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Systematic Professional Development Training and Its Impact on Teachers' Attitudes Toward ELLs: SIOP and Guided Coaching

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This study examined systematic professional development (PD) training and its impact on teachers' roles for and attitudes toward English language learners (ELLs). Systematic PD should compensate for theories and pedagogies not obtained during teacher education programs yet needed for content teachers with ELLs. A study was conducted to examine 6th- to 12th-grade content teachers' report on their instructional strategies for ELLs and their perceived attitude and role changes after they had sheltered instruction observation protocol (SIOP) training and guided coaching sessions. Two surveys and one interview were data sources for this mixed methods research design. Grounded theory was an approach adopted for qualitative data analysis, and *t*-tests and means were used to analyze quantitative data. The results show that most of the participating teachers perceived that they improved their instructional strategies for ELLs and attributed this improvement to SIOP and guided coaching. The results also show that most of the participants considered their roles for ELLs positively and attributed their attitude change toward ELLs and teaching strategies to PD trainings. Yet some participating teachers reported that they were still frustrated with ELLs, mostly due to their English proficiency levels. Implications and future directions are discussed, as are the limitation of this study.
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According to the U.S. Department of Education, the percentage of English language learners (ELLs) among public school students in the United States in 2010–2011 was higher (10%, about 4.7 million students) than in 2002–2003 (9%, about 4.1 million students; National Center for Educational Statistics [NCES], 2013). The U.S. Census Bureau projects that the number of nonnative English speakers enrolling in schools will be 40% of the total school population by 2030 (Pardini, 2006). Given the current increase of ELLs and the projected demographic changes in U.S. schools, it is likely that all teachers at some point will have to teach ELLs. In 2011, the achievement gaps between ELLs and non-ELLs in the National Assessment of Educational Progress reading assessment were 36 points at the fourth-grade level and 44 points at the eighth-grade level (NCES, 2013). Pappamihiel (2007) argued that ELLs would continue to fail unless teachers take more active roles in helping them become better learners.

Among many influences, content teachers play a significant role in promoting their ELLs' academic growth (Gersten, 1999; Reeves, 2006). Most content teachers, however, are not prepared to undertake the challenges involved in teaching ELLs (Reeves, 2006). Many content teachers consider accommodating ELLs as a frustrating and peripheral task, even though ELLs spend most of their time in their classrooms (Fu, 1995; Gersten, 1999). Many content teachers consider themselves appropriately prepared to teach only mainstream students, seeing the ELL specialist as a responsible teacher for ELLs (Yoon, 2008). However, there are questions that remain to be answered: Do the classroom teachers need to learn about ELLs' academic and cross-cultural backgrounds and coping strategies rather than waiting until they are ready for their content classes? What do they have to know in order to prepare for the increasing number of ELLs in U.S. schools?

PURPOSE AND RESEARCH QUESTIONS

A Mathematics and Science Partnerships (MSP) grant enabled a small school district in St. Louis, Missouri, to adopt a professional development (PD) model that includes the sheltered instruction

observation protocol (SIOP) and guided coaching. This is a 3-year PD grant for the district to train sixth- to twelfth-grade teachers and improve their teaching strategies for ELLs, so they can provide accommodation for ELLs to comprehend academic content.

The first purpose of this study is to explore whether providing systematic SIOP PD training with guided coaching sessions helps participating teachers improve their instructional strategies. Second, assuming that PD training improves teachers' instructional strategies for ELLs, the study examines if these linguistically and culturally responsive teaching strategies (LCRTS) may impact content teachers' attitudes and responsible behaviors toward ELLs.

The following two research questions guided this study:

> Research Question 1 (RQ1). How did the participants report the impact of PD trainings and coaching sessions on their teaching strategies for ELLs?
>
> Research Question 2 (RQ2): How did the participants perceive their roles for and attitudes toward ELLs after the PD trainings and coaching sessions?

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The literature review includes theoretical backgrounds of a professional development model that includes SIOP, guided coaching, and teachers' attitudes toward ELLs.

Professional Development: SIOP and Guided Coaching

The need exists for professional development that assists teachers in coping with the numerous challenges they face in the classroom as they endeavor to fill the gaps between what they know and what they need to know in order to assist linguistically diverse students in their academic subjects (Costa & Garmston, 2002). Claxton (1996) points out that PD is becoming a necessity rather than an option, given the constantly increasing body of knowledge in all academic disciplines, growing number of ELLs, and rapid development in technology and its use for educational purposes

(Speck & Knipe, 2005). Guskey (2000) defines PD as a combination of "processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of students" (p. 16). The effective PD should be "intentional, ongoing, and systematic" (Guskey, 2000, p. 16).

Many school districts have begun requiring PD for their content area teachers to help the teachers make appropriate instructional accommodations for the increasing number of ELLs in their classes (Berube, 2000). Moreover, in surveying the attitudes of teachers toward accommodating ELLs' needs, Reeves (2006) found that over 80% of secondary teachers report lack of preparation to educate ELLs. For most of the school day, ELLs are in mainstream classrooms where teachers are not prepared to face challenges related to educating linguistically diverse students (Batt, 2010; Moche, 2000).

One way to address this problem is to provide systematic PD that can assist teachers in meeting the needs of linguistically diverse students (National Education Association, 2008). Quality teaching in linguistically and culturally diverse classrooms will not occur by accident. It requires teachers' knowledge and skills in designing and implementing "the most powerful forms of professional development" (Sparks, 2002, p. 1). What is not apparent is the efficacy of the PD that may affect academic content achievement (O'Brien, 2011). The commonly used PD opportunities, however, do not consider teachers' needs, experience, knowledge, or classroom demographics (Sparks, 2002). That may be the reason why many teachers may not be interested in the PD workshops (Reeves, 2006) planned by the administrators who fail to adequately consider teachers' and/or ELLs' daily needs. For this study, we selected SIOP and guided coaching as the "intentional, ongoing, and systematic" (Guskey, 2000, p. 16) PD model for this study.

Sheltered instruction observation protocol (SIOP). After a careful review of teacher effectiveness research, such as backward design (Wiggins & McTighe, 2001), natural approach (Krashen, 1989), and contextual and extensive reading instruction (Cummins, 2000), three scholars developed the SIOP model to make English

language and content more comprehensible for ELLs (Echevarria, Vogt, & Short, 2004). The intent of the SIOP protocol is to facilitate high-quality instruction by providing effective tools for teaching ELLs. The protocol embeds eight components and 30 critical features of high-quality instruction that have been found to benefit ELLs in content and language acquisition (Echevarria & Short, 2010). The eight components are lesson preparation, building background, comprehensible input, strategies, interaction, practice and application, lesson delivery, and review and assessment (Echevarria et al., 2004).

The SIOP components and features demonstrate a number of aspects founded on effective teaching and learning methods (Echevarria, Powers, & Short, 2006). These include teaching to content and language objectives, teaching and reviewing the key concepts using ELLs' first language (L1), grouping configuration for differentiated instruction, and assessing planned and desired results (Echevarria et al., 2006). The SIOP model could be more effective with a systematic district-level or at least building-level PD plan. In other words, the teachers, if they have systematic support from the administrators, could provide more consistent and systematic teaching practice to ELLs as they move to other classes and advance to different grades (Song & Gonzalez Del Castillo, 2010).

Guided coaching. Successful PD sessions should be implemented in the teachers' own classrooms with a supervisor and/or coach; otherwise, they may hinder its potential effects (Guskey, 2000). In this connection, we review Gebhard's (1984) supervision models and the basic tenets of Costa and Garmston's (2002, 2010) cognitive coaching.

Gebhard (1984) examines five supervision models for teachers and teacher candidates: directive, alternative, collaborative, non-directive, and creative. First, *directive supervision* is a traditional approach, in which a supervisor monitors teachers by observing their teaching and providing feedback on how to improve their practices. However, this model may impede the teacher's exploration for self-reflection. *Alternative supervision* proposes that teachers choose the most appropriate strategies rather than using supervisor-selected ones. In *collaborative supervision*, the teacher

and the supervisor work together to share their ideas for classroom improvement. In *nondirective supervision*, the supervisor merely restates the teacher's reflection of her or his teaching process without judgmental opinion. In *creative supervision*, the supervisor shares his or her responsibility with consultants, senior teachers, or experts to choose the most creative teaching approach.

Costa and Garmston (2002), following John Dewey's ideas on reflective actions that represent the core elements of teacher professional growth, developed a staff development technique known as *cognitive coaching*. Depending on the situation and on the needs of the individual teacher, a cognitive coach may need to shift from directive supervision to nondirective, collaborative, and/or creative supervision (Gebhard, 1984). Cognitive coaching aims to transform teachers professionally "by enhancing one's ability to examine familiar patterns of practice and recognize underlying assumptions that guide and direct action" (Costa & Garmston, 2002, p. 5).

A guided coach is a trained individual who assists teachers in their planning, delivering, reflecting, and problem solving through trust building, pausing, acknowledging, paraphrasing, summarizing, and asking guided questions to help the teachers in their professional development (Costa & Garmston, 2002). Three guided coaching cycles allow teachers to compare different lesson narratives "with an eye to uncovering the assumptions underlying each narrative" (Sherris, Bauder, & Hillyard, 2007, p. 3). The guided coaching is an intentional and conscious process between two people, in which exploration, critique, and reflection transform practice (Sherris et al., 2007). The three steps of guided coaching adopted from cognitive coaching are preconference, observation, and postconference.

Step 1 is *preconference*. In this step, a coach and a teacher initiate a conversation about practice. They decide on success indicators and select specific components and features of SIOP. A coach and a teacher also raise questions and areas of concern that may not have easy answers and develop a sense of inquiry, curiosity, and creativity. The teachers submit lesson plans that include language and content objectives as well as assessment strategies. They discuss the intangibles of the lesson, such as teacher feelings,

teacher perceptions of classroom climate, teacher belief, and teacher intuition (Costa & Garmston, 2002; Sherris et al., 2007).

Step 2 is *observation*. The coach observes and videotapes the planned teaching from Step 1 during which meaningful activities and supplementary materials are used. The teacher views the videotape and self-assesses and reflects on his or her teaching (Costa & Garmston, 2002; Song, 2014).

Step 3 is *postconference*. The coach and the teacher meet after the observation with data (i.e., videotaped teaching, instructor's feedback, and teacher's self-assessments). The data are used to generate conversations that focus on the strengths and weaknesses of the teaching, seeking to understand why a particular part of a lesson is strong or weak. The data are also used to deconstruct underlying assumptions about teaching and learning (e.g., bias, scripts, frames, perspectives, habits of mind, routines of practice) and to ask if these assumptions are hindering or facilitating the implementation of the instruction (Sherris et al., 2007). The coach and the teacher use the conversation from their co-constructed exploration and critique to set new implementation goals. The coach identifies ways to increase professional self-reflection in future conferences, advancing toward a new schema, by discussing aspects of the new schema and identifying other possible ways to organize the next conference (Sherris et al., 2007; Taggart & Wilson, 2005).

The guided coaching process should be "open, shared, conversational, and explicit" (Sherris et al., 2007, p. 10). With videotapes, for instance, coaches can stimulate recall in which teachers are asked to reconstruct their thinking about the SIOP features as they watch themselves teach. The coaches initiate follow-up e-mails to discuss the teaching behaviors, using assessment evidence such as SIOP survey data previously collected by the coaches and the teachers (Song, 2014). Cognitive coaching also provides conceptual language for a deep exploration of lesson design and implementation. In the coaching process, each teacher's personal teaching philosophy may not change, but an instructional philosophy that the teacher is not aware of might be brought into his or her consciousness (Costa & Garmston, 2002).

Sparks (2002) pointed out that coaching could accomplish the goal of having a sustained PD model based on reflective practices. Joyce and Showers (1995) found that coaching yields 80%–90% of teachers' application process, whereas presentation of theories, which is the more typical format for inservice PD workshops, yielded only 5%. Sherris (2010) considered well-guided coaching to be a tool that helps teachers zoom in on complex challenges of teaching and assessing ELLs. The study conducted by Batt (2010) also revealed the role of guided coaching within the context of SIOP implementation. In her study, 15 participating mainstream teachers experienced guided coaching as an effective job-embedded PD following the SIOP training sessions. The coach can act as a mediator who assists teachers to reflect and identify possibilities for change. The teachers in Batt's study attributed the change in their perceptions of ELLs' potential to participating in systematic coaching. Moreover, the dialogue that follows video viewing in the observation step can potentially "widen the scope and breadth of understanding" (Sherris et al., 2007, p. 4). In this way, in "a continuous cycle, the coaching discourse begins to take shape" (Sherris et al., 2007, p. 2) for effective, systematic, and ongoing practice teaching ELLs.

Teachers' Attitudes and Responsible Behaviors Toward ELLs
Attitude is defined as a psychological tendency or a predisposition that is expressed favorably or unfavorably to objects, people, events, or institutions (Eagly & Chaiken, 2007). Pappamihiel (2007) described teachers' attitudes as responsible behaviors that every teacher needs to develop in order to help ELLs learn and adapt to new academic and cultural patterns. Teachers' attitude plays a significant role when making decisions about instructional strategies and interactions with students (Nespor, 1987; Van Hook, 2002). Teachers have a powerful impact on the personal confidence and academic self-esteem of students, especially minority students, including ELLs (Diamond, Randolph, & Spillane, 2004).

Researchers have argued, however, that most content teachers depend on their past experiences and prior beliefs when forming their attitudes toward ELLs (McDiarmid & Price, 1993; Tatto, 1996). Most classroom teachers have minimal training to teach

ELLs; only 12% of K–12 teachers in the United States are adopting the coping strategies necessary to meet the needs of ELLs (Byrnes, Kiger, & Manning, 1997; Crawford, 1997; McCloskey, 2002; Youngs & Youngs, 2001). Clearly, professional development is urgently needed (Walker, Shafer, & Iiams, 2004). Most content teachers believe that ELLs should learn English quickly and be ready if they really want to learn the content (Marullo, 1998; Pappamihiel, 2007). Many content teachers view "the home life of the EL students as deficient and in need of remediation and assimilation to one more consistent with the dominant culture" (Pappamihiel, 2007, pp. 56–57). Even after 10 years in the classroom, many teachers still draw their positive and negative models from toolboxes saved from their apprenticeship observation (John, 1996; Nias, 1989). Lortie (1975) asserted that the apprenticeship observation might be intuitive and imaginative rather than explicit and analytical; it is based on individual personality rather than pedagogical principles. Teachers who are equipped with pedagogical tools may have difficulty supporting their lesson topics with more meaningful and contextual resources for ELLs (Olsen & Singer, 1994) "unless their belief systems support these accommodations" (Pappamihiel, 2007, p. 45).

Researchers have devoted considerable effort to studying the perspectives of ELLs when they are immersed in content area classrooms (Fu, 1995; Harklau, 2000; Walqui, 2000), but teachers' attitudes toward ELLs or language minority students have not been studied in depth (Byrnes et al., 1997). Although negative attitudes toward ELLs and teaching practices for ELLs have been identified by several researchers (Cho & Reich, 2008; Reeves, 2006), there should be more research regarding the importance of effective PD training and its impact on teachers' positive roles for, and attitudes toward, ELLs. In this study *attitudes* are defined as teachers' intentional and responsible behaviors (Pappamihiel, 2007) that may be influenced by a variety of personal and professional factors and not limited to teachers' psychological tendency or predisposition as defined by Eagly and Chaiken (2007). Systematic SIOP training and guided coaching sessions are among the professional factors that might influence participating teachers' responsible behaviors and attitudes.

RESEARCH METHODS

Participants and Contexts
Sixty-five sixth- to twelfth-grade teachers in a small Midwestern school district participated in SIOP PD workshops and coaching sessions from August 2008 to May 2011. All were required to attend. Eleven SIOP workshops were conducted by professional trainers from Pearson, three for overviews and eight for SIOP component training. Two district coaches provided monthly workshops with corresponding SIOP components that the trainers covered with content- and grade-specific activities. One-on-one coaching was provided for each participating teacher at least twice during each semester. Each coaching followed the three cycles of preconference, observation, and postconference.

Instruments
The study used three instruments: (1) a 30-item instructional strategy survey (ISS; see Appendix A), (2) a 15-item teachers' attitudes toward ELLs survey (TAS; see Appendix B), and (3) an 8-item teacher interview protocol (TIP; see Appendix C). ISS measured the pre- and postsurvey results for teachers' perception of their teaching performance using Likert scales (1–5, 5 being *highly evident*). The items were adopted from 30 component SIOP features (Appendix A). The TAS items were developed based on research in the areas of teacher roles, effective inclusion practices, time constraints associated with including ELLs, background knowledge of the ELLs, knowledge of adopting academic language objectives, and perceptions toward PD training for working with ELLs (Echevarria et al., 2006; Gersten, 1999; O'Brien, 2011; Reeves, 2006; Verplaetse, 1998; Yoon, 2008; Youngs & Youngs, 2001). They include 10 objective items (i.e., 1 multiple-choice item and 9 yes-no items) and 5 open-ended items. The open-ended items are added to have more information about the responses to the objective items. TIP was used to support the data from the two surveys (i.e., ISS and TAS) and research questions.

Procedure

ISS was given before the grant activities started in August 2008 (pre-data) and then in May 2010 (post-data). The ISS instrument focused on teachers' perception of improvement in their instructional strategies following the SIOP professional development workshops. Fifty-eight of 65 teachers (89%) returned the ISS. TAS was given to the 65 participants in May 2010, and 48 of 65 (73.8%) were returned. There were no pre- and postdata for TAS. The data collected from TAS were compared to that of the empirical research. Two research assistants randomly and purposefully selected four teachers from each of the seven grades to represent norms of each grade. The researcher conducted follow-up interviews with these 28 teachers in May 2010.

Research Design

A mixed methods design was used for this study. Quantitative analysis measured the participants' perceived ratings with the ISS instrument to see the difference between the pre- and postsurveys. The researcher used t-tests to see the significant difference between the pre and post results of ISS and descriptive statistics (means and frequency) to examine participants' attitudes and their responsive behaviors toward ELLs. Qualitative analysis included a grounded approach, in the form of open and axial coding of all the data, and constant comparison across the data (Charmaz, 2006). Once all data were transcribed, the researcher began coding using an inductive and deductive approach to develop the initial codes (Charmaz, 2006; Corbin & Strauss, 2008; Glaser & Strauss, 1999). As Glaser (2007) points out, "It is not truth that transcends; it is conceptualization!" (p. 5). Such conceptualization is achieved through the use of the constant comparison method, which compares incidents in the data looking for similarities and differences (Creswell, 2012).

The ISS data were used to report the results for RQ1. In May 2010, at the end of the eight SIOP component workshops, TAS was given to the participants to examine their attitudes toward ELLs. The researcher used the data from the TAS to support RQ1 and RQ2. In August 2010, the researcher scheduled interviews to collect end data regarding the teachers' attitudes toward ELLs and

to gauge the impact of the SIOP training and cognitive coaching sessions. The qualitative data from the interviews were used to support RQ1 and RQ2.

The basic qualitative paradigm served to analyze the open-ended items of TAS and the interviews. The researcher's interviews with randomly and purposefully selected teachers probed for more information about their attitudes toward ELLs. Triangulation of participants' perspectives and data sources proved the validity of the qualitative data to study the detailed information extrapolated from the ISS and TAS data, and to compare these findings with empirical research findings in similar situations (Hoepfl, 1997; Patton, 2002).

RESULTS

Demographic Data

TAS revealed the following demographic information. Of the 48 (out of 65) teachers who returned the TAS survey, 15 were male, 33 female; 8 were in their 20s, 13 in their 30s, 20 in their 40s, and 7 in their 50s. Nine had less than 5 years of teaching experience, 21 had 5–10 years, and 18 had 10–20 years. Twenty-seven teachers (56.3%) responded that they did not know their ELLs' L1 proficiency levels nor their previous academic experiences. Forty-two (87.5%) agreed that it was helpful to know the previous learning experiences of their ELLs. About 40% of their students were ELLs; their ethnic backgrounds were Bosnian (60%), Vietnamese (30%), Hispanic (5%), Russian (2%), Iraqi (2%), and Korean (1%). Fifteen percent of their ELLs were at beginning levels, 40% intermediate, and 45% advanced.

Research Question 1

ISS, the open-ended items from TAS, and the interview items yielded results for RQ1 (How did the participants report the impact of PD trainings and coaching sessions on their teaching strategies for ELLs?). First, the 30-item ISS instrument measured the perceived competence on instructional strategies for ELLs using Likert scales (1–5, 5 being *highly evident*). Fifty-eight (89.2%) participating teachers responded to ISS. An independent

two-tailed *t*-test was used to measure the significant differences in their instructional strategies for ELLs between the pre- and the postsurvey data. Among the 30 items, 26 items (87%) showed statistical significance ($p < .01$) in the two-tailed *t*-test results (Table 1). In 16 of these 26 items (58%), the posttest mean scores were higher than 4.0 (Table 1). Among the items that showed statistical significance, items that showed mean differences greater than 1.0 between the pre- and postsurvey were Items 2 (*language objectives*), 3 (*content concepts*), 14 (*scaffolding techniques*), and 23 (*supported content objectives*). It seems that the participating teachers paid attention to writing and defining language objectives because this feature was new to them. The district required teachers to write language objectives as well as the content objectives and have them posted in the classrooms daily. The pre-mean of Item 2 was quite low ($M = 2.45$), and the post-mean was not very high ($M = 3.89$). However, it was obvious that there was great improvement at the posttest in terms of participating teachers' perception, even though this was the area where the teachers needed to keep improving, so the mean could be higher than 4.0. The content concept was another area that had greater than 1.0 mean difference between the pre- ($M = 3.48$) and posttest ($M = 4.49$). Some teachers might be confused as to the distinction between content and concept. In the PD trainings, the trainers and the coaches made this distinction through hands-on activities, and the teachers had to include the lesson concepts as well as the topics through thematic unit plans. Item 14, *scaffolding techniques*, showed the most improvement at the posttest ($M = 4.19$) compared to the pretest ($M = 2.93$). It was encouraging to see the improvement of this item, because scaffolding techniques could be the essential strategies that teachers had to keep improving to support ELLs' academic language acquisition.

The four items that did not show significance were *content objective definition* (Item 1), *ample opportunity for key concept* (Item 19), *language objective delivery* (Item 24), and *key vocabulary review* (Item 27; see Table 1 and Appendix A). The postsurvey means for these four items, however, were greater than the presurvey means, but not statistically significant. Table 1 shows the mean scores of the pre- and posttests of ISS, standard deviation scores, standard

TABLE 1. Pre and Post Mean Scores and *t*-Test Results of ISS

Items	Pre/ post	N	Mean	Std. Deviation	Std. Error Mean	t-Test p < .01
Content objective 1[*]	Pre	58	3.6724	4.00608	.52602	.39
	Post[**]	57	4.1404	0.83321	.11036	.39
Language objective 2	Pre	58	2.4483	1.32681	.17422	.00
	Post	57	3.8947	0.85949	.11384	.00
Content concept 3	Pre	58	3.4828	0.70689	.09282	.00
	Post[**]	57	4.4912	0.63027	.08348	.00
Supplemental materials 4	Pre	58	3.1552	0.72067	.09463	.00
	Post[**]	57	4.1053	0.77192	.10224	.00
Adoption of content 5	Pre	58	3.1552	0.69590	.09138	.00
	Post	57	3.9825	0.83434	.11051	.00
Meaningful activities 6	Pre	58	3.1207	0.81816	.10743	.00
	Post	57	3.9474	0.87466	.11585	.00
Concepts linked to background 7	Pre	58	3.0000	0.749269	.09838	.00
	Post	57	3.7719	0.824135	.10916	.00
Links between past and present 8	Pre	58	3.2241	0.72652	.09540	.00
	Post[**]	57	4.1754	0.75882	.10051	.00
Key vocabulary 9	Pre	58	3.4310	0.70368	.09240	.00
	Post[**]	57	4.2456	0.76253	.10100	.00
Appropriate speech speed 10	Pre	58	3.2241	0.75028	.09852	.00
	Post[**]	57	4.1754	0.71020	.09407	.00
Intentional explanation of academic tasks 11	Pre	58	3.5690	0.56544	.07425	.00
	Post[**]	57	4.2632	0.74466	.09863	.00
Variety of techniques 12	Pre	58	3.4138	0.67628	.08880	.00
	Post[**]	57	4.1930	0.74255	.09835	.00
Learning strategies 13	Pre	58	3.2586	0.80699	.10596	.00
	Post[**]	57	4.1053	0.77192	.10224	.00
Scaffolding techniques 14	Pre	58	2.9310	0.81353	.10682	.00
	Post[**]	57	4.1930	6.43217	.85196	.00
Variety of questions 15	Pre	58	3.0862	0.70796	.09296	.00
	Post	57	3.7544	0.80801	.10702	.00
Frequent opportunities 16	Pre	58	3.2759	0.74441	.09775	.00
	Post[**]	57	4.0351	0.82299	.10901	.00
Grouping configuration 17	Pre	58	2.6379	0.94958	.12469	.00
	Post	57	3.5439	0.88782	.11759	.00
Sufficient wait time 18	Pre	58	3.1724	0.70432	.09248	.00
	Post	57	3.9298	0.77597	.10278	.00
Key concepts 19[*]	Pre	58	3.1552	5.56556	.73079	.32
	Post	57	3.8947	0.79472	.10526	.32
Hands-on activities 20	Pre	58	3.0517	0.84651	.11115	.00

(Continued)

TABLE 1. (Continued)

Items	Pre/post	N	Mean	Std. Deviation	Std. Error Mean	t-Test p < .01
	Post	57	3.8596	0.97172	.12871	.00
Application of content and language knowledge 21	Pre	58	3.2414	0.70860	.09304	.00
	Post**	57	4.2105	0.77314	.10240	.00
Integration of language modalities 22	Pre	58	3.2586	0.76228	.10009	.00
	Post**	57	4.2105	0.79590	.10542	.00
Supported content objectives 23	Pre	58	3.2414	0.80154	.10525	.00
	Post**	57	4.2807	0.72591	.09615	.00
Supported language objectives 24*	Pre	57	3.2632	4.28255	.56724	.13
	Post**	57	4.1404	0.74255	.09835	.13
Student engagement 25	Pre	58	3.2414	0.70860	.09304	.00
	Post**	57	4.0175	0.74381	.09852	.00
Lesson pacing 26	Pre	58	3.3448	0.66363	.08714	.00
	Post**	57	4.0000	0.73193	.09695	.00
Key vocabulary review 27*	Pre	58	3.6897	4.13036	.54234	.93
	Post	57	3.7368	0.89695	.11880	.93
Key concept review 28	Pre	58	3.2586	0.71477	.09385	.00
	Post	57	3.8596	0.85437	.11316	.00
Regular feedback 29	Pre	58	3.2414	0.70860	.09304	.00
	Post	57	3.9649	0.86530	.11461	.00
Assessment of student comprehension 30	Pre	58	3.2241	0.77331	.10154	.00
	Post**	56	4.0179	0.86321	.11535	.00

*Items that do not show statistical significance. **Items that have means greater than 4.0 at the posttest.

error scores, and t-test results. Item 23, *supporting strategies for content objectives*, showed the 1.0 mean score difference between the pre- (M = 3.24) and posttest results (M = 4.28). It was interesting that this item, which belonged to SIOP Component 7, *lesson delivery*, showed statistical significance as well as the greater mean difference. Item 1, *content objective definition*, was one of the four items that did not show statistical significance. It might mean that the teachers were able to deliver the content objectives with the supporting strategies because they had done this before they attended the PD workshops and intended to improve their strategies throughout the PDs. Item 24, *supported language objectives*, on the other hand, did not show statistical significance,

whereas Item 2, *defined language objective*, was statistically significant. The participating teachers were still struggling to deliver language objectives with the supporting strategies, even though they improved their knowledge and skills of writing and defining them (Table 1).

As can be seen in Table 1 for Item 1 (*content objectives*), both the pre- and posttest means were already high (pre $M = 3.67$, post $M = 4.14$), but without enough difference to be statistically significant ($t = .39$, $p < .01$). It is assumed that the participating teachers had used the content objectives for their instructional lesson preparation before they joined the program. Item 19, *providing ample opportunities clarifying key concepts in L1*, did not show statistical significance in the *t*-test ($t = .19$). However, the reason could be that participating teachers' access to the resources of L1 of the ELLs is limited, because most of the participants were monolingual and unable to clarify the key concept using their ELLs' L1s, even though the posttest mean score was higher than the pretest score (pre $M = 3.16$, post $M = 3.89$). The participants may have been afraid of letting the ELLs use their L1s due to their monolingual backgrounds. They could, however, have used a resource such as Google Translate to prepare the dual language word bank and translated directions for their worksheet if they understood the significance of using their L1s. In the SIOP PD, using L1 was not strongly supported by the trainers either.

Item 24 on language objective delivery did not show statistical significance ($t = .13$). The participating teachers might use the language objectives consciously but might not yet be confident enough to deliver the language objectives. Again, the posttest mean score for Item 24 was also higher than the pretest score (pre $M = 3.26$, post $M = 4.14$), but not statistically significant.

The key vocabulary review item, Item 27 (pre $M = 3.69$, post $M = 3.74$), was the measure that showed least improvement at the posttest ($t = .93$; Table 1). This is the area where most of the participants needed to improve, even the native-English-speaking students. The participating teachers might want to learn how to review the key vocabulary more explicitly. This key vocabulary review/assessment is related to the content and the language objective items, as well as the ample opportunity item. If the

objectives are written clearly and extensively with the key vocabulary and delivered with ample opportunity and various resources and strategies, the teachers could conduct the review of the key vocabulary more effectively.

These four items—Items 1, 19, 24, and 27—are the significant areas needing continuous improvement for teachers with ELLs. Although the results of RQ1 show that participating teachers perceived their improvement in 30 features of the SIOP protocol with and without statistical significance (see Table 1 and Figure 1), they also show that the participants were not ready to connect all of the SIOP features and apply them to their teaching. They still needed to transform their teaching practice for ELLs in a way that more intentionally integrated these SIOP features.

Responses to the interview and open-ended TAS items were another data source to answer RQ1. The responses to Interview Item 5 show that 23 of 28 teachers (82.1%) said that they did not have any knowledge and skills for helping their ELLs before they started participating in the SIOP PD and guided coaching process. TAS Items 2, 3, 6, 7, and 8 and Interview Items 5 and 6 report results on instructional strategies. Forty-four of 48 participants (91.7%) responded that they intentionally paid attention to their ELLs to initiate participatory action with other students (TAS Item 2). One open-ended response to TAS Item 3 on how the participating teachers encouraged the ELLs to participate in the lesson discussion included the following:

> I intentionally used visuals/graphic organizers, and buddy-buzz-daily summary of lesson with partner that relate to language and content objectives .... I tried to know backgrounds
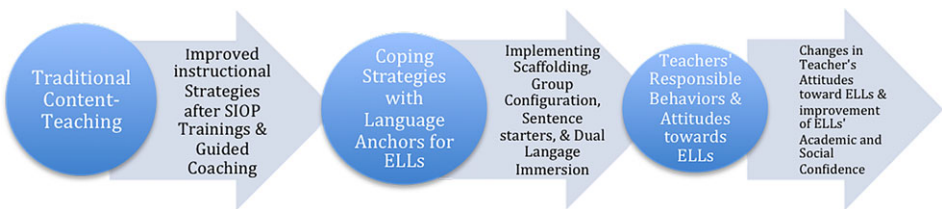

Figure 1. Transformation of content teachers with ELLs

> of the ELLs, and co-taught with the ELL teacher ... and the
> coach reinforced this collaborative teaching plan and implemen-
> tation ... . I grouped them with similar backgrounds or inter-
> ests, and gave a designated job for each member.

Given that the participants had not had prior exposure to SIOP and guided coaching, strategies such as group configuration, coteaching with the ELL specialist, planning with the coach, exploration of ELLs' backgrounds, and coping strategies like using scaffolding with guided reading and daily summary with a buddy were the specific discourses they might have acquired through the PD model. However, the responses to the strategies did not include using ELLs' L1s, nor were any specific strategies to explore ELLs' academic and cross-cultural backgrounds mentioned by any participant.

In response to TAS Item 7 on the professional development activities to help ELLs, 43 of 48 (89.6%) reported that it was SIOP that influenced their teaching pedagogy toward ELLs. In response to TAS Item 6, 45 of 48 respondents (93.8%) replied that using the proper pedagogical approaches they acquired through the SIOP training and coaching sessions helped ELLs' participation in content classes. The responses included providing "adequate time for responses," avoiding "lectures," and facilitating with "group sharing discussion" to enhance ELLs' "full participation." Some participants witnessed some positive effects of the SIOP protocol and guided coaching. One said, "The ELLs started discussing, and I became a facilitator." Another respondent said (about the language objectives), "At first, I thought they were completely pointless. It took me about 8 months to get used to writing them. Now it's really easy. Language objectives enhance content objectives." As noted in the result of ISS, writing language objectives and delivering them were the features the participants paid most attention to, and writing them showed improvement, but delivering them did not. Although a few of the participants recognized the connection between the language objectives and content objectives, that might not mean that they were successful in delivering the language objectives.

The ISS and TAS results indicate that the SIOP and coaching sessions provided reinforcing and meaningful strategies to the

participants to support ELLs in general. The findings generated by RQ1 show that most of the participants perceived that they had improved their linguistically and culturally responsive teaching strategies for their ELLs through the SIOP PD and coaching sessions. The participants might have given the "correct" answers to the interview questions and to the survey items. The observation data and/or ELLs' achievement data should have supported their perceived responses.

Research Question 2

In response to RQ2 (How did the participants perceive teachers' roles for and attitudes toward ELLs after the PD trainings and coaching sessions?) the researcher analyzed responses to TAS Items 1, 4, 5, 11, and 12, and TIP Items 3 and 4. Forty-three of 48 participating teachers (89.6%) considered teaching all students, including ELLs, as content teachers' full responsibility (TAS Items 1 and 4), and 26 of 28 (92.8%) interviewees considered teaching ELLs as part of the content teachers' job, not solely the responsibility of ELL specialists (TIP Items 3 and 4). Responses to the open-ended items (TAS Item 5, TIP Items 3 and 4) about the rationale for why they considered teaching ELLs as their responsibility included the following:

> Because no one else will. We need to make an effort to make content comprehensible to their ability level. The principal asked us to use SIOP, especially asked to use the language and content objectives for each lesson in our push-in program. All students must meet grade-level expectations (GLEs). We need to preview/reinforce GLEs to give ELLs additional access to the language and math curriculum.

However, 5 of 48 (10.4.%) responded that teaching ELLs should not be their responsibility, but that of the ELL specialists. These responses include the following:

> ELL teachers should help them with skills and language .... The ELL aides should provide language support. It is very important to me that ELLs are proficient in the subject I teach.

Because a majority of the ELLs were mainstreamed, content teachers were expected, one way or another, to take care of the

ELLs' academic learning. Because of the MSP grant, all of the teachers had been exposed to the PD models, and they knew that they were responsible for including ELLs when they prepared and delivered their content teaching. In addition, principals required posting the language and content objectives in the classrooms daily. Again, the supporting data such as observation data should have supported what a majority of the participants perceived about their responsible behaviors for the ELLs. Even in this inclusive environment, some teachers were not yet comfortable preparing and delivering language anchors for the ELLs in their content classes. Ten percent of the teachers considered themselves as content teachers, rather than teachers of children.

Thirty-three of 48 (68.8%) respondents reported that it has not been frustrating to have ELLs in their content classes (TAS Item 11). These participants said that it was not frustrating because of the SIOP and the general attitude about the ELLs. These respondents perceived that they had "tools to support ELLs, and ELLs were learning just like other students." One teacher said, "ELLs are better, and many times they at least want to learn. Just take more clarification, time, and patience." It seemed that a majority of the participating teachers had positive perceptions about teaching ELLs with coping strategies and tools, mostly from SIOP. It was interesting that some teachers perceived ELLs as better students than others due to their attitude toward learning and the teacher. However, in many cases, ELLs' positive behaviors toward the teachers or the learning could emanate from cultural habits or attitudes rather than from actual motivation. In some cultures, such as in Japan, China, and Korea, students are expected to be polite to teachers in all circumstances. Accordingly, teachers should be more explicit (with assessment evidence) about ELLs' behaviors to verify that these students have actually learned the language and content objectives.

Thirteen participants (27.1%) responded that it was frustrating to deal with ELLs, and two (4%) did not respond. Their frustration was mainly about ELLs' low English proficiency, so they could not carry on their content teaching. One participant said, "I do not have time for them. When they don't understand English, it's tough." It seems that quite a few teachers who attended the

systematic PDs were reluctant to accept their roles of supporting the ELLs in terms of teaching academic languages, as Reeves (2006) found. The district was not using the coteaching model when this study was conducted. If these teachers had had the opportunity to coteach content, including the academic language anchors, with the ELL specialist, they might have lowered their frustration level. It seems likely that their frustration derived from their attitude rather than skills and knowledge about coping strategies, given that they had been exposed to the PD model for about two years through numerous SIOP trainings and coaching sessions.

TAS items and the interview items were used to analyze the teachers' attitude toward the ELLs. Forty of 48 TAS respondents (83.3%) and 20 of 28 of the teachers interviewed (71.4%) reported that the SIOP PD workshops brought changes in their attitudes toward ELLs and ELLs' academic and social behavior (TAS Item 9, TIP Item 6). Again, the responses about their attitude changes were due to SIOP strategies such as differentiated instruction and knowledge about ELLs' backgrounds. One interesting response focused on self-satisfaction: "I want to learn more about the ELLs' backgrounds and differentiated instruction. I am spending more time to create the activities and seek more resources for the ELLs . . . . It works for other students as well." Another participant said SIOP contributed to ELLs' social and academic behavior changes (such as increased confidence), not only for the ELLs' increased involvement in class discussion but also for other students, an insight that is supported by research (Echevarria et al., 2006). One respondent said that "experiencing success" made both the ELLs and himself more motivated. He said, "I try to provide more opportunity to the ELLs daily. With my effort, they become more willing to ask questions because they know they will be supported." This statement shows the importance of teachers' attitudes toward the ELLs: The ELLs knew that they could trust the teacher who was "there" for them.

The responses to Interview Item 6 also supported teachers' attitude changes toward the ELLs. One monolingual teacher said that it had been enough for him to prepare the lessons for the English-speaking students 15 years ago because there was "no

need to deal with the ELLs." Now he had more than 40% ELLs in his physics class, and at first he wanted to ignore them because he wanted to give that teaching responsibility to the ELL specialist. He said, "I guess my attitudes toward ELLs were ignorant and negative." After he went through the SIOP and one-on-one coaching for about a year and half, he found himself communicating with the ELLs about the content he was teaching. Once he used a four-corner strategy for new physics vocabulary, and he found it was working with the ELLs. He said, "I felt good, and I kept talking with the ELLs and found that some of them were very smart in physics." He continued his testimonial saying, "I let them speak their L1 when they discussed the new and/or difficult concepts of physics. I do not understand their language, but they do." This last statement was rather radical since it was the first time to hear the term *L1* from the respondents. He ended his response saying, "How do I know if they understood the physics concepts? They have to make a presentation using English. Have I changed my attitudes? You bet."

Figure 1 illustrates the process of improving instructional strategies and content teachers' attitudes toward ELLs, and changes in ELLs' academic achievement and social behaviors. Even though there should be more studies on the causes of the teachers' attitudes toward ELLs, the data and excerpts provided that the systematic PD implementation might be one of the factors that transformed their attitudes toward the ELLs, and this attitude transformation made them prepare and deliver linguistically and culturally responsive teaching strategies such as four-corner vocabulary activities, dual language immersion approach, and sentence stems. In addition, the ELLs' change in their confidence and motivation, according to the excerpts, was another factor that impacted the teachers' attitude or motivation to prepare better instructional strategies for the ELLs with the appropriate language anchors.

However, there were negative responses about the PD impact, such as, "Not much change; they still struggled and most might prefer not to be called on." Responses to TIP Item 8 showed disadvantages such as a time-consuming and overwhelming combination of content and language teaching strategies. Another

negative comment from several teachers was that SIOP training focused more on elementary and middle school classroom practices than on high school settings.

DISCUSSION

Numerous studies have shown that teachers' attitudes toward minority students including ELLs influence teaching practice (Avery & Walker, 1993; Byrnes et al., 1997). Shafer (1975) found that about 50% of the U.S. teachers in his study showed "negative, stereotypic language attitudes toward nonstandard-English-speaking children" (quoted in Byrnes et al., 1997, p. 638). Another study, with 832 preservice teachers, found that a majority felt uncomfortable "teaching in schools where English was not the primary language at home" (Sparapani, Abel, Easton, Edwards, & Herbster, 1995, p. 21). Reeves (2006) indicated that 75% of the secondary teachers in his study expressed their opposition to mainstreaming ELLs until they achieve English proficiency. Researchers have found that teachers lacked training to meet the needs of ELLs (Clair, 1995; Reeves, 2006). Many school districts have started seeking PD for their content area teachers who had ELLs (Berube, 2000). In reality, for most of the school day ELLs spend most of their time in mainstream classrooms where teachers face challenges in educating them (Batt, 2010; Moche, 2000).

This study examined the impact of an intentional and systematic PD model—SIOP training and guided coaching—on transforming teachers' responsible roles for and attitude toward ELLs. The researcher used two surveys, ISS and TAS, to assess participating teachers' ratings and responses on improvement in their instructional strategies and attitudes toward ELLs. An interview protocol (TIP) was used for interviewing the randomly but purposefully selected teachers to further understand the survey results. The ISS results of this study showed significant change in most of the postsurvey (26 of 30 items), and all items showed greater mean scores at the posttest. These ISS results support the assumption that the teachers perceived improvement in their instructional strategies after the SIOP PD training and coaching sessions. They also support the improvement of teachers'

knowledge and skills of teaching ELLs with coping strategies even though the results emerged mainly as perceptions.

An interesting finding from the TAS and TIP data was that most of the participating teachers considered a majority of their ELLs (85%) as advanced and intermediate learners. However, these responses might be based on teachers' judgment of their ELLs' conversational language proficiency rather than on official academic language proficiency levels, given that there was a significant gap in the content area achievement between the ELLs and the native-English-speaking learners in this district. Responses to the research questions showed that a majority of the participants considered teaching ELLs to be their job responsibility. Most of the participants differentiated their instruction and witnessed improvement in ELLs' academics and in their social behaviors after using the SIOP framework. The TAS and TIP results show that the teachers adopted SIOP components as effective pedagogies for their ELLs when they prepared content lessons with the coaches and saw improvement of their ELLs' academic achievement and social behaviors. Most of the participating teachers responded that the SIOP training and coaching sessions helped them focus on the essential academic language modalities by distinguishing language objectives from content objectives. Most of the participants, however, were still struggling to write "good" language objectives, deliver them, and measure them. After the training and coaching, most of the participating teachers' basic attitudes toward the ELLs were very positive; some even reported that ELLs were better to teach because they wanted to learn.

The findings of this study differ from many empirical research findings positing that teachers considered accommodating strategies as not their responsibility. In those studies, teachers wanted to give the responsibility of teaching ELLs to the ELL specialists and their parents, and some viewed their ELLs as an extra burden on their time (Marullo, 1998; McDiarmid & Price, 1993; Reeves, 2006; Shafer, 1975; Tatto, 1996). Many teachers in those empirical studies adopted a deficit model (Suarez-Orozco & Suarez-Orozco, 2001), arguing that ELLs need remediation and assimilation to adjust to the dominant culture of their teachers. In

this study, due to the number of ELLs and the academic gaps in content areas, a majority of the classroom teachers recognized the necessity of accommodating ELLs in the classroom through PD to implement their instruction effectively (Pappamihiel, 2007). The data resulting from this study show that the teachers who participated in SIOP training and coaching sessions perceived that their coping strategies were significantly improved through the systematic PD and reported on the importance of interaction with ELLs. Other research findings show that some content teachers consider themselves as teachers of subjects rather than teachers of students. This study makes it evident that intensive SIOP training over time, partnered with guided coaching, could be a tool for reorienting content teachers' beliefs about supporting ELLs' learning.

The interview data reveal an array of challenges to implementing content and language delivery. A few participants viewed the PD process as time-consuming, overwhelming, and frustrating; they were reluctant to include ELLs in their content teaching classes. They wanted to consider themselves as content teachers, rather than teachers of students who came to their classes. They considered the commitment required by both the school and the district as disadvantageous.

The cost of training could be an issue, though the participating teachers in this study did not mention it, most likely because the district was funded by an MSP grant and the administrators did not have to deal with the expense. Under other circumstances, however, the cost could be reduced if one trained coach trained more teachers to be coaches, so the district would not have to pay professional SIOP trainers, and the in-house coaches could provide systematic and ongoing PD to the teachers in the school. A prime example of the reduction of costs through training coaches does in fact exist now at the Midwestern school district where this study was conducted. The district employed and trained two district teachers as designated coaches. These coaches in turn trained K–5 teachers using the SIOP model, and they also trained selected teachers to become coaches after the MSP grant project described in this study ended in 2011. Now, they have more than five guided coaches, and the entire district adopted the SIOP and

guided coaching PD model to enhance the content teachers' coping strategies for their diverse students, including ELLs. As a result of adopting the PD model, the district has seen significant improvement of ELLs' achievement, especially in the areas of English language arts, mathematics, and science.

LIMITATIONS AND FURTHER RESEARCH

Because survey and interview data were the main sources to support the research questions, the study includes multiple biases. Its assumptions, interpretations, and suggestions were based on the participants' perceptions and subjective interview responses. It is possible that some participating teachers may have answered what they felt they were expected to answer. To remedy this in future studies, some other data from class observation, actual lesson plans, and transcription of coaching cycles could be added to ensure that the participants actually prepare, implement, and reflect on what they have perceived in the surveys and interviews. Having a control group that has no systematic PD training could provide stronger evidence that SIOP and coaching can help teachers transform their coping strategies for ELLs and their attitude changes.

Rather than comparing the result of the survey data to that of empirical research findings, the pre- and postevaluation of the TAS survey could provide useful data to measure any significant difference in terms of LCRT strategies and teachers' attitudes toward ELLs. The interview questions and the TAS survey items should be tested statistically for stronger validity and reliability in replication studies. Further probes to interview questions could be added to elicit more explicit responses from interviewees. Longitudinal studies could also confirm the impact of the PD models on teachers' attitudes and responsible behaviors toward ELLs with actual achievement data.

Nevertheless, even acknowledging these weaknesses, this study contributes to knowledge about systematic PD through the literature review, the impact of PD on teachers' instructional strategy improvement, and the effects of improved coping strategies on content teachers' responsible behaviors and attitudes toward ELLs and ELLs' social and academic behaviors. The

developmental process of this study, illustrated in Figure 1, shows how participating content teachers can be enlightened in terms of their coping strategies and attitudes toward ELLs through systematic PD training.

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APPENDIX A

INSTRUCTIONAL STRATEGY SURVEY (ISS)

https://docs.google.com/spreadsheet/viewform?formkey=
dFEyeHR2V045ZGxWZXRpUEFwZ0RuTnc6MQ#gid=0

APPENDIX B

Teachers' Attitudes toward ELLs Survey (TAS)
https://docs.google.com/spreadsheet/viewform?formkey=
dDFTY3VsSnEzbGFLVGtYc2tzWlczU1E6MQ#gid=0

APPENDIX C

THE INTERVIEW PROTOCOL (TIP)

https://docs.google.com/spreadsheet/viewform?
formkey=dGF3MUhUS1F6dW9kZWl3VWVxM1dkNEE6MQ#gid=0

The above three appendices are hyperlinked to each appendix in the main text. However, hard copies of the surveys were given to the participating teachers, not done online. The author hyperlinked the online version of each survey to reduce the page numbers.