designed to be relevant to teachers in a variety of settings. These principles, which include: focus on meaning, focus on form, excessive second language input, second
language output, and second language interaction match the SIOP model. This is appropriate given that SIOP was developed by integrating the known principles of effective teaching; understanding of second language acquisition; and research on multicultural education.

Over the last ten years there has been a continuous stream of articles promoting SIOP. Short and Echevarria (1999) outlined the collaborative cohort development of the SIOP model and described its effectiveness with student achievement and lesson planning. Short (2000) outlined the needs of ELLs, and explained how SIOP improved instruction for ELLs. Short and Echevarria (2004/2005) reported the SIOP model helped ELLs improve their learning and referenced several studies listed above. Fratt (2007) discussed the projected increase of ELL students in the U.S. and reported on a Texas district’s effort to train teachers to help ELLs using the SIOP model. Hansen-Thomas (2008) described best practices for ELLs in the mainstream. She contended that sheltered instruction worked, and schools should train the whole faculty in SIOP because teachers need to use all parts of the model.

Although these articles were not reports of specific research, they summarize the ELL knowledge base and provide a broad understanding of the needs of ELLs. They also support the assertion that the SIOP model meets those needs, no doubt contributing to the popularity of the model.

**SIOP Manuals and Implementation**

Several publications have been produced to assist teachers, schools, districts, and
states as they implement the SIOP model. All of the books include Echevarria as an author, but the lead author varies. All of the books contain at least an overview of the SIOP model. Some of the publications focus on teachers, one on administrators, and another on secondary implementation.

The most comprehensive version of the SIOP model is found in the *Making Content Comprehensible for English Language Learners: The SIOP Model* (Echevarria et al., 2008). It provides the most complete outline of the SIOP model and reasons for SIOP implementation. It is in its third edition and a secondary version has been produced as well.

Several publications have been designed to support implementation of the SIOP model. *99 Ideas and Activities for Teaching English Learners with the SIOP Model* (Vogt & Echevarria, 2008) provides teachers and trainers classroom learning activity ideas to implement. *Using the SIOP Model: Professional Development Manual for Sheltered Instruction* (Short et al., 2009) is a resource for trainers, principals and other educational leaders. *The SIOP Model for Administrators* (Short et al., 2008) is for administrators to lead appropriate implementation and evaluate SIOP teaching effectively. *Implementing the SIOP Model through Effective Professional Development & Coaching* (Echevarria et al., 2008) focuses most thoroughly on implementation. Echevarria and colleagues (2010) prepared *Making Content Comprehensible for Secondary English Learners: The SIOP Model*, specifically to improve secondary implementation of the SIOP model. These manuals are commercially available through Pearson Education and appear to be popular. The newer publications have aimed to fill needs discovered as the model is applied in
more diverse settings.

The marketing of SIOP is impressive. In their 2008 publication, Echevarria and colleagues (2008) outline a few of the many schools, districts, and states that have implemented SIOP and explain that SIOP is more than just good teaching. They explain that SIOP is good teaching plus the incorporation of specific literacy strategies ELLs need to overcome their limited vocabulary. They further suggest schools and districts train all teachers in SIOP strategies to meet the needs of all students. Pascopella (2008) also writes that SIOP use should extend beyond ELL students contending that children coming from poverty will also benefit from SIOP.

**Summary**

The SIOP model is a widely used method of instruction to improve academic learning for ELLs. While more research is needed, SIOP is currently marketed as a research proven method of ELL instruction. Quite a few studies have been conducted in elementary and middle school settings to verify the effectiveness of this model. These studies contain various levels of research rigor, yet none meet the highest standards required by the U.S. Department of Education What Works Clearinghouse. While more rigorous studies are needed, it is notable that most studies show positive gains for SIOP students and no studies were found that suggested SIOP was less effective than other models of instruction currently being used.
CHAPTER III
METHODS AND DATA ANALYSIS

This dissertation is an action research study in that data were collected to address a real problem in a context in which the researcher has the influence to create change based on the findings. This dissertation, which reports the results of a school-wide survey on SIOP, represents only a piece of the ongoing work the researcher and teachers are doing to best serve the needs of the students.

As part of a larger process related to improving education for students at this school, data to determine SIOP implementation and effectiveness were collected and analyzed through a survey (see Appendix C). This survey took place after a full-day introduction training and eight monthly trainings. All teachers who participated in the SIOP training were invited to take an anonymous survey. The survey collected information on teacher background, teacher compliance with the SIOP model, teacher perception of student achievement, perceived need for future training and plans to use the SIOP model in the future.

Often, SIOP training is designed over a semester or a full year. There are also one-time trainings, but these are mostly considered introductory experiences. Substantial professional development includes instruction followed by implementation over weeks, then more training followed by more time for implementation, repeated multiple times. This is the form of professional development utilized in this study. Teachers received a full day introduction to SIOP and were also trained for an hour each month of the academic year by a certified SIOP trainer who is a counselor at the school. Department
meetings were used to follow up on monthly training sessions.

Current research has been lacking to validate the effectiveness of the SIOP model in high schools, and the effectiveness of the model when used with non-ELLs. There are some prerequisite questions to answer prior to conducting a pre-post test control group comparison evaluation of the SIOP model in these applications. These questions include faithfulness to the intent of the model.

1. If a high school faculty is trained to use the SIOP model will the teachers implement the model with fidelity?

2. Will high school teachers perceive it improves student learning?

3. And will they use the model after the training?

Many models come and go. Experienced teachers are often skeptical of new programs. If teachers do not implement a model appropriately, the effectiveness of the model would be irrelevant. If teachers discontinue use of an effective model after successful evaluation, where would be the value? This study therefore sought to answer these prerequisite questions using an anonymous survey to collect data for this action research project. This study broke ground for a future quantitative study of whole school SIOP effectiveness in high schools.

This study provided feedback for teachers trained for a year in SIOP skills. Near the end of the year, the teachers were invited to take a survey. The questionnaire created in Survey Monkey provided them a forum to anonymously share their implementation, their perception of how effective these strategies were with their students and their future plans for implementation. Teachers took a survey in Survey Monkey earlier in the year to
define their priorities, so they were familiar with the online survey process.

This action research project used a survey to collect data. Both action research and survey research are discussed below.

**Action Research**

This action research was designed to evaluate the effectiveness of a high school SIOP implementation by the participants themselves. Action research includes five, sometime six steps. The first step in action research is to identify a problem. In this study, changing demographics and an influx of non-English speaking students caused teachers to seek new ways to better serve their students. The second step in action research is to decide what data to collect and when to collect it. In this study, the teacher leaders (department chairs), in collaboration with the principal, decided to conduct a yearlong SIOP training with a survey at the end to evaluate the success of the training. The third step in action research is to collect and analyze the data. These data were collected via an anonymous electronic survey (Survey Monkey) to determine in what ways teachers implemented the model; if they thought it improved student learning; and if they planned to use it in the future. Descriptive data and correlation statistics were used to analyze the data. The fourth step in action research is to describe use and application of the data. The data from this study are described and discussed in the fourth and fifth chapters of this document. The fifth step in action research is to report and share findings. The researcher has already briefly shared the results of this study with the faculty in order to consider future professional development related to SIOP and it is also shared with a broader
audience in the form of this doctoral dissertation. An optional sixth step in action research is to locate the findings within a theoretical context or literature review (Johnson, 2008, p. 28). This is an important aspect of a dissertation and thus the second chapter of this dissertation contains a review of the literature.

**Survey Research**

Survey research has changed dramatically since the advent of the internet and updates in the social science knowledge base. Dillman (2007) called current survey methodology the “Tailored Design.” “Tailored Design is the development of survey procedures that create respondent trust and perceptions of increased rewards and reduced costs for being a respondent, which take into account features of the survey situation and have as their goal the overall reduction of survey error” (p. 27). The ways each of these needed procedures has been addressed in this study are outlined below.

**Create Respondent Trust**

This study was designed to evaluate faculty-wide SIOP training in a comprehensive high school as requested by this school’s department chairs (teacher leaders). Evaluating a program requested by teacher leaders to determine continued implementation builds trust and gives motivation to participate. All teachers who participated in training were invited to participate in the survey.

**Perceptions of Increased Rewards**

Giving teachers input into their future professional development through the
survey rewarded their participation in this action research project. Teachers were empowered by being asked to respond to questions that they knew would impact their future professional growth opportunities. Teachers were given four response options on the survey, eliminating the neutral option. Because the results were designed to make a school-wide decision, it was thought that a neutral response option would not provide that needed direction. For this reason teachers were required to determine a position (strongly agreeing, agreeing, disagreeing, or strongly disagreeing) on the issues presented in this survey.

**Reduced Costs**

Reduced costs, refers to reducing concerns such as risks of identification or the amount of time a survey takes. Respondents were informed that the results of the survey would only be presented as aggregate data, not individually, thus eliminating risk for respondents. Because section three of the survey reflected the SIOP observation instrument, respondents were familiar with these evaluation criteria prior to taking the survey. The other parts of the survey, “teacher background,” “teachers’ perception of SIOP effectiveness scale,” and “future use,” were brief and straightforward. To assure appropriate content and construction, four SIOP trained administrators and a professor experienced in research design reviewed the survey.

These survey efforts aligned with the concept of tailored design as outlined in Dillman (2007) by establishing trust, increasing rewards, reducing social costs and fitting the survey to the population. As previously noted, trust was built and social costs reduced by not placing individual respondents at risk for individual identification. Rewards were
increased when survey results were used to determine future use of the SIOP model at the school. The other three parts of the survey fit the survey to the population, and made it meaningful for the participants, who had a vested interest in the outcome (Lincoln & Guba, 1985).

**Research Questions**

The research questions for this action research study were:

1. To what degree, do teachers having received in-service training in SIOP report implementing the various components of the program in their daily instruction?

2. After one school year of implementing the SIOP model, what are teachers’ perceptions regarding the effectiveness of using the SIOP model with students?

3. How do SIOP need (number of ELLs per class), class size, years of teaching experience, teaching subject, or prior ESL training relate to a teacher’s perception of SIOP effectiveness scale?

4. Is the level of implementation related to the teacher’s perceptions of effectiveness?

5. Do teachers plan to use the SIOP model in the future?

**Participants and Training**

Data were collected from a volunteer sample of teachers at a comprehensive high school in the Rocky Mountain region. The potential number of participants was 82. This included all faculty encompassing counselors, principals, and a librarian who also
engaged in classroom teaching. Sixty-eight of the potential participants completed the study by responding to the survey. During the previous year, the department chairs (teacher leaders) decided that annual literacy training for the coming year would focus on the SIOP model. The school district curriculum staff were so excited that they scheduled a SIOP expert from a nearby state to introduce district secondary teachers to SIOP strategies and train them in hands-on teaching strategies. All district secondary teachers (except special education and career technical education [CTE] teachers who attended a different in-service) were trained in SIOP for a full day before school began. Special education and CTE teachers traditionally use more hands-on teaching strategies, so this training brought the faculty toward common ground. The one-day district training was in addition to monthly training provided to all teachers (including special education and CTE teachers) at the school level. The school district also purchased a copy of the Echevarria and colleagues (2010) book, *Making Content Comprehensible for Secondary English Learners: The SIOP model*, for all faculty members.

Using the professional development community model, all teachers were trained for an hour each month by a certified SIOP trainer on staff, followed by a department specific discussion. In the monthly training, teachers self- reflected on their teaching practice by using a key SIOP rubric very similar to section three of the survey. In the department sessions, at least one teacher had been previously SIOP trained and the department discussed the best ways to implement the training received in their classrooms the following month. Teachers were expected to apply each month’s training in their classroom at least once to see if it worked. Each month, teachers reported their
SIOP application to each other in department meetings. In May, after having been trained in the SIOP model and having practiced the activities in their classes, the teachers were asked to complete an anonymous electronic survey to assess their perceptions regarding their use of the model, teachers’ perceptions of its effect on student learning and their perceptions of future use. Data collected from this survey is reported in the next chapter and will be used to determine future use of the SIOP model in school-wide professional development.

**Survey Instrument**

The survey contained five sections. Section 1 was implied consent. Section 2 identified teacher background characteristics. Section 3, “Adherence to SIOP model,” assessed teacher implementation of the model. Section 4 included questions regarding teachers’ perception of student performance as a result of using SIOP. Section 5 assessed teachers’ desire to use the model in the future.

The survey collected data about teacher background to determine if these factors affected use of SIOP or perceptions of effectiveness. More specifically, section 2 collected teacher background information related to new, mid career, and end of career teachers; the content area taught; SIOP need (defined as the number of ELLs per class); average class size and level of previous training for teaching ELLs. These questions also provided background information useful in describing the characteristics of the teachers involved in the study.

Section 3 of the survey was constructed by converting the SIOP observation sheet
used in monthly training for teacher self-reflection (Echevarria et al., 2010, p. 234-235), into a self-evaluation survey instrument. This form was formerly adapted by Pellicioni (2009) for teacher self-evaluation. Starting with Pellicioni’s adaptation of the scale for self-reported use of SIOP, this researcher further modified it by editing certain items to add clarity and by creating only four response options. The neutral central response option was eliminated.

Section 3 consisted of the thirty features and eight components of the SIOP model (Echevarria et al., 2010, p. 18). In this section respondents reflected the degree to which they adhered to the SIOP model in their teaching. Respondents were asked to indicate the frequency with which they employed each feature using a 4-point scale (1 = rarely, 2 = sometimes, 3 = often, 4 = most of the time). The items related to each of the eight components were grouped together creating a predetermined factor structure that represented eight different components of adherence to the SIOP model. The items making up each component were summed and divided by the number of responses in each category to allow descriptive comparison between and among components with different numbers of responses. The eight components were “preparation,” “building background,” “comprehensible input,” “strategies,” “interaction,” “practice/application,” “lesson delivery” and “review/assessment.”

An exploratory factor analysis was utilized to see if items would aggregate into underlying concepts (potentially these components or other latent variables). However, no strong factors emerged. Thus, while the items are grouped together into components for descriptive analysis because of their coherence with the SIOP model, in actuality,
teachers tended to respond similarly across all items resulting in a factor analysis assigning a single factor to them all.

Section 4 consisted of five items that reflected perceptions of student achievement using a 4-point Likert scale (the mid or neutral point was removed). These items were summed to form a scale called “Teachers’ Perception of SIOP Effectiveness Scale.” A reliability coefficient was calculated for this scale to insure that the items were highly correlated. This scale was used to assist in answering research questions four and five.

Section 5 consisted of four items that reflected the likelihood of future implementation. Two of the four items used the 4-point frequency scale also used for Section 3. The final two questions used a 4-point Likert-type scale. The responses to these items were not designed to be part of a scale; thus they were not summed. Descriptive frequencies for these four items are reported to answer research question number three.

In summary, the actual instrument assessed teachers’ use of the SIOP model, their perception of its effectiveness and their desire for additional training. Background questions allowed for the analysis of differences in teachers’ perception of SIOP effectiveness scale for faculty subgroups.

Data Collection

Data were collected via voluntary electronic survey at the end of a faculty meeting in May 2010. The principal left the meeting while another doctoral student administered the survey. The survey was described to teachers and they were told that it
would take approximately 15-30 minutes to complete. They were also told that while it was hoped that everyone would give input, it was voluntary. Teachers who were willing to participate were able to move directly to the computer lab to complete the survey. Because this study was teacher leader initiated, and the survey results were used to determine future professional development, most teachers chose to participate in the survey. There were a sufficient number of computers in the lab so that eighty teachers could complete the survey at once. Sixty-eight teachers completed the survey. Use of a school computer lab eliminated possible IP address tracking that could compromise anonymity.

Sixty-five teachers were present and chose to take the survey immediately following the faculty meeting. Teachers who were available, but missed the faculty meeting were invited by the same proctor to take the survey in the computer lab the following day following the procedure listed above. Of those teachers, three completed the survey for a total of 68 participants. A few teachers chose not to participate in the survey and a few were out of school on personal or professional business during the survey window. There was no effort to determine the number of teachers who were unavailable versus those who were unwilling to participate. An implied consent form outlining privacy protection for participants was the first section of the survey. By continuing with the survey, the participant consented to participate. Data were collected via the electronic survey instrument and then exported into SPSS for analysis.
To answer question one (To what degree, do teachers having received in-service training in SIOP, report implementing the various components of the program in their daily instruction?) descriptive data using percentages are reported for each item in section 3 of the survey. Means and standard deviations are also reported for each of the eight components of the SIOP model. The components are: “lesson preparation,” “building background,” “comprehensible input,” “strategies,” “interaction,” “practice/application,” “lesson delivery” and “review/assessment.”

The items within each of the eight major components were summed and divided by the number of questions to get a mean score for each component. This would allow for descriptive comparison between and among components.

Items in each component were analyzed to determine if any reliable component subscales could be utilized in the study. A scale or subscale is created by summing the responses of several Likert-type items which have a high reliability coefficient. The most common "rule of thumb" is that an alpha of .80 or higher is reasonably good (Cohen, Cohen, West, & Aiken, 2003, p. 130). A reliability coefficient was calculated for each subscale in the “Adherence to the SIOP model” section. Not surprisingly, given the results of the factor analysis, a reliability coefficient higher than .80 did not develop for any subscale. Thus, no component subscales are used in the analysis of the data.

A Chronbach’s alpha for all 30 features in the “Adherence to the SIOP model" section of the survey resulted in a coefficient of .95 suggesting that all the items are strongly related to each other and, therefore, useful as a unified measure of compliance.
with the SIOP model. Thus, all 30 items were used to create an overall “Adherence to SIOP Scale.” As discussed earlier, a factor analysis was also run to determine if any factors that were related to the SIOP defined major components would emerge. Only one item (“I define lesson objectives for students”) loaded more heavily on a factor outside of the general total adherence factor. Thus, despite the work of Echevarria and others to identify eight separate components of implementation, this analysis suggests that teachers do not tend to differentiate between these components in terms of reporting their level of implementation. Thus, only descriptive data were run for the separate components of the “Adherence to the SIOP model” section of the survey.

To answer research question two (After one school year of implementing the SIOP model, what are teachers’ perceptions regarding the effectiveness of using the SIOP model with all students?) descriptive data in the form of percentages for each response in section 4 of the survey are reported in a frequency table. In addition, the six items in this section were summed to create a scale. Cronbach’s alpha for this scale was .95. Thus, descriptive statistics for the scale “Perceptions of SIOP Effectiveness Scale” are reported and the scale is used in the analysis of question four.

To answer research question three (How does SIOP need [number of ELLs per class], class size, years of teaching experience, teaching subject, or prior ESL training relate to a teacher’s Perceptions of SIOP Effectiveness Scale?) correlations and descriptive data are reported. A Spearman’s rank order correlation was calculated using the variables “SIOP need (number of ELLs per class),” “class size,” “years of teaching experience,” and the scale created for “perceptions of student learning.” Because these
variables included both ordinal and interval data, a Spearman’s rho was the appropriate correlation measure.

To assess possible relationships between the prior training variables and “Perceptions of SIOP Effectiveness Scale” point-biserial correlations were run. Point-biserial correlations are appropriate because one variable is dichotomous (are you ESL endorsed, yes or no) and the other is continuous (scale score for Perceptions of SIOP Effectiveness Scale). The $r$ values obtained through these analyses enabled the researcher to determine if these teacher background factors were related to scores on the “Perceptions of SIOP Effectiveness Scale” following the first year of training.

To answer research question four (Is the level of implementation related to the Perceptions of SIOP Effectiveness Scale?), a Pearson’s Product Moment Correlation coefficient (bivariate) was used to examine the relationship between the overall implementation scale and the Perceptions of SIOP Effectiveness Scale. Because these variables are continuous (scales created from Likert-type items in survey sections 3 and 4) Pearson’s $r$ was utilized. The $r$ values obtained by this analysis enabled the researcher to determine if any of the implementation factors were related to the Perceptions of SIOP Effectiveness Scale following the first year of training.

To answer research question five (How much do teachers plan to use the SIOP model in the future?), descriptive statistics were generated for the items from Section 5 of the survey. These descriptive statistics provide an understanding of what teachers’ predict to be their future use of the SIOP model.
Reliability/Validity

Survey section 1 was the implied consent section. Section 2 contained only descriptive data and has face validity, thus a reliability measure was not needed.

Section 3 of the survey, “Adherence to SIOP model,” was based on the SIOP model observation form, which was altered by (Pelliccioni, 2009) and used to measure SIOP implementation. Items in this section have face validity in that each item clearly addresses a behavior taught in the SIOP model. As discussed earlier a Cronbach’s alpha test was also used to measure the internal consistency or reliability of the data, for a reliability coefficient of .95.

Survey section 4 measured teacher perceptions and section 5 measured intended future use. Questions used in sections 4 and 5 reflect the researcher’s experience in working with high school teachers and, therefore, was defendable on the basis of both face and construct validity. A Chronbach’s alpha test was also used to ensure reliability of the scale created for section 4.

Limitations

There are several limitations inherent in this study. Limitations are those restrictions that result from the chosen methodology. Reeves (2010) suggested that, “the most obvious limitation” to action research “is that the researcher is clearly biased” (p. 74). In keeping with this, the most significant limitation of this study was that the building principal was the primary evaluator and the teachers were the secondary evaluators in this action research project. This obvious potential bias was mitigated
because the faculty decided to pursue the training, and the principal simply collected data through an anonymous survey so the teachers could decide if the model would be used in the future. Individual teacher responses were voluntary and were protected. It was made clear that the principal was not pursuing any specific outcome.

Another limitation is that the data are only as valuable as the accuracy of the self-reported teachers’ perceptions on the survey. So there is a possibility that teachers were trying to tell the principal what they thought he wanted to know. Whether the principal was the evaluator or whether the administration, school or district, hired the evaluator, this potential still existed because the principal would see the final results in either case.

There is also the limitation that teachers may unintentionally over or underestimate their actual behavior when responding to questions about past implementation. The implementation part of the survey only gives us information regarding how teachers perceive their implementation not their actual implementation.
CHAPTER IV

FINDINGS

This action research study involved the use of a survey to determine if teachers used the SIOP strategies after training, if they perceived the strategies improved their students’ learning, if they planned to use SIOP strategies in the future and other ancillary questions. In this chapter, findings for each of the five research questions are shared.

Survey data were collected on May 12, 2010 after faculty meeting in the school computer lab. Data were again collected in the computer lab on May 13, 2010, for certified employees who missed the first data collection opportunity. The data were exported from Survey Monkey to Excel, then into SPSS to perform statistical processes.

Question #1

The first research question was “To what degree, do teachers having received in-service training in SIOP report implementing the various components of the program in their daily instruction?” The thirty SIOP features were organized into eight SIOP components, namely: “lesson preparation,” “building background,” “comprehensible input,” “strategies,” “interaction,” “practice/application,” “lesson delivery” and “review/assessment.” Table 3 reports teacher implementation by percentage of response for each possible answer along with the mean and standard deviation of each response. The mode for each of the 30 items is underlined to call attention to the most frequent response for each of the 30 elements.
### Table 3

**SIOP Model Implementation Descriptive Statistics (N = 59)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost always</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson preparation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - I define content objectives for students</td>
<td>1.4</td>
<td>12.9</td>
<td>41.4</td>
<td><strong>44.3</strong></td>
<td>3.24</td>
<td>.773</td>
<td></td>
</tr>
<tr>
<td>2 - I define language objectives for students</td>
<td><strong>15.9</strong></td>
<td>37.7</td>
<td>31.9</td>
<td>14.5</td>
<td>2.39</td>
<td>.929</td>
<td></td>
</tr>
<tr>
<td>3 - I prepare content for age &amp; background</td>
<td>1.4</td>
<td>10.0</td>
<td>27.1</td>
<td><strong>61.4</strong></td>
<td>3.54</td>
<td>.703</td>
<td></td>
</tr>
<tr>
<td>4 - I use supplementary materials</td>
<td>.0</td>
<td>11.6</td>
<td>33.3</td>
<td><strong>55.1</strong></td>
<td>3.42</td>
<td>.675</td>
<td></td>
</tr>
<tr>
<td>5 - I adapt content to student proficiency</td>
<td>1.4</td>
<td>20.3</td>
<td>34.8</td>
<td><strong>42.9</strong></td>
<td>3.17</td>
<td>.834</td>
<td></td>
</tr>
<tr>
<td>6 - I prepare meaningful activities</td>
<td>7.1</td>
<td>18.6</td>
<td>30.0</td>
<td><strong>44.3</strong></td>
<td>3.15</td>
<td>.925</td>
<td></td>
</tr>
<tr>
<td><strong>Building background</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - I link concepts to student background</td>
<td>1.4</td>
<td>10.0</td>
<td><strong>47.1</strong></td>
<td>41.4</td>
<td>3.25</td>
<td>.709</td>
<td></td>
</tr>
<tr>
<td>8 - I make links between past and new concepts</td>
<td>1.4</td>
<td>4.3</td>
<td>37.7</td>
<td><strong>56.6</strong></td>
<td>3.46</td>
<td>.678</td>
<td></td>
</tr>
<tr>
<td>9 - I emphasize key vocabulary</td>
<td>1.4</td>
<td>18.8</td>
<td>30.4</td>
<td><strong>49.3</strong></td>
<td>3.27</td>
<td>.827</td>
<td></td>
</tr>
<tr>
<td><strong>Comprehensible input</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 - I use appropriate speech for students</td>
<td>1.4</td>
<td>18.6</td>
<td><strong>41.4</strong></td>
<td>38.6</td>
<td>3.20</td>
<td>.805</td>
<td></td>
</tr>
<tr>
<td>11 - I explain academic tasks</td>
<td>1.4</td>
<td>8.6</td>
<td>30.0</td>
<td><strong>60.0</strong></td>
<td>3.51</td>
<td>.679</td>
<td></td>
</tr>
<tr>
<td>12 - I use a variety of techniques</td>
<td>2.9</td>
<td>8.7</td>
<td>27.5</td>
<td><strong>60.9</strong></td>
<td>3.41</td>
<td>.812</td>
<td></td>
</tr>
<tr>
<td><strong>Strategies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 - I provide opportunities for learning strategies</td>
<td>2.9</td>
<td>27.1</td>
<td><strong>35.7</strong></td>
<td>34.3</td>
<td>3.00</td>
<td>.891</td>
<td></td>
</tr>
<tr>
<td>14 - I use scaffolding to support understanding</td>
<td>8.7</td>
<td>17.4</td>
<td>36.2</td>
<td><strong>52.7</strong></td>
<td>2.92</td>
<td>.970</td>
<td></td>
</tr>
<tr>
<td>15 - I use questions to promote thinking skills</td>
<td>1.4</td>
<td>20.0</td>
<td><strong>41.4</strong></td>
<td>37.1</td>
<td>3.15</td>
<td>.784</td>
<td></td>
</tr>
<tr>
<td><strong>Interaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 - I use opportunities for interaction/discussion</td>
<td>0</td>
<td>17.6</td>
<td><strong>41.2</strong></td>
<td>41.2</td>
<td>3.22</td>
<td>.744</td>
<td></td>
</tr>
<tr>
<td>17 - I use varied grouping configurations</td>
<td>7.2</td>
<td>23.2</td>
<td><strong>44.9</strong></td>
<td>24.6</td>
<td>2.90</td>
<td>.845</td>
<td></td>
</tr>
<tr>
<td>18 - I provide sufficient wait time for response</td>
<td>1.4</td>
<td>12.9</td>
<td>8.6</td>
<td><strong>47.1</strong></td>
<td>3.34</td>
<td>.757</td>
<td></td>
</tr>
<tr>
<td>19 - I provide opportunities to clarify key concepts</td>
<td>0</td>
<td>20.0</td>
<td><strong>40.0</strong></td>
<td><strong>40.0</strong></td>
<td>3.17</td>
<td>.746</td>
<td></td>
</tr>
<tr>
<td><strong>Practice and application</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 - I provide hands-on materials to practice</td>
<td>1.4</td>
<td>15.7</td>
<td>34.3</td>
<td><strong>48.6</strong></td>
<td>3.25</td>
<td>.822</td>
<td></td>
</tr>
<tr>
<td>21 - I provide activities to apply content and language</td>
<td>1.4</td>
<td>10.0</td>
<td>42.9</td>
<td><strong>45.7</strong></td>
<td>3.27</td>
<td>.715</td>
<td></td>
</tr>
<tr>
<td>22 - I use activities that integrate language</td>
<td>5.7</td>
<td>22.9</td>
<td>27.1</td>
<td><strong>44.3</strong></td>
<td>3.03</td>
<td>.946</td>
<td></td>
</tr>
<tr>
<td><strong>Lesson delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 - I support content objectives</td>
<td>0</td>
<td>5.7</td>
<td>37.1</td>
<td><strong>57.1</strong></td>
<td>3.49</td>
<td>.626</td>
<td></td>
</tr>
<tr>
<td>24 - I support language objectives</td>
<td>1.4</td>
<td>15.7</td>
<td><strong>45.7</strong></td>
<td>37.1</td>
<td>3.17</td>
<td>.769</td>
<td></td>
</tr>
<tr>
<td>25 - I engage students 90% - 100% of period</td>
<td>5.8</td>
<td>17.4</td>
<td>26.1</td>
<td><strong>50.7</strong></td>
<td>3.24</td>
<td>.935</td>
<td></td>
</tr>
<tr>
<td>26 - I pace lesson to student ability level</td>
<td>1.4</td>
<td>11.6</td>
<td>39.1</td>
<td><strong>47.8</strong></td>
<td>3.36</td>
<td>.737</td>
<td></td>
</tr>
<tr>
<td><strong>Review/assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 - I conduct a review of key vocabulary</td>
<td>14.3</td>
<td>28.6</td>
<td>24.3</td>
<td><strong>32.9</strong></td>
<td>2.71</td>
<td>1.068</td>
<td></td>
</tr>
<tr>
<td>28 - I conduct a review of key content concepts</td>
<td>5.7</td>
<td>22.9</td>
<td>31.4</td>
<td><strong>40.0</strong></td>
<td>3.07</td>
<td>.926</td>
<td></td>
</tr>
<tr>
<td>29 - I provide feedback on language &amp; content</td>
<td>2.9</td>
<td>20.0</td>
<td><strong>41.4</strong></td>
<td>35.7</td>
<td>3.03</td>
<td>.830</td>
<td></td>
</tr>
<tr>
<td>30 - I conduct assessment of student comprehension</td>
<td>2.9</td>
<td>14.3</td>
<td><strong>40.6</strong></td>
<td>42.0</td>
<td>3.19</td>
<td>.819</td>
<td></td>
</tr>
</tbody>
</table>
As can be seen in Table 3, teachers reported frequent use of the 30 features of the SIOP model. Seventy participants answered survey items. Fifty-nine participants answered every single question in this section. Most of the respondents missed only one question resulting in at least 68 responses for most questions in this section. For all but one indicator the majority of respondents marked the response “often” or “almost always.” SIOP strategies that teachers reported using the most frequently were, “I prepare content for age and background” ($M = 3.54$), “I explain academic tasks” ($M = 3.51$), “I support content objectives” ($M = 3.49$), and “I make links between past and new concepts” ($M = 3.46$). The response with the lowest implementation rating was, “I define language objectives” with a mean score of 2.39. Sixteen percent of the respondents reported that they rarely defined language objectives. Thirty-eight percent of the teachers indicated “sometimes.” Still, almost half of the teachers indicated “often (32%)” or “almost always (15%).” “I conduct a review of key vocabulary,” which is another vocabulary building effort, reports a similar low mean score of 2.71. Again, more than half of the teachers indicated using this strategy a majority of the time or “often ($M = 24.3$)” and “almost always ($M = 32.9$).” Other lower scoring items were “I use varied grouping configurations” with a mean score of 2.90 and “I use scaffolding to support understanding” with a mean score of 2.92. Both of these responses however, reported more than half of teachers in the “often or “almost always” categories.

It is helpful to also look at the mean scores and standard deviations for the eight major components. These are reported as descriptive data in Table 4.

As can be seen in this table, all of the eight components reflected a mean item
Table 4

_Implementation Frequency of the Eight SIOP Components (N = 59)_

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson Preparation</td>
<td>3.14</td>
<td>.531</td>
</tr>
<tr>
<td>Building Background</td>
<td>3.32</td>
<td>.599</td>
</tr>
<tr>
<td>Comprehensible Input</td>
<td>3.36</td>
<td>.582</td>
</tr>
<tr>
<td>Strategies</td>
<td>3.05</td>
<td>.751</td>
</tr>
<tr>
<td>Interaction</td>
<td>3.12</td>
<td>.575</td>
</tr>
<tr>
<td>Practice / Application</td>
<td>3.24</td>
<td>.659</td>
</tr>
<tr>
<td>Lesson Delivery</td>
<td>3.29</td>
<td>.583</td>
</tr>
<tr>
<td>Review / Assessment</td>
<td>3.02</td>
<td>.755</td>
</tr>
</tbody>
</table>

Score over 3.0 for an average response across the components of 3.19, which could descriptively be labeled as “often.” Means of responses for “Comprehensible Input,” “Building Background,” and “Lesson Delivery” were the components that were reported as being implemented the most frequently. Generally teachers reported having implemented all of the components of SIOP “often.”

**Question #2**

The second research question asked, “After one school year of implementing the SIOP model, what were teachers’ perceptions regarding the effectiveness of using the SIOP model with students?” Again, it is important to remember that student achievement data were not used; rather, data on teacher perceptions of SIOP effectiveness were collected. In Table 5 teachers’ responses to the six items on SIOP effectiveness are reported. Modes are underlined as this is an important measure of central tendency given
Table 5

*Teachers’ Perceptions of the Effectiveness of SIOP with Students (N = 65)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree</td>
</tr>
<tr>
<td>Struggling student grades improve with SIOP</td>
<td>4.5</td>
</tr>
<tr>
<td>Homework completion improves with SIOP</td>
<td>7.4</td>
</tr>
<tr>
<td>Time on-task improves with SIOP</td>
<td>5.9</td>
</tr>
<tr>
<td>Struggling students learn better with SIOP</td>
<td>4.4</td>
</tr>
<tr>
<td>Students improve on end of level tests</td>
<td>6.1</td>
</tr>
<tr>
<td>All students benefit with SIOP</td>
<td>4.4</td>
</tr>
</tbody>
</table>

There were only four descriptive response options for each individual item. Means are utilized to get a rough sense of how the items compare with each other.

Most teachers agreed in all categories that SIOP improved learning for struggling students in questions one through four. For question five, “students improve with end of level tests” a generally lower mean score \( (M = 2.80) \) resulted when asking generally about students. Question #5 showed a very strong positive mean score \( (M = 3.14) \) that “all students benefit with SIOP.” In “Struggling students learn better with SIOP” and “All students benefit with SIOP,” the vast majority of teachers agreed (68% and 65%, respectively) or strongly agreed (24% and 27%, respectively) that SIOP improved student performance. Homework completion and end of level tests received the lowest improvement ratings. However, still 56% of teachers agreed and 12 to 15% strongly agreed that SIOP improved end of level tests and homework completion performance.

For “Homework completion improves with SIOP,” 32.4% of teachers and for “Students improve on end of level tests” 28.8% of teachers disagreed or strongly disagreed. The less positive perception of homework completion performance may be because SIOP is
focused on classroom activities, not homework completion, thus less support for this item is understandable. In addition, end-of-level tests were not yet completed when the data were gathered, so teachers had only their unit and term tests to extrapolate the answer to this question.

These results suggest that some teachers perceive students may benefit from SIOP and learn better, but not necessarily always complete their homework better or perform better on end of level tests. Teachers tended to be consistent across their responses to these items resulting in a Cronbach’s alpha of .95 for the six items. Thus these items were combined to create a scale called the “Perceptions of SIOP Effectiveness Scale” ($M = 17.69$, $SD = 3.84$, Range = 18).

**Question #3**

The third research question asked, “How did “SIOP need” (number of ELLs per class), “class size,” “years of teaching experience,” “teaching subject,” or “prior ESL training” relate to teachers’ Perceptions of SIOP Effectiveness Scale?” The researcher believed that these variables might potentially impact teacher perception of effectiveness. Descriptive data for each of these variables as related to scores on the “Perceptions of SIOP Effectiveness Scale” are shared below as well as the results of a variety of correlation tests appropriate to the variable being discussed.

**SIOP Need and Teachers’ Perception of SIOP Effectiveness Scale**

In Table 6 descriptive data are reported for the variable “SIOP Need.” Item mean
Table 6

Perceptions of SIOP Need Descriptive Statistics and Mean Scores on Perceptions of SIOP Effectiveness Items (N = 68)

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Percent</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIOP Need (# of ELL students)</td>
<td>68</td>
<td>2.95</td>
<td>.641</td>
<td></td>
</tr>
<tr>
<td>1 - 3</td>
<td>39.7</td>
<td>27</td>
<td>2.84</td>
<td>.720</td>
</tr>
<tr>
<td>4 - 6</td>
<td>25.0</td>
<td>17</td>
<td>2.86</td>
<td>.657</td>
</tr>
<tr>
<td>7 - 9</td>
<td>23.5</td>
<td>16</td>
<td>3.08</td>
<td>.494</td>
</tr>
<tr>
<td>10 or more</td>
<td>11.8</td>
<td>8</td>
<td>3.23</td>
<td>.549</td>
</tr>
</tbody>
</table>

scores and standard deviations on the Teachers’ Perceptions of SIOP Effectiveness are shown for each category of SIOP need.

The descriptive data for number of ELLS in a class (SIOP Need) show that 65% of the teachers had on average six or fewer ELL students. Thirty-five percent of the participants had, on average, seven or more ELL students in a class. A Spearman’s rho correlation indicated that the two variables (SIOP Need and Perceptions of SIOP Effectiveness Scale) are not statistically correlated ($r = .12, p = n.s.$), but the descriptive data show a trend for teachers with more ELL students to perceive SIOP strategies to be more effective. Additional studies would need to be done to see if this trend is evident with other groups of teachers working with ELL students.

Class Size and Perceptions of SIOP Effectiveness

In Table 7, descriptive data are reported for the variable “class size” as it relates to the “Teachers’ Perception of SIOP Effectiveness Scale.” An analysis of descriptive data
Table 7

Class Size and Mean Scores on Perceptions of SIOP Effectiveness Items (N = 68)

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Item Percent</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Size</td>
<td></td>
<td>68</td>
<td>2.95</td>
<td>.641</td>
</tr>
<tr>
<td>Less than 10</td>
<td>5.9</td>
<td>4</td>
<td>2.00</td>
<td>1.155</td>
</tr>
<tr>
<td>11 - 20</td>
<td>16.2</td>
<td>11</td>
<td>3.02</td>
<td>.391</td>
</tr>
<tr>
<td>21-30</td>
<td>27.9</td>
<td>19</td>
<td>3.17</td>
<td>.621</td>
</tr>
<tr>
<td>31 or more</td>
<td>50.0</td>
<td>34</td>
<td>2.92</td>
<td>.563</td>
</tr>
</tbody>
</table>

Indicates, that 50% of the participants in this study had, on average, 31 or more students in their classes. Four teachers with small classes (6%) participated in the study. A Spearman’s rho correlation indicated no statistically significant relationship between class size and Perceptions of SIOP Effectiveness Scale ($r = .01, p = n.s.$).

Data for Years of Teaching

In Table 8 item descriptive data is reported for the variable “years of teaching” as it relates to teachers’ Perception of SIOP Effectiveness Scale. Teachers in this study tended to have quite a bit of teaching experience. Sixty-three percent of the teachers in this study had taught 11 years or more. A Spearman’s rho correlation ($r = .13, p = n.s.$) showed no statistically significant relationship between years of teaching and the Perceptions of SIOP Effectiveness Scale.

Data for Prior ESL Training

In Table 9 descriptive data is reported for the variable “ESL Training.” For this question on the survey, teachers were asked to indicate which of these various ESL
Table 8

*Years of Teaching and Mean Score on Perceptions of SIOP Effectiveness Items (N = 67)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Effectiveness</th>
<th>Percent</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of teaching</td>
<td>1 = Strongly disagree to 4 = Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 3</td>
<td></td>
<td>19.4</td>
<td>13</td>
<td>2.99</td>
<td>.357</td>
</tr>
<tr>
<td>3 - 10</td>
<td></td>
<td>17.9</td>
<td>12</td>
<td>2.90</td>
<td>.925</td>
</tr>
<tr>
<td>11 – 20</td>
<td></td>
<td>37.3</td>
<td>25</td>
<td>2.79</td>
<td>.651</td>
</tr>
<tr>
<td>21 or more</td>
<td></td>
<td>25.4</td>
<td>17</td>
<td>3.21</td>
<td>.525</td>
</tr>
</tbody>
</table>

Table 9

*Prior ESL Training and Mean Scores on Perceptions of SIOP Effectiveness Items (N = 68)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Effectiveness</th>
<th>Percent</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESL endorsed</td>
<td>1 = Strongly disagree to 4 = Strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>14.7</td>
<td>10</td>
<td>3.10</td>
<td>.910</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>85.3</td>
<td>58</td>
<td>2.92</td>
<td>.589</td>
</tr>
<tr>
<td>SIOP trained</td>
<td></td>
<td>68</td>
<td></td>
<td>2.90</td>
<td>.641</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>50.0</td>
<td>34</td>
<td>2.90</td>
<td>.705</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>50.0</td>
<td>34</td>
<td>2.90</td>
<td>.578</td>
</tr>
<tr>
<td>Inservice</td>
<td></td>
<td>68</td>
<td></td>
<td>2.95</td>
<td>.641</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>67.6</td>
<td>46</td>
<td>2.92</td>
<td>.728</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>32.4</td>
<td>22</td>
<td>3.02</td>
<td>.411</td>
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<tr>
<td>EYE trained</td>
<td></td>
<td>68</td>
<td></td>
<td>2.95</td>
<td>.641</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>30.9</td>
<td>21</td>
<td>2.90</td>
<td>.698</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>69.1</td>
<td>47</td>
<td>2.97</td>
<td>.620</td>
</tr>
<tr>
<td>University coursework</td>
<td></td>
<td>68</td>
<td></td>
<td>2.95</td>
<td>.641</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>63.3</td>
<td>43</td>
<td>2.96</td>
<td>.710</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>36.7</td>
<td>25</td>
<td>2.93</td>
<td>.514</td>
</tr>
</tbody>
</table>
training opportunities they had participated in prior to 2009. Teachers were asked to check all that applied.

As can be seen from this table, few teachers were ESL endorsed and half of the teachers reported having SIOP training prior to fall of 2009. Almost two thirds of the teachers reported having ESL training through university coursework and inservice. About one-third reported training through the Entry Years Enhancement (EYE) program for new teachers. A Pearson’s correlation (a reasonable estimate of a point-biserial correlation) showed that none of the prior ESL training indicators showed statistically significant correlation with “Perceptions of SIOP Effectiveness Scale.”

**Data for Subject Taught**

In Table 10 item mean scores and standard deviation descriptive data for the “Perceptions of SIOP Effectiveness Scale” are reported for the variable “subject taught.” Teachers were well distributed across discipline areas with the smallest representation in world languages, social studies and physical education. These smaller departments provided smaller sample sizes for comparison.

In terms of responses to items on the teachers’ perception of SIOP effectiveness scale all of the departments except English had a more positive than negative teachers’ perception of SIOP effectiveness scale. World language teachers had the most positive perception of SIOP, which makes sense since SIOP is based on language acquisition strategies to help students learn a second language. English and special education teachers reported the lowest perception of effectiveness. The high standard deviations for English and special education teachers suggest that there was wide variability in how
Table 10

Subject Taught and Mean Scores on Perceptions of SIOP Effectiveness Items (N = 67)

<table>
<thead>
<tr>
<th>Department</th>
<th>Perception of effectiveness</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td></td>
<td>7</td>
<td>2.43</td>
<td>.726</td>
</tr>
<tr>
<td>Special education</td>
<td></td>
<td>9</td>
<td>2.70</td>
<td>1.020</td>
</tr>
<tr>
<td>Science</td>
<td></td>
<td>8</td>
<td>2.81</td>
<td>.403</td>
</tr>
<tr>
<td>Math</td>
<td></td>
<td>9</td>
<td>2.83</td>
<td>.507</td>
</tr>
<tr>
<td>Practical arts</td>
<td></td>
<td>8</td>
<td>2.94</td>
<td>.454</td>
</tr>
<tr>
<td>Fine arts</td>
<td></td>
<td>6</td>
<td>3.11</td>
<td>.443</td>
</tr>
<tr>
<td>Physical education/health</td>
<td></td>
<td>4</td>
<td>3.25</td>
<td>.500</td>
</tr>
<tr>
<td>Social studies</td>
<td></td>
<td>3</td>
<td>3.28</td>
<td>.481</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>10</td>
<td>3.30</td>
<td>.508</td>
</tr>
<tr>
<td>World languages</td>
<td></td>
<td>3</td>
<td>3.56</td>
<td>.631</td>
</tr>
</tbody>
</table>

teachers in these areas responded to these items. Overall, teacher perceptions of SIOP effectiveness was positive as reflected in almost all departments.

**Question #4**

The fourth research question asked, “Is the level of implementation related to the Teacher’s Perceptions of Effectiveness Scale?” Since subscales of implementation did not develop, only an overall implementation scale score could be compared to the Perceptions of SIOP Effectiveness Scale. A Pearson’s product moment correlation coefficient ($r = .06$) comparing overall implementation and total effectiveness was not statistically significant ($p = .61$). Thus, these data suggest that there is no statistically significant relationship between implementation and perceived effectiveness. In this
study teachers who reported more use of the SIOP strategies did not necessarily perceive SIOP as resulting in more effective outcomes than those teachers who did not use the strategies as often.

**Question #5**

The fifth question asked, “Did teachers plan to use the SIOP model in the future?” For the four questions on the survey relevant to this research question two different types of response sets were provided (rarely to most all of the time, and strongly disagree to strongly agree). Consequently, the results for both types of questions are reported separately and not combined.

Responses to the first two questions regarding future use are reported in Table 11. These two questions were asked to ascertain teachers’ plans to use the SIOP in years following the training.

**Teacher Plans for Future Use of the SIOP Model**

Table 11 presents teacher responses including item mean scores and standard deviations for their plans for using SIOP strategies in the future. The mode for each score is underlined. Almost three-fourths of teachers reported they plan to use SIOP at least often in the future. Only one teacher reported that he or she planned to rarely use the SIOP model in the future.

One third of the teachers plan to use SIOP most all of the time in their teaching. Another 41% said they would use it often. Teacher responses to the question on
continuing peer observations suggest a lack of commitment to peer observations. More than half of the teachers reported not planning to use peer observations at least “often” in the future. The most frequent response was “sometimes” at 49%. Fourteen percent felt they would rarely use peer observations using the SIOP model in the future. Still, slightly over 85% of the teachers planned to use peer observations “sometimes,” “often,” or “most all of the time” in the future.

**Teachers’ Responses Regarding Additional Training Needed to Implement the SIOP**

Responses to the last two questions regarding future use are reported in Table 12. These descriptive data include item mean scores and standard deviations for each question. The mode for each score is underlined. These two questions were asked to ascertain teachers’ desire for additional SIOP training.

Almost 6 in 10 teachers did not report a need for additional training to implement basic SIOP strategies in the future. Fifty-one percent of teachers agreed or strongly agreed that they would like to participate in advanced SIOP training in the future. So, 6 in
Table 12

*Teachers’ Desire for Additional Training (N = 65)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Percent</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I need additional training to continue basic implementation of the SIOP model.</td>
<td>13.8</td>
<td>2.38</td>
<td>.860</td>
</tr>
<tr>
<td>I would like to participate in advanced SIOP training in the future.</td>
<td>16.9</td>
<td>2.48</td>
<td>.937</td>
</tr>
</tbody>
</table>

10 teachers did not need more SIOP training to implement the basic model and about half sought advanced training.

**Survey Comments**

Teachers entered various comments located at the end of each section of the survey. They ranged from comments concerning their background experiences, examples of their individual implementation, their perception of effectiveness, to comments about the effectiveness of the training sessions.

**Comments Regarding Teacher Background**

Twelve teachers, about one in six, commented about their background. Most listed their highest university degree, for example, bachelor’s degree or master’s in counseling, and so forth. A couple of teachers shared their experiences learning a second language. For example, “I speak a foreign language” and “Hispanic and I learned English in the States, I know the frustration that an ESL could feel.” Others listed specific
training they participated in regarding instruction for ELLs, “I have been ESL endorsed since 1987,” and “I went to TESOL training.” The comments reflected the quantitative data in that this faculty had a wide range of background and ESL training, from experts to novices.

Comments Regarding Implementation of the Eight SIOP Components

Thirteen teachers commented about “lesson preparation.” Most of the teachers’ comments centered on specific preparation to serve their students and the amount of time it takes to individualize instruction for their diverse student population. Examples of comments are: “[I spend] a lot of time after contracted hours to prepare lessons,” and “I spend a lot of time outside of class preparing lessons.” It was clear from the comments that teachers work hard to fulfill this SIOP component.

Ten teachers commented on “building background.” Most of them centered around the importance of “contextualization” and their efforts to connect classroom learning with prior knowledge. For example, teachers commented: “It is critical that I relate the new concepts to previous knowledge and experience;” “I highly emphasize this because this is how I learn best; I think this helps students understand and remember information;” and “The only time my students fully learn a new concept is when it is linked to their background.” The comments reflect the high value teachers placed on linking background to new information presented in class.

The nine comments on “comprehensible input” mostly discussed how teachers teach. They included, “I know more than I really do,” “I use a lot of different teaching
methods to relate to students,” and “I have found that using different ones enhances student learning.” The comment about knowing more than they do, reflected the perception of the researcher, that most teachers know to use various teaching methods and have a broad array of tools in their box, but use a few favorites most of the time.

Five comments on “strategies” were mainly about how they apply in their classroom. Examples of comments are: “When you teach hands-on classes, it is sort of difficult to apply some of these questions;” “I’m big on questioning techniques, and I teach students several models of inquiry;” and “That’s what SPED does.” The broad variety of classroom teachers in this study is reflected in the responses to this question. High schools have every type of classroom, from band to applied technology, foreign language to physical education, and from self-contained special education to advanced placement. Applying the SIOP model in certain types of classroom environments was a challenge for some teachers.

Few substantial comments were entered regarding the component “interaction.” The questions were very direct and apparently teachers felt no need to comment.

Similarly, there were few comments on “practice and application.” One teacher did comment that “language skills are often the same as the content skills, so they are regularly integrated.” In some classes, the language is the content, so this teacher saw little need to provide both content and language objectives.

Five teachers entered comments about “lesson delivery.” These comments included, “I know I have room to improve, I sometimes teach too fast, assume they already know some concepts, and often they do not;” and “It’s hard to make sure 90% or
more are engaged, but I keep working toward that goal.” The comments confirmed that.
the teachers understood the SIOP model and are working toward implementing “lesson
delivery” concepts.

Four teachers commented on their “review and assessment” techniques providing
insight into their classrooms. Comments included, “I am sold on this type of pedagogy,
but I am aware that we need constant reminders and maybe peer tutoring to make sure it
happens;” and “I am weak on the language portion.” Teacher comments reflected the
value they place in the SIOP model and their efforts to implement it.

Several comments were not directly related to the questions; rather they critiqued
the process or survey. One teacher criticized the questions stating, “Some of these
questions are hard to apply to my subject area, there should be an answer that says N-A;”
and “question #31 is nebulous.” These comments reflect the genuine nature of the survey
responses and the confidence teachers felt with anonymity. The fact that there were few
such comments reflects that most teachers saw the connection between the SIOP model
and the survey.

All staff that were certified and had teaching roles at the school were invited to
participate in the training and the survey. For example, counselors teach regularly to help
students create their Student Education Occupation Plan. The Media Center Director
regularly teaches research techniques in English classes. And, the administrators present
in classes multiple times each year. Apparently, one of the certified staff did not see the
connection between SIOP training and his or her teaching, because they entered “don’t
teach students” on every question. Other teachers randomly entered none or NA under the
comment response option. These comments again reflect teacher confidence in anonymity and the value of honest teacher feedback.

**Comments Regarding Perceptions of Student Performance**

Eight teachers commented on “Perceptions of Student Performance.” They ranged from the value of SIOP, for example, “The components are not exclusive to ELLs and benefit all learners” to similarities between SIOP and other strategies “Special education techniques are very similar to SIOP strategies.” There were a couple of responses about end-of-level tests. They were, “I do not have end of level tests, but they do seem to do better on my tests;” and “I don’t think end of level tests are a good [measure of] SIOP, so therefore I don’t know how much SIOP is reflected in end of level.” There were also comments about the value of SIOP strategies, such as, “It is interesting how many SIOP strategies I have been using before there was SIOP, they are all good strategies,” and “practice makes perfect.” Finally, there were two critical comments, one criticizing the survey and one criticizing the training. These comments validate that most teachers valued the SIOP model and still others felt secure in the promise of anonymity.

**Comments Regarding Future Use of the SIOP Model**

Eight teachers commented on “future use.” Most were summaries of the experience. Three said they had used SIOP strategies before. Comments included, “I have been using the SIOP strategies for many years.” “There are other models than SIOP, though the concepts are the same,” and “I have always tried to use SIOP techniques.”
Suggested that the assessment portion of the model was critical one respondent stated, “The issue isn’t in teaching, it’s in how we assess learning.” Others made comments about how to conduct future SIOP training suggesting the use of “small bites or examples” and one commented on “my teacher of choice for advanced training.” One teacher used the comment section to criticize the researcher.

**Comment Summary**

The comments gave teachers a chance to provide input in areas not covered by the survey questions. The comment sections also allowed teachers to provide more information than the quantitative survey questions alone permitted. Teachers used this section to explain how they used the model, how they felt about the model, and even how they felt about the survey, the training and researcher. One thing that stood out from the comments is that the teachers felt comfortable being brutally honest in the comment section, thus validating the honesty of their survey responses. Suggestion garnered from the survey provided ways to improve future training, thus meeting the goal of action research. The comments are indicative of professional educators seeking ways to improve their practice, which is the goal of this action research project.

**Summary of Findings**

The first research question was “To what degree, do teachers having received inservice training in SIOP report implementing the various components of the program in their daily instruction?” Teachers reported frequent use of the 30 features of the SIOP model. Respondents most frequently marked “often” or “almost always” on all but one of
the indicators. Even on the indicator with the lowest report use, “I use language objectives,” almost half of the teachers indicated “often” or “almost always.” In short, most teachers reported regular use of the SIOP model.

The second research question asked, “After one school year of implementing the SIOP model, what are teachers’ perceptions regarding the effectiveness of using the SIOP model with students?” Again, it is important to remember that student achievement data were not used; rather, data on teacher perceptions of SIOP effectiveness were collected. Most teachers agreed in all categories that SIOP improved student learning. “Students learn better with SIOP” and “Students benefit with SIOP,” were the items receiving the strongest support. Homework completion and end of level tests received the least support but still about 70% of teachers agreed or strongly agreed that SIOP improved student performance in these areas.

The third research question asked, “How does ‘SIOP need’ (number of ELLs per class), ‘class size,’ ‘years of teaching experience,’ teaching subject,’ or ‘prior ESL training’ relate to teachers’ perception of SIOP effectiveness scale?” In this study 65% of the teachers had on average six or fewer ELL students, thirty-five percents of the participants had, on average, seven or more ELL students in a class. While not statistically significant, the data show a trend for teachers with more ELL students to perceive SIOP strategies to be more effective. Additional studies need to be done to see if this trend is evident with other groups of teachers working with ELL students. The data indicate that 50% of the participants in this study had, on average, 31 or more students in their classes. Four teachers with small classes (6%) participated in the study. An analysis
using a Spearman correlation indicated there was no statistical relationship between class size and teachers’ perception of SIOP effectiveness scale. Teachers in this study tended to have quite a bit of teaching experience. Sixty-three percent of the teachers in this study have taught eleven years or more. A Spearman correlation showed no statistical relationship between years of teaching and the Perceptions of SIOP Effectiveness Scale. Very few teachers were ESL endorsed, and only half of the teachers reported having SIOP training prior to fall of 2009. However, almost two thirds of the teachers reported having ESL training through university coursework and inservice, while almost one third were trained through the Entry Years Enhancement (EYE) program for new teachers. None of the prior ESL training indicators was correlated with scores on the Perceptions of SIOP Effectiveness Scale.

Teachers were well distributed across discipline areas. All departments except English had a more positive than negative teachers’ perception of SIOP effectiveness scale. World language teachers had the most positive perception of SIOP. English and special education teachers reported the lowest perception of effectiveness.

The fourth research question asked, “Is the level of implementation related to the teacher’s perceptions of effectiveness?” Since subscales of implementation did not develop, only an overall implementation scale score could be compared to the Perceptions of SIOP Effectiveness Scale. A Pearson’s product moment correlation coefficient comparing overall implementation and total effectiveness was not statistically significant. Thus, these data suggest that there is no statistically significant relationship between implementation and perceived effectiveness.
The fifth question asked, “Do teachers plan to use the SIOP model in the future?” Almost three-fourths of teachers reported they plan to use SIOP at least often in the future. Findings in this section, however, do suggest a lack of commitment to peer observations. More than half of the teachers reported planning to use peer observations “sometimes” or “rarely” in the future. Still, over a third of teachers surveyed planned to use peer observations “often,” or “most all of the time” in the future. Almost 6 in 10 teachers did not report a need for additional training to implement basic SIOP strategies in the future. And, over half of the teachers agreed or strongly agreed that they would like to participate in advanced SIOP training in the future.

In summary, most teachers reported use of the SIOP model. Most teachers perceived that use of the SIOP improved student learning. Most teachers reported that they plan to use most of the SIOP model in the future.
CHAPTER V
DISCUSSION

This section is divided into four parts. The first part discusses each of the four research questions. The second part discusses lessons for practitioners that may assist educators considering SIOP training, specifically in a comprehensive high school. It includes discussions of the SIOP model, professional development and school leadership. The third part discusses implications for future research, including the need for additional SIOP research studies. The last section of this chapter looks to the future of SIOP and the future of the school in this particular study.

Research Questions

The research questions for this action research study yield interesting results. For the most part teachers reported that they used the SIOP model. Teachers also indicated that they believed the SIOP model improved student learning. Finally, most teachers reported that they planned to use the SIOP model to some degree in future teaching. Each of these areas is discussed in more detail below.

Did Teachers Implement the SIOP Model?

The first research question was: “To what degree, do teachers having received in-service training in SIOP report implementing the various components of the program in their daily instruction?” Findings from the survey indicate that most teachers used the SIOP model in their classrooms.
The SIOP strategies that teachers reported using the most frequently were, “I prepare content for age and background,” “I explain academic tasks,” “I support content objectives,” and “I make links between past and new concepts.” As discussed in the monthly training sessions with teachers, most teachers were already familiar with and used these strategies prior to the SIOP training. The training appeared to strengthen their regular inclusion in daily instruction. For instance, teachers knew they needed to use content objectives and the training reinforced that they needed to use them regularly.

The response with the lowest implementation rating was, “I define language objectives.” Sixteen percent of the respondents reported that they rarely defined language objectives. Thirty-eight percent of the teachers indicated “sometimes.” Still, almost half of the teachers indicated a more positive “often” or “almost always” response. A related low score was “I conduct a review of key vocabulary.” One third of teachers reported “most all of the time,” and one quarter reported “often” for a combined positive report of almost two-thirds of respondents reporting regular review of vocabulary. Other lower scoring items were “I use varied grouping configurations” and “I use scaffolding to support understanding.” Both grouping and scaffolding responses, however, also reported more than half of teachers in the “often or “almost always” categories.

Defining language objectives, reviewing language objectives, and scaffolding instruction are key to ELL learning. These concepts were new ideas to some teachers. Although the SIOP trainer made a good case for using these strategies, teachers beginning to use these strategies did not always incorporate them regularly in daily instruction. Both scaffolding techniques and language objectives were repeatedly
discussed in regular monthly trainings because teachers asked about their relevance. Without baseline data, it is impossible to measure growth. However, based on discussions with teachers as the SIOP program unfolded at our school, the researcher believes scaffolding and language objectives were used in daily instruction much more after the training than they were used before. The researcher was pleased with the level of SIOP implementation reported in this survey. Future research could be designed to gather pre-training and post-training data to verify or refute this researcher assumption.

As the principal of the school I was aware that grouping strategies were known to most teachers prior to SIOP training, but not always used effectively by some teachers. The monthly trainings were conducted in grouped configurations, with teachers sitting together at tables in departments to complete group activities to model this concept, but some teachers commented about the difficulty of grouping in their own classrooms. With support from the trainer and school leader teachers were encouraged to find new and appropriate grouping configurations. Again, without baseline data, comparison is not possible, but the researcher believes that grouping strategies were used more after the training than before.

As the next academic year began, grouping, scaffolding, and posting of language objectives are being explicitly modeled by school leaders, in an effort to encourage expanded use of these teaching methods. For example, the first day of training for teachers this academic year included mini workshops with content and language objectives posted in front of the group for every mini class. This effort is directly tied to the results of the action research survey. This reinforcement of the SIOP strategies is an
effort to create even stronger support for the use of SIOP components in the future. Similar efforts are being made to reinforce the other SIOP strategies.

**What Were Teachers’ Perceptions of Effectiveness of the SIOP Model?**

The second research question was: “After one school year of implementing the SIOP model, what were teachers’ perceptions regarding the effectiveness of using the SIOP model with students?” Most teachers agreed in all categories that SIOP improved student learning.

In “Struggling students learn better with SIOP” and “All students benefit with SIOP,” more than 90% of teachers agreed or strongly agreed that SIOP improved student performance. Teachers discussed their positive perceptions of the effectiveness of the SIOP model during regular training sessions. More specific questions about the effectiveness of some outcomes of the SIOP model regarding end of level testing and homework completion, however, did not garner quite as much support.

“Homework completion improves with SIOP” and “Students improve on end of level tests” reported the lowest perception of effectiveness. For “Homework completion improves with SIOP,” almost one third of the study participants gave a negative response of “disagree” or “strongly disagree.” In trainings, teacher voiced concern about lack of homework completion, which prompted discussion about teachers controlling their sphere of influence (the classroom) and understanding the distractions many ELLs and students of poverty face when they leave school. Responses to this question suggest that about one third of the teachers felt that homework completion was not influenced by
efforts to improve lesson delivery by using the SIOP model.

End of level tests were not reported by the time the survey was completed, but teachers did have unit and term tests to consider when completing this question. In meetings with teachers some teachers voiced doubt that the SIOP model, even though it improved students’ attention in class, would drastically improve end of level test results. ELL’s understanding test questions was voiced as a concern. Teachers in class could explain daily activities and personally address student questions, but ESL accommodation for state testing was restricted. Teachers therefore suggested that even if their ELLs understood the content, not fully understanding the exam questions could result in low end of level test scores. Teachers also wondered if activity based learning would be transferable to the end-of-year exam. A more careful data collection of students’ pre and post SIOP homework completion and end-of-level testing would provide additional insight into SIOP effectiveness in these areas of student achievement.

Did the Number of ELLs, Class Size, Experience, Subject, or Prior Training Relate to Effectiveness Perception?

The third research question was: “How did SIOP need (number of ELLs per class), class size, years of teaching experience, teaching subject, or prior ESL training relate to a teacher’s perception of SIOP effectiveness?” Even though the researcher believed there may be significant correlation between these variables, scores on the “Perceptions of SIOP Effectiveness Scale” were not statistically correlated with “SIOP Need,” “Class Size,” “Years of Teaching, or prior ESL training.” No coefficients were statistically significant at the $p \leq .05$ level.
As a result of this data collection process it became evident that the variable of “class size” was complicated by the reality that small-sized classes were either ELL sheltered (teachers previously SIOP trained), special education (modified instruction) or advanced specialty classes (AP, IB, or honors classes). All of these classes served non-traditional student populations, thus the data reported could be skewed. This configuration difference did not allow a clear definition of the intended question, “Did class size relate to effectiveness perception?” and was not realized until after data were collected.

An additional issue in running these correlations was that there was little variability on the “Perceptions of SIOP Effectiveness Scale.” Overall, approximately two thirds of the teachers marked agree for each item making for very similar overall scale scores. While it was good that teachers were supportive of SIOP, more variability would have made it more likely that differences in responses might have been correlated to certain teacher characteristics. The lack of correlation between “Perceptions of SIOP Effectiveness Scale” and SIOP need, class size, years of teaching, and prior ESL training may be the result of limited variability on teachers’ responses to the scale. Small sample size also limited the ability to differentiate the data to more clearly answer these specific detailed questions.

Similarly, the subcategory of SIOP need (number of ELLs per class) was similarly skewed in that the classes with the most serious SIOP need were ELL sheltered classes taught by previously trained ELL teachers. Also, the small sample size, eight teachers serving large ELL populations (10+ ELLs per class), and only sixteen teachers
serving moderately large ELLs per class (7-9 students per class) made a significant correlation difficult to achieve. As an action research study this problem is unavoidable. However, a future study designed to be generalizable would need a larger sample size in order to answer this question. For this study, there is insufficient data to confirm any relationship between these variables.

This study, as the first SIOP study in a high school, provides some baseline data to consider regarding class configuration and teacher background. Perhaps a future study, with more detailed questions on teacher characteristics and background would be more likely to identify a relationship between teacher background and SIOP effectiveness. More importantly, allowing for a broader range of responses to the “Perceptions of SIOP Effectiveness Scale” items would be critical. Future researchers might include a midpoint option that allows participants who really don’t feel one way or the other to mark “neither agree or disagree” as opposed to being forced to either agree or disagree. This would allow respondents who are truly ambivalent a response option. In future research, another Likert-type scale (Seigle, 2002) with a wider range of responses, even a 7-point scale might be another option to make it easier to detect more subtle differences between groups of respondents.

Was the Level of Implementation Related to Teacher’s Perception of Effectiveness?

The fourth research question asked: “Is the level of implementation related to the teacher’s perceptions of effectiveness?” Since subscales of implementation did not develop, only an overall implementation scale score could be compared to the
Perceptions of SIOP Effectiveness Scale. A Pearson’s product moment correlation coefficient \((r = .06)\) comparing overall implementation and total effectiveness was not statistically significant \((p = .61)\). Thus, these data do not confirm a statistically significant relationship between implementation and perceived effectiveness. Since there was such a high overall reporting of SIOP implementation and a similar high overall reporting of SIOP effectiveness in this study, with a relatively small sample, statistical significant correlation would be difficult to reach. Perhaps a future study with a larger sample size and a greater range of teacher responses to the various items related to teachers’ perception of effectiveness and level of implementation would find a relationship. This study did not.

**Did Teachers Plan to Use the SIOP Model in the Future?**

The fifth research question was: “Do teachers plan to use the SIOP model in the future?” Almost three fourths of teachers reported they plan to use the SIOP model at least often in the future. Only one teacher reported that he or she planned to rarely use the SIOP model in the future. While it cannot be stated for sure, this may have been one of the teachers who had announced plans for retirement at the end of the year.

More than half of the teachers reported not planning to use peer observations at least “often” in the future. The most frequent response was sometimes. Fourteen percent felt they would rarely use peer observations using the SIOP model in the future. Teachers at the school, who participated in SIOP trainings prior to this study, were required to conduct monthly peer observations. When teacher leaders decided to implement a year of
SIOP training, teachers were already resistant to the time commitment involved in monthly peer observations.

Various researchers encourage the use of peer observations. Carerra (2010) who researched teacher peer coaching to improve instruction for ELLs found that, “teachers were able to motivate each other through observations and providing feedback to one another” (p. 149). Lewis (2009), in his study of teacher collaboration, found that peer observation accounted for 5% of the variance in general efficacy. This was the largest single variable influencing teacher efficacy (p. 129). Internationally, Peel (2005) from the University of Dundee suggested that peer observation combined with collegial support and serious reflection can be a transformative tool for positive change (p. 489). Thus, support for peer observations is important to examine more closely.

When teacher leaders decided to conduct school-wide SIOP training, they limited required peer observations from once per month to once in the year, to limit the teacher’s time commitment involved in the training process. The resulting data reflecting lack of commitment to peer observation on the part of some teachers was not surprising since teachers were reluctant to implement this component of SIOP from the very beginning. The school had recent training on the peer observation process for an entire year so teachers understood the process. Previously, with the exception of the teachers who had already been SIOP trained, most teachers had not been required to regularly participate in peer observations. The principal had confidence that teachers, once they participated in peer observations as part of the SIOP model, would see the value of collegial sharing and continue peer observations without compulsion. With almost nine in ten teachers
planning to use peer observations “sometimes,” “often,” or “most all of the time” in the future, this trust was well placed.

Almost 6 in 10 teachers did not report a need for additional training to implement basic SIOP strategies in the future. This means approximately 60% of teachers felt competent using SIOP strategies, or it could also mean that they do not want to participate in additional training. Fifty-one percent of the teachers responded that they wanted to participate in advanced SIOP training in the future. From the overall survey data and from discussion with teachers involved in the training, it appears that about half of the teachers perceived adequate basic skills, but wanted to build on the foundation developed through this 1 year training experience.

In summary, most teachers reported using the SIOP model in classroom instruction. They also reported they believed the SIOP model improved student learning. Finally, teachers reported they plan to use SIOP in the future. While some teachers were less enthused about peer observations then would be hoped, additional professional development opportunities currently going on at the school may help teachers to recognize the value of these experiences.

**Lessons for Practitioners**

As an instructional leader himself, this researcher was working to bring about improved learning in his own high school. Many lessons were learned that may also be of help to other educators who are leading professional development in their schools. First, practitioners need to understand the context of their school or schools. This context
includes the needs of the students in these schools, the strengths and weaknesses of the teachers, and the alignment of teachers’ skills with student needs. Additionally, educational practitioners need to understand the readiness of teachers to change and their perceptions regarding innovations. Once a school leader, teacher leader, or district leader understands these issues, he or she can develop a course of action or professional development plan to help teachers better meet the needs of the students they served.

Action research was the tool used by this researcher to help improve practice at his school.

**Lessons About Action Research**

Action research is a tool educators use to understand teaching and learning in their schools. This includes deeply comprehending students’ needs, teachers’ skills, alignment of student need to teacher skills and readiness for change. In this study, it took years of foundational CREDE training and trust building to prepare for a school-wide action research project. Teachers and administrators must establish mutual trust prior to undertaking a joint action research project. Action research can be conducted by educators at the teacher level, department level, or even at the school-wide level.

Action research has both strengths and weaknesses. Reeves (2010) stated that although imbedded researchers are inherently biased, they also better understand the questions to research and the outcomes of their research. They are also better equipped to implement reform based on the findings of the action research project (p. 74). For these reasons, although action research is often not generalizable, it can have a meaningful impact on teaching and learning in schools and provide ideas for the educational
community as a whole to consider.

**Lessons about Application of the SIOP Model in High Schools**

Elementary and middle school SIOP studies were available, but until now, no high school SIOP studies were found. In a comprehensive high school where various subject teachers most often function independently rather than as a unified team, SIOP studies are complex. In an elementary school, most teachers teach language arts and math, whereas in a high school, implementing SIOP strategies in a math or English classroom are significantly different than implementing them in choir or technology classes. As a result, the SIOP model applied in a high school setting requires flexibility.

Ability levels of students vary more widely in a high school, than in an elementary or middle school setting. High school teachers work with many student ability levels, from low-functioning students in special education classrooms to advanced placement students. While student ability levels fluctuate significantly, students with limited academic English vocabulary enroll in all levels of academic classes. It is not just ELL students who lack the academic vocabulary necessary for learning at a high level. For example, there are students taking college level classes during high school who have not taken prior introductory high school courses to prepare them for the vocabulary they encounter. In high schools, students can be six or eight years ahead or behind in literacy or math skills. Based on the need for students to learn academic vocabulary while learning content, the SIOP model is applicable in high school classrooms. These complexities must be considered when implementing SIOP model in high school settings.
Lessons About Professional Development

One of the main questions addressed by this study was, if SIOP professional development was provided in a high school, would teachers implement the strategies? In this study, the answer was mostly yes, teachers did implement the SIOP strategies in most cases. The reason for this outcome was likely influence by several factors. First, the teacher leaders (department chairs) requested the training. Second, the district supported the training by providing an out-of-state expert to share SIOP concepts for a day. Third, district curriculum directors provided a secondary SIOP manual for every teacher. Fourth, during the summer after the teacher leaders decided to pursue school-wide SIOP training, but before training began, district curriculum directors developed a new observation form specifically looking for SIOP and inquiry implementation in classroom teaching (Settlage et al., 2005). Fifth, the teachers received eight monthly trainings, one for each component of the SIOP model. Sixth, teachers met as departments after each monthly training to determine how best to implement each strategy in their department. They also returned to report their implementation to their department peers. And seventh, the teachers knew they would take an end of training survey where their feedback would be used to determine future SIOP involvement. These factors seem to influence teacher’s implementation of the SIOP model.

A factor that could have been stronger in the implementation of the SIOP model would be the initial and follow-up training that was provided. The training provided by the outside expert was in a large, noisy room where teacher buy-in was not maximized. The biggest values of the one day training was that it gave an exposure to teachers with a
desire to learn the model and it also showed all teachers that SIOP was a model valued by the district and state specialists. With respect to the monthly training sessions, survey comments reflect that at least a few teachers felt that some of the monthly training was more effective than others. Monthly follow-up discussions in department meetings were held to help teachers apply the general SIOP strategies in the unique context of high school subject areas. Teachers were required to report to their peers on their monthly reading assignment from the secondary SIOP manual, but no individual reporting to administration nor follow-up was required. Teachers were basically accountable to their department peers for their monthly implementation. Due to the high level of implementation, it appears this level of accountability was adequate for most teachers to implement the model. However, this lack of formal reporting, adapted to avoid limitations of supervisory research, was not ideal in term of having additional data points.

**Considerations for School Leaders**

There are many considerations for school leaders. What went well about this study is that the school leader first sought to understand the needs of students and then sought to understand and assess the teachers’ readiness for change. The school leader was also able to find the resources to support teachers and students so as to improve student learning. Finally, he evaluated the success of the professional development plan through the use of a school wide survey and is in the process of using this information to move forward. Action research is a cyclical process and collecting and analyzing data brings forth additional ideas for improvement and growth.

Students coming from poverty, whose parents have little educational background
(Pascopella, 2008), students learning English as a second language (Echevaria et al., 2006), and students taking college-level classes during high school without the high-school level classes to build vocabulary, all lack necessary academic vocabulary required for student learning. The SIOP model appears, as reported in a survey of teacher perceptions, to help in schools with a large number of students in these categories. School leaders need to assess academic vocabulary needs in their students and the willingness of teachers to change to determine if SIOP professional development will be helpful in their own settings.

All faculties have their individual strengths and weaknesses. School leaders must determine what resources best meet the needs of their individual faculties, so they can best meet the needs of their students. These resources include printed materials, websites, expertise of teachers within their system, and district or state specialists to name just a few. Determining ways to efficiently provide needed resources with minimal funding impact is also often a key factor, especially during difficult financial times. In this particular study the school leader was able to utilize appropriate resources by capitalizing on the skills of an on-staff SIOP certified trainer and leveraging district resources to provide training materials. Carefully targeting resources to meet specifically identified needs maximizes the effectiveness of the implementation and minimizes cost.

In this study, a survey was used to evaluate teachers’ perceptions of the effectiveness of the implementation. Student test data was not used because the conversion to computerized state testing caused reliability concerns in the state test data from the year before and during the study. While not an ideal way to measure the
effectiveness of a program, since data is not collected on the same students, academic testing data from one year to the next would have given some indication as to whether school-wide test scores were improving after the implementation of school-wide SIOP.

Ideally, pretest and posttest on a matched sample of students in control groups and SIOP groups would be needed to get the most accurate picture of SIOP effectiveness in terms of student learning.

From the researcher’s experience, educational reform is an endless cycle. State, district or school leaders roll out a new program. Teachers implement the new program, parts of the program, or none of the program. There is typically not an evaluation component. Then the next year, there is a new professional development focus, so teachers often close their door and teach as they always did before. Although not perfect, any evaluation of the effectiveness of a professional development plan can help the school leader determine what value the plan has for their students. Giving teachers a stake in the outcome by defining how the data collected will be utilized can help align evaluation results with current and future practice. Finally, having the teachers determine their professional development plan, participate in the training of their peers, and provide feedback to determine future training seems from this study to be a successful model.

There are many lessons for educational practitioners from this study. Most significant are lessons about the SIOP model, lessons about professional development, and lessons for school leaders.
Implications for Future Research

This study provides implications for future high school and SIOP research. Future studies are needed to better understand the use of the SIOP model. Also, as this is seemingly the first reported high school SIOP study, there are implications for future high school SIOP research.

Implications for SIOP Studies

This study was based on survey data, and does not utilize testing data because of flaws in state computer based testing services the years before and after the SIOP implementation. This study gives teachers the opportunity to provide anonymous feedback on a survey with specific response options and through comments, but did not allow for the depth of individual response provided through personal interviews. Having the principal of the school function as primary researcher could cast doubt about the validity of individual interviews, so personal interviews were not used. Future high school SIOP studies should include various assessments to evaluate the effectiveness of the model, including comparing student achievement data, surveys, and participant interviews. Further data to confirm or deny a significant relationship between teacher background, student need and/or class size with teachers’ level of implementation or perception of effectiveness would also be helpful. A student achievement, data-based study, meeting the requirements of the WWC, would also be very helpful.

Implications for High School SIOP Research

The diversity of a comprehensive high school seriously complicates a SIOP
research study. No other high school SIOP studies were found prior to this study, possibly for this very reason. High schools around the nation are using the SIOP model, so additional research is needed in this area. High school SIOP implementation must consider the population of students served, the readiness of teachers to implement new teaching strategies, the skills of core content teachers to teach ELLs, and the resources available to provide needed services. Any study should fully explore these issues so educators can understand the context of the results.

This high school study brought several issues to the fore. Helping content specialist teachers from so many different content areas find a successful way to implement the SIOP model is no small task. Department discussion and implementation planning of each component were useful in this study. Identifying resources needed to help teachers make this transition in their teaching is also an issue to address. Each teacher in this study was provided a personal copy of Making Content Comprehensible for Secondary English Learners: The SIOP Model (Echevarria et al., 2010). The book, Ideas and Activities for Teaching English Learners with the SIOP Model (Vogt & Echevarria, 2008), provided activities for the trainer to model and for teachers to try. The SIOP Model for Administrators (Short et al., 2008); was used by school principals to understand the model and their role in implementation. The SIOP trainers also consulted Using the SIOP Model: Professional Development Manual for Sheltered Instruction (Short et al., 2009) as a resource for SIOP professional development. These resources seemed to help produce a successful implementation, but no specific assessment was done to evaluate their effectiveness. Finding effective trainers, mentors, and coaches for
SIOP implementation is also a need of this and other studies. Trainer effectiveness was mentioned in survey comments as a key to teacher buy-in. Authentic modeling of the use of SIOP strategies during training is essential. Finally, assessing the implementation is also an issue to address. In this case an anonymous survey was used. Case studies, interviews, comparing student achievement data and many other research methods could be used to evaluate SIOP implementation in a high school. Individually, schools using SIOP, need to consider what information is required to address student and teacher needs.

Studies Needed

Additional study of SIOP implementation is needed to fully understand best implementation practices and the effectiveness of the model. Although many studies would be useful, quantitative high school SIOP implementation studies, school or district-wide, to assess the impact on student academic achievement would be the most valuable in terms of determining the effectiveness of the SIOP model in high schools. However, subject area qualitative studies would also be of benefit to more fully understand how SIOP affects teaching and learning in various subject areas. In this study survey data were collected after 1 year of training. It would be interesting to readminister the survey after 2 years to see if teachers increase or decrease their use of SIOP strategies over time. Further studies to confirm or deny a significant relationship between classroom specific situations or teachers’ level of implementation with perceptions of effectiveness would also be helpful. Finally, further study of various ways to implement the SIOP model and combining SIOP training with other programs would be very helpful for educators seeking a successful implementation. Any or all of these studies would be
valuable additions to the literature.

**Looking to the Future**

This section will look at the future of the school in this study. Finally, this section will consider the future of SIOP use in high schools.

**The Future of the School**

The school in this study will implement professional learning communities (PLC) in coming years. Teachers realized that to maximize student learning, which was the main focus of SIOP training, they must regularly evaluate student learning and provide remediation through the PLC model. The most difficult question addressed by PLCs is, how will we respond when a student experiences difficulty learning (DuFour et al., 2005, p. 33). SIOP strategies give teachers intervention tools, when students do not learn. Teachers regularly comment in their PLCs, that when students do not get it, they use SIOP strategies as an intervention strategy. The best intervention is prevention, so hopefully teachers using SIOP strategies in each class will lessen the need for intervention after students’ experience difficulty learning. SIOP training will be conducted for new teachers through EYE training. Additional SIOP training will be conducted to meet specific teacher needs identified by PLC collaboration in the future. Principal observation of teaching will continue using the district observation form focused around the eight SIOP components. Departments will meet weekly to discuss ways to improve student learning. Based on teachers’ plan to use SIOP strategies in the future, weekly collaboration will include further discussion of implementation and
refining of SIOP strategies. Advanced SIOP training will be offered as requested by teachers.

As a result of this study, teachers will conduct their own action research to consider the effectiveness of their teaching and student learning. Teachers will collect data, evaluate assessments of student learning and evaluate their students’ learning individually and as departments. This study provided them a model to conduct action research that they can apply individually and collectively. Teachers are already preparing their own surveys, collecting data from their peers and reporting their results. This study not only helped teachers consider the effectiveness of their SIOP training, it also prepared them to critically evaluate their ongoing effectiveness.

**Future of the SIOP Model in High Schools**

The SIOP model is simply a collection of effective teaching strategies arranged in a model to maximize the learning of ELLs. Teachers in this study also perceived it as effectively supporting student learning in general. The SIOP model has been widely used in high schools across America. If research trends continue to support the SIOP model’s effectiveness, use of the model will most likely grow. Hopefully additional research will be conducted to more clearly understand how teacher implementation and background relate to SIOP’s effectiveness as a tool for meeting student needs. Research is needed in these areas to bring a more full understanding of how the SIOP model works in high schools. Hopefully this study has been helpful for researchers, practitioners, and educators preparing professional development in the schools they serve.
REFERENCES


Fratt, L. (2007). Professional development for the new century: Teacher education programs address a growing number of non-English speaking students. *District Administration, 43*(6), 56-60.


APPENDICES
Appendix A

List of Acronyms
ACRONYMS

AP – Advanced Placement
AYP – Adequate Yearly Progress
BCLAD – Bilingual Cross-cultural Language Academic Development
CLAD - Culturally and Linguistically Diverse Student (in California)
CREDE – Center for Research on Education, Diversity and Excellence
CTE – Career and Technical Education
DSTP – Delaware Student Testing Program
EBSCO – Elton B. Stephens Company
ELL – English Language Learner
EO – English Only
ERIC – Education Resources Information Center
ESL – English as a Second Language
EYE – Entry Years Enhancement
IB – International Baccalaureate
IDEA – Individuals with Disabilities Education Act
IEP – Individual Education Plan
IP – Internet Protocol
ITI – Intensive Teacher Institute
K-12 – Kindergarten through Senior High School
LS – Lesson Study
NCLB – No Child Left Behind
OSA – Oregon Statewide Assessment
PLC – Professional Learning Community
PS – Public Schools
SELP – Stanford English Language Proficiency
SES – Socio-Economic Status
SI – Sheltered Instruction
SIOP – Sheltered Instruction Observation Protocol
SPED – Special Education
SPSS – Statistical Package for the Social Sciences
TDOC – Teacher Directed Ongoing Collaboration
TESOL – Teaching English to Speakers of Other Languages
TPAI – Teacher Performance Appraisal Instrument
TPE – Teacher Performance Expectation
TWI – Two Way Immersion
USA – United States of America
WWC – What Works Clearinghouse
Appendix B

Sheltered Instruction Observation Protocol
The Sheltered Instruction Observation Protocol (SIOP®)  
Observer(s): Teacher:  
Date: School:  
Grade: Class/Topic:  
ESL Level: Lesson: Multi-day Single-day (circle one)  
Total Points Possible: 120 (Subtract 4 points for each NA given)  
Total Points Earned: Percentage Score:  

Directions: Circle the number that best reflects what you observe in a sheltered lesson. You may give a score from 0-4 (or NA on selected items). Cite under "Comments" specific examples of the behaviors observed.

<table>
<thead>
<tr>
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<th>Highly Evident</th>
<th>Somewhat Evident</th>
<th>Not Evident</th>
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</thead>
<tbody>
<tr>
<td>1. Content objectives</td>
<td>4</td>
<td>3</td>
<td>2</td>
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<tr>
<td>reviewed with students</td>
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<tr>
<td>2. Language objectives</td>
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<tr>
<td>reviewed with students</td>
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<tr>
<td>3. Content concepts</td>
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<tr>
<td>for age and educational</td>
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<td>background level of students</td>
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<tr>
<td>4. Supplementary materials</td>
<td>2</td>
<td>1</td>
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<tr>
<td>used to a high degree, making the</td>
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<td>lesson clear and meaningful (e.g., computer programs, graphs,</td>
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<td>models, visuals)</td>
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<td>5. Adaptation of content</td>
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<td>(e.g., text, assignment) to all levels</td>
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<tr>
<td>of student proficiency</td>
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<tr>
<td>6. Meaningful activities</td>
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<tr>
<td>that integrate lesson concepts</td>
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<td>(e.g., surveys, letter writing, simulations, constructing models)</td>
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<td>with language practice opportunities for reading, writing,</td>
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<td>listening, and/or speaking</td>
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<td>Comments:</td>
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<tr>
<th>Building Background</th>
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<th>Not Evident</th>
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<tr>
<td>7. Concepts explicitly linked</td>
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<td>3</td>
<td>2</td>
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<tr>
<td>to students’ background experiences</td>
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<td>8. Links explicitly made</td>
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<tr>
<td>between past learning and new concepts</td>
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<td>9. Key vocabulary</td>
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<td>emphasized (e.g., introduced, written, repeated, and highlighted for students to see)</td>
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<td>Comments:</td>
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<tbody>
<tr>
<td>10. Speech appropriate</td>
<td>4</td>
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<tr>
<td>for students’ proficiency level (e.g., slower</td>
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<tr>
<td>rate, pronunciation, and simple sentence structure for beginners)</td>
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<tr>
<td>11. Clear explanation</td>
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<tr>
<td>of academic tasks</td>
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<tr>
<td>12. A variety of techniques</td>
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<tr>
<td>used to make content concepts clear</td>
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<td>(e.g., modeling, visuals, hands-on activities, demonstrations,</td>
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<tr>
<td>gestures, body language)</td>
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<td>Comments:</td>
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<tr>
<td>13. Ample opportunities provided for students to use</td>
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<tr>
<td>learning strategies</td>
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<th>Highly Evident</th>
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<tr>
<td>14. Scaffolding techniques</td>
<td>4</td>
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<tr>
<td>15. A variety of questions or tasks that promote higher-order thinking skills</td>
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<tr>
<td>Interaction</td>
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<tr>
<td>16. Frequent opportunities for interaction and discussion between teacher/student and among students, which encourage elaborated responses about lesson concepts</td>
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<tr>
<td>17. Grouping configurations support language and content objectives of the lesson</td>
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<tr>
<td>18. Sufficient wait time for student responses consistently provided</td>
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<tr>
<td>19. Ample opportunities for students to clarify key concepts in L1 as needed with side, peer, or L1 text</td>
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<tr>
<td>Practice &amp; Application</td>
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<tr>
<td>20. Hands-on materials and/or manipulatives provided for students to practice using new content knowledge</td>
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<tr>
<td>21. Activities provided for students to apply content and language knowledge in the classroom</td>
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<tr>
<td>22. Activities integrate all language skills (i.e., reading, writing, listening, and speaking)</td>
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<tr>
<td>Lesson Delivery</td>
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<tr>
<td>23. Content objectives clearly supported by lesson delivery</td>
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<tr>
<td>24. Language objectives clearly supported by lesson delivery</td>
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<tr>
<td>25. Students engaged approximately 90% to 100% of the period</td>
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<tr>
<td>26. Pacing of the lesson appropriate to students' ability level</td>
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<tr>
<td>Review &amp; Assessment</td>
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<tr>
<td>27. Comprehensive review of key vocabulary</td>
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<tr>
<td>28. Comprehensive review of key content concepts</td>
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<tr>
<td>29. Regular feedback provided to students on their output (e.g., language, content, work)</td>
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<tr>
<td>30. Assessment of student comprehension and learning of all lesson objectives (e.g., spot checking, group response) throughout the lesson</td>
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</table>

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appendix a
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Appendix C

Survey Instrument
1. Pre-Survey - Implied Consent

The purpose of this anonymous survey is to evaluate implementation of the SIOP model in a comprehensive Rocky Mountain High School. This SurveyMonkey survey will be used to determine future use of the SIOP model for school-wide professional development, which may benefit you and your colleagues. Responses will be considered only in aggregate not individually to protect your anonymity. The survey will be conducted in a computer lab, so your responses will not be traced back to you or your computer to eliminate personal risk. Your participation in this survey is voluntary, however the results of this survey will be most reliable if we collect thoughtful, honest feedback from all teachers. This survey is part of a research project at Utah State University and was approved by the Utah State University, Institutional Review Board. If you have questions or concerns about your rights or think the research may have harmed you, you may contact the IRB Administrator at (435) 797-0557 or email irb@usu.edu. By pressing next below, you agree to participate in the survey.
# Section Two (teacher background)

1. How many years have you taught in any school?
   - less than 3
   - 3-10
   - 11-20
   - 21+

2. What subject do you primarily teach (Select only one)?
   - English
   - Math
   - Science
   - World Languages
   - Social Studies
   - Practical Arts
   - Fine Arts
   - Special Education
   - Physical Education / Health
   - Other licensed educators

3. How many ELL students on average per class need accommodations due to limited academic vocabulary
   - 1-3
   - 4-6
   - 7-9
   - 10+

4. On average, how many total students are in each of your classes?
   - less than 10
   - 11-20
   - 21-30
   - 31+
5. Please check the level of ESL training you had prior to Fall 2009 (check all that apply)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESL Endorsed</td>
<td>☐</td>
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<tr>
<td>SIOP Trained</td>
<td>☐</td>
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<tr>
<td>Inservice</td>
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<td>☐</td>
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<tr>
<td>University Coursework</td>
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<td>EYE Training</td>
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6. Comments on Teacher Background

[Blank space]
3. Section Three (adherence to SIOP Model)

Select the response that best fits your typical teaching style.

1. *(Lesson Preparation)* I define content objectives for students.
   - rarely
   - sometimes
   - often
   - most all of the time

2. *(Lesson Preparation)* I define language objectives for students.
   - rarely
   - sometimes
   - often
   - most all of the time

3. *(Lesson Preparation)* I prepare content concepts appropriate for student age & educational background.
   - rarely
   - sometimes
   - often
   - most all of the time

4. *(Lesson Preparation)* I use supplementary materials (computer programs, graphs, models, visuals, etc.).
   - rarely
   - sometimes
   - often
   - most all of the time

5. *(Lesson Preparation)* I adapt the content (text, assignment) to all levels of student proficiency.
   - rarely
   - sometimes
   - often
   - most all of the time
6. (Lesson Preparation) I prepare meaningful activities (e.g. surveys, letter writing, simulations) that integrate lesson concepts with language opportunities for teaching, writing, listening or speaking.
- rarely
- sometimes
- often
- most all of the time

7. Comments on Lesson Preparation

8. (Building Background) I link concepts to students' background experiences.
- rarely
- sometimes
- often
- most all of the time

9. (Building Background) I make links between past learning and new concepts.
- rarely
- sometimes
- often
- most all of the time

10. (Building Background) I emphasize key vocabulary (e.g., introduce, write, repeat, highlight for students to see).
- rarely
- sometimes
- often
- most all of the time

11. Comments on Building Background
12. (Comprehensible Input) I use appropriate speech for students’ proficiency (e.g., slower rate, enunciation, simple sentence structure for beginners).
   - rarely
   - sometimes
   - often
   - most all of the time

13. (Comprehensible Input) I explain (model) the academic tasks (so students are able to complete assignments).
   - rarely
   - sometimes
   - often
   - most all of the time

14. (Comprehensible Input) I use a variety of techniques to make content concepts clear (e.g., modeling, visuals, hands-on activities, demonstrations, gestures, body language).
   - rarely
   - sometimes
   - often
   - most all of the time

15. Comments on Comprehensible Input

16. (Strategies) I provide many opportunities for students to use learning strategies (e.g. cognitive, metacognitive & social/affective).
   - rarely
   - sometimes
   - often
   - most all of the time
17. (Strategies) I consistently use scaffolding techniques throughout lesson, assisting and supporting student understanding (e.g., think-aloud).

   rarely
   sometimes
   often
   most all of the time

18. (Strategies) I use a variety of question types, including those that promote higher-order thinking skills throughout the lesson (e.g., literal, analytical, interpretative).

   rarely
   sometimes
   often
   most all of the time

19. Comments on Strategies

20. (Interaction) I use opportunities for interaction and discussion (eg. teacher- student & among students).

   rarely
   sometimes
   often
   most all of the time

21. (Interaction) I support language and content objectives of the lesson through varied grouping configurations.

   rarely
   sometimes
   often
   most all of the time
22. (Interaction) I provide sufficient wait time for student response.
   - rarely
   - sometimes
   - often
   - most all of the time

23. (Interaction) I provide opportunities for students to clarify key concepts.
   - rarely
   - sometimes
   - often
   - most all of the time

24. Comments on Interaction

25. (Practice and Application) I provide hands-on materials for students to practice using new content knowledge.
   - rarely
   - sometimes
   - often
   - most all of the time

26. (Practice and Application) I provide activities for students to apply both content and language knowledge in the classroom.
   - rarely
   - sometimes
   - often
   - most all of the time

27. (Practice and Application) I use activities that integrate all language skills (i.e., reading, writing, listening, and speaking).
   - rarely
   - sometimes
   - often
   - most all of the time
28. Comments on Practice and Application

29. (Lesson Delivery) I support content objectives through lesson delivery.
- rarely
- sometimes
- often
- most all of the time

30. (Lesson Delivery) I support language objectives through lesson delivery.
- rarely
- sometimes
- often
- most all of the time

31. (Lesson Delivery) I engage students approximately 90% to 100% of the period.
- rarely
- sometimes
- often
- most all of the time

32. (Lesson Delivery) I pace the lesson appropriate to the students’ ability level.
- rarely
- sometimes
- often
- most all of the time

33. Comments on Lesson Delivery

34. (Review/Assessment) I conduct a comprehensive review of key vocabulary.
- rarely
- sometimes
- often
- most all of the time
35. (Review/Assessment) I conduct a comprehensive review of key content concepts.
   - rarely
   - sometimes
   - often
   - most all of the time

36. (Review/Assessment) I provide feedback to students on their language, content and course work.
   - rarely
   - sometimes
   - often
   - most all of the time

37. (Review/Assessment) I conduct assessment of student comprehension and learning of all lesson objectives (e.g., spot checking, group response) throughout the lesson.
   - rarely
   - sometimes
   - often
   - most all of the time

38. Comments on Review/Assessment

   [Blank space for comments]
4. Section Four (Teacher Perceptions of Student Performance)

Select the response that most closely matches your opinion.

1. I believe my struggling students' grades improve when I use SIOP.
   - strongly disagree
   - disagree
   - agree
   - strongly agree

2. I believe my struggling students' homework completion improves when I use SIOP methods.
   - strongly disagree
   - disagree
   - agree
   - strongly agree

3. I believe my struggling students' time-on-task improves when I use SIOP strategies.
   - strongly disagree
   - disagree
   - agree
   - strongly agree

4. Overall, I believe my struggling students learn better when I use SIOP strategies.
   - strongly disagree
   - disagree
   - agree
   - strongly agree

5. I believe SIOP helps my students improve as measured by end of level tests.
   - strongly disagree
   - disagree
   - agree
   - strongly agree
6. I believe most of my students benefit when I use SIOP strategies.

- strongly disagree
- disagree
- agree
- strongly agree

7. Comments on Teacher Perceptions of Student Performance

[Blank space]
5. Section Five (Future Use)

Select the response that most closely matches your opinion.

1. I plan to continue using the SIOP model in the future.
   - rarely
   - sometimes
   - often
   - most all of the time

2. I plan to continue peer observations using the SIOP model in the future.
   - rarely
   - sometimes
   - often
   - most all of the time

3. I need additional training to continue basic implementation of the SIOP model.
   - strongly disagree
   - disagree
   - agree
   - strongly agree

4. I would like to participate in advanced SIOP training in the future.
   - strongly disagree
   - disagree
   - agree
   - strongly agree

5. Comments on Future Use


CURRICULUM VITAE

SAMUEL L. RAY

Career Objective

Obtain a superintendent of schools, district leadership, or university faculty position in education administration.

Education


MEd, Brigham Young University, Provo, Utah. (4/04) Emphasis in Educational Leadership (Leadership Preparation Program).

EdD in Education, Utah State University, Logan, Utah. (expected December, 2010) Specialization in Curriculum and Instruction. Dissertation research; Evaluation of High School SIOP.

Experience

PRINCIPAL, Provo High School, Provo, Utah (7/04 –Present).

PRINCIPAL, Farrer Middle School, Provo, Utah (7/00–6/04).

ASSISTANT PRINCIPAL, Provo High School, Provo, Utah. (7/94–7/00)

INTERN ASSISTANT PRINCIPAL, Kennedy Jr., West Valley City, Utah, Orem Jr., Orem, Utah, and Hunter High School, West Valley City, Utah. (8/93–5/94)


LAW ENFORCEMENT, United States Air-Force, TX, NM, Germany. (6/83–10/87) Duties included narcotics investigator, patrol, dispatch, sentry, trainer and supervisor.
Recognition

The Huntsman Awards for Excellence in Education (5/09)
The National Society of Collegiate Scholars, Distinguished Member (4/00)

Publication

The Utah Special Educator, *At Farrer Middle School Academics Come First* (December, 2003)

Presentation


Professional Membership

Utah Association of Secondary School Principals (UASSP)
National Association of Secondary School Principals (NASSP)
Principals Partnership (Union Pacific)
Utah Association of Gifted Children (UAGC)