

Interactive Staff Development Supports Collaboration When Learning to Teach

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Abstract: *Teachers' adoption of a new teaching practice is related to their investment in staff development and the degree to which they consider it worthwhile. We conducted an interactive staff development, which involved teachers in the analysis, practice, and refinement of new instructional activities. Data from teaching observations, interviews and surveys indicate that the interactive nature of the staff development assisted the teachers to adapt the featured instructional practices in ways that both mirrored and challenged their personal beliefs and knowledge about teaching and learning. The sustained interactive staff development process helped the teachers re-consider the efficacy of their current approaches to teaching while integrating new instructional practices.*

When teachers participate in traditional staff development their attendance does not ensure their learning. Further, what they learn may not be meaningfully applied in their classroom practice (Sparks & Hirsch, 1997). Even when staff development sessions require teachers to demonstrate their new knowledge and skill, the likelihood of sustained classroom implementation is not promising (Eisner, 1992; Gersten, Vaughn, Deshler, & Schiller, 1997). In a survey conducted for The Council for Exceptional Children (CEC) (Coleman, 2000), 225 special educators indicated a “need for improvement” of professional development. They ranked staff development only seventh out of ten important concerns to be addressed for educating students with disabilities.

Teachers may consider staff developments to be of little help. Typical staff development sessions do not generally acknowledge teachers' interest and commitment to a new practice nor help them to make links to their beliefs about effective practice (Gersten, Baker, & Chard, 2000; Joyce & Showers, 1980). The CEC respon-

dents indicated needs to foster teacher collegiality, capitalize on teachers' classroom knowledge, and extend their practices (Coleman, 2000). These very features have been documented to be advantageous to sustainability of a new instructional practice. Indeed, teachers' interest in and commitment to learning and using the practice (Joyce & Showers, 1995) as well as their beliefs about its practical use (Lytle & Cochran-Smith, 1992; Richardson, 1996) are instrumental to sustainability. The CEC survey results represent a challenge: to provide teachers with staff development opportunities that are responsive to their needs and interests and that capitalize on their desire for collegiality.

Models of Staff Development

Sparks and Loucks-Horsley (1989) described five models of staff development that are still in common usage. The first four are comparatively new conceptualizations. The fifth model, “training,” is the most widely implemented.

The *Individually Guided* model is based on assumptions that individuals are capable

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of self-directed and self-initiated learning and can best judge their own learning needs, and that adults learn most efficiently when they initiate and plan their learning activities. It consists of several phases: identification of a need or interest and a plan to meet it, learning activities, and assessment of success. In *Observation/Assessment*, teachers observe each other's instruction. The model, implemented through evaluation, clinical supervision, or peer coaching, usually includes a conference to determine the observation focus, classroom observation, analysis useful to the observer and the observed, and a plan to modify instruction. *Development/Improvement Process* assumes that adults learn most effectively when they have a need to know or a problem to solve, that people working closest to the job best understand what is required to improve their performance, and teachers acquire important knowledge or skills through involvement in school improvement or curriculum development processes (Glickman, 1986). This model begins with the identification of a problem or need by an individual teacher, a faculty group, or an administrator; a response is formulated; then a plan is implemented or a product developed; the final step is assessing success. *Inquiry* reflects a belief in teachers' ability to formulate valid questions about their own practice and to pursue objective answers (Cochran-Smith & Lytle, 1999). This process may take many forms. First, an individual or a group of teachers identifies a problem of interest; they explore ways of collecting data; data are analyzed and interpreted by the individual or group; and finally, changes are made and new data are gathered to determine the effects.

Training is the most frequently implemented model (Lord, 1994). Two underlying assumptions of this model are: (a) there are behaviors and techniques worthy of replication by teachers in classrooms, and (b) teachers can change their behaviors and learn to replicate other behaviors not previously in their repertoire (Sparks & Loucks-Horsley, 1989). Training staff developments are designed specifically for teachers to learn new intervention practices. Opportunities for practice by the teacher are typically limited, instead, teachers are expected to listen to and

witness mock implementation of the practice.

Although training is the least costly model, there are several critical shortcomings that ultimately influence its effectiveness (Sparks & Hirsh, 1997). First, is the lack of a common purpose as the basis for participation. Teachers may have expressed no prior interest and may even arrive at the workshop unaware of the topic. Even in cases of initial investment, individuals may have varying assumptions about purposes and pedagogic use of the featured practice, which can obstruct full communication and understanding. As Little (1982) established long ago, without a clear and shared purpose even collaborative staff developments result in exercises that have little impact on instruction.

Second, a training model provides little or no opportunity for teachers to practice implementation procedures, to exchange feedback with their colleagues, or to discuss their implementation with the staff developer. Simulation exercises are typically brief and usually do not involve the use of actual curricular materials. Yet, research indicates that multiple opportunities to experiment with instruction and discussion among participants are crucial for encouraging candid critique and thoughtful suggestions (Gersten et al., 2000). Without sufficient time for teachers to discuss and draw relationships among the information they are learning and their existing beliefs and knowledge, they may easily become passive learners who lack critical engagement (Darling-Hammond & McLaughlin, 1995).

The third shortcoming is that training does not provide opportunities for staff developers and teachers to develop genuine and collegial relationships (Kegan, 1999). Genuine relationships prompt participants to exchange knowledge and ideas and explore the fit between the instructional practice and their assumptions (Boudah, Deshler, Schumaker, Lenz, & Cook, 1997). Further, in-classroom peer observation and coaching after the initial staff development is critical to learning complex teaching skills (Joyce & Showers, 1995; Knight, 1998). Nonetheless, most training sessions are conducted in a unidirectional manner and expect exact replication of the demonstrated procedure.

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Trainers typically have no association with teachers, schools or communities beyond conducting the staff development.

What Teachers Bring to a Staff Development

Teachers come to a staff development with beliefs and knowledge about teaching. The relationship between what teachers bring and what staff development leaders offer is critical to the adoption of new instructional practices.

Teachers' beliefs and practices do not exist independent of one another. Teachers most frequently employ practices they perceive as congruent with their current teaching philosophies and beliefs about effectiveness (Fang, 1996; Hollingsworth, 1989; Tillema, 1995). For example, Olson (1993) found science teachers changed new curricula to fit their own beliefs about effective instructional practices. Duffy (1992) discovered that general and special educators' instructional decisions during reading classes often represent their assessment of a relative fit of the technique to their classroom organization (i.e., management and curriculum).

Teachers' use of a new practice may also be influenced by their beliefs regarding the innovation's impact on their students. Doyle and Ponder (1977–78) referred to teachers' consideration of their students' potential reaction to an instructional practice and how well it fits their specific classroom situation as the "practicality ethic" (Richardson, 1996). A teacher's knowledge, belief, and commitment to an instructional practice influences which aspects of the practice will be adopted, adapted, highlighted, modified, or omitted during classroom teaching.

An Interactive Staff Development Model

The design of our staff development capitalized on the participants' beliefs and knowledge about instruction based in their professional experiences as teachers. Instructional principles that serve to incorporate learners' beliefs and knowledge are based in constructivist and dialogic conceptions of learning (e.g., Englert, 1995; Englert & Marriage, 1996; Harris & Graham, 1996) and are collectively termed "interactive" (Bos & An-

ders, 1990; Klemp, 1997). This approach to teaching/learning encourages interaction among participants and the exchange of ideas and knowledge. Seven interactive principles incorporated in our staff development, and featured in the instructional strategies taught, are: (a) activating prior knowledge, (b) tying new knowledge to old, and new ideas to each other, (c) predicting relationships, (d) using cooperative knowledge sharing, (e) teaching concepts in relation to context, (f) justifying relationships between and among concepts, and (g) confirming understanding (Bos & Anders, 1992).

Employing interactive principles throughout a staff development fosters the construction of a shared purpose and initiation of collegial relationships among teachers and staff developers. In an interactive process, participants explore relationships among their own and each other's ideas, which enables them to make connections among knowledge (Scanlon, Duràn, Reyes, & Gallego, 1992). It also avoids whole-sale rejection or adoption of practices on the basis of congruence with current instructional beliefs and approaches.

Method

We sought to examine the effectiveness of our interactive staff development model. To evaluate the model we fully implemented it, beginning with inviting teachers to take part. Descriptions of the process as well as of our data sources and analysis follow.

Participants

All participating teachers were certified special educators. The group included six high school teachers, five junior high, and eight teachers of elementary bilingual students. All taught students who had been identified as having a learning disability (LD) and who received special education services in resource classroom settings. Our staff development team consisted of two university teacher/researchers and four doctoral students, specializing in special education, bilingual education, literacy, and comprehension (see Table 1). In this paper, we focused on the teachers from the eight bilingual elementary classrooms. They included 7 females and

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Table 1. Participants in the Study

Teachers	Gender	Highest degree	Certification	Teaching experience
1	M	¹	Gen.; Sp. Ed.	Lower grades; Intermediate
2	F	MS	Bilingual Sp. Ed., Bilingual endorsement	Elem. pullout, self-contained
3	F	Ed.S.	Bilingual Sp. Ed.	Elem. sp. ed., ESL
4	F	MA	Sp.; Elem. Ed.	Elem. sp. ed.
5	F	MS	Sp. Ed.	Self-contained elem.; Adult ed.
6	F	BA	Elem. Sp. Ed., Bilingual endorsement	Elem. sp. ed. Self-contained elem.

Researchers	Gender	Highest degree	Certification	Teaching experience
A	F	Ph.D.	Elem. sp. ed.	Elem. sp. ed.; Higher ed.
B	F	Ph.D.	Reading; Elem.	Intermediate
C	F	M.Ed.	Elem. K-12 Sp. Ed.	Elem. pullout, self-contained
D	F	M.Ed.	Reading, Eng. 2 nd Lang.	Elem. bilingual
E	F	M.A.T.	Elem. bilingual	Elem. bilingual; Admin.
F	M	MOE	voc. special. ed.	HS pullout; Adult ed.

¹ Highest degree not reported.

one male, with experience ranging from two to twenty-two years (average = 11.2) (see Table 1). Four held masters degrees and one other, an education specialist degree. They taught a total of 62 bilingual students with LD. Identification of learning disabilities was by district criteria that included average intelligence and a cognitive discrepancy. These upper elementary grade students were identified as English/Spanish bilingual students in accordance with De Avilla and Duncan's (1982) Language Assessment Scales.

The Instructional Practices

Four instructional practices were featured in our interactive staff development. Three were interactive instructional strategies. The fourth was non-interactive (i.e., not based in the interactive principles), and was used as an experimental comparison. The interactive strategies were interactive semantic mapping (ISM), semantic feature analysis (SFA), and semantic-syntactic feature analysis (SSFA) (Bos & Anders, 1987; Scanlon et al., 1992). Each of the three incorporated the seven interactive principles described above. The interactive strategies were designed to prompt teachers and students to collaborate in pre-, during-, and post-reading activities that involved construction of graphic organizers of key text content and relationships.

During an ISM lesson, a semantic map is constructed (see Figure 1). In both SFA and SSFA, a semantic feature matrix is completed (see Figure 2); in SSFA, cloze-procedure statements accompany the matrix (see Figure 3). Each strategy followed the same sequence: brainstorm prior knowledge based on the topic, preview the text for important content, construct an initial graphic organizer, read, review and modify the organizer. Each strategy required three (approximately 50 min.) class periods to complete.

The verbal rehearsal (VR) practice, was centered on the teacher prompting students to associate key concept vocabulary and their definitions through memorization. It was representative of directive instructional practices including repetition, part to whole learning, and practice for automaticity. Directive instruction principles are commonly used in remedial and compensatory literacy intervention for students with LD (Gersten, Baker, Pugach, Scanlon, & Chard, 2001; Kauffman, 1999). The teachers and staff developers selected the vocabulary terms based on their importance for comprehension of the text passage. Prior to students reading, the teacher pointed to each vocabulary term and its definition on the board, saying it aloud and cueing the students to repeat chorally. The students rehearsed each term and

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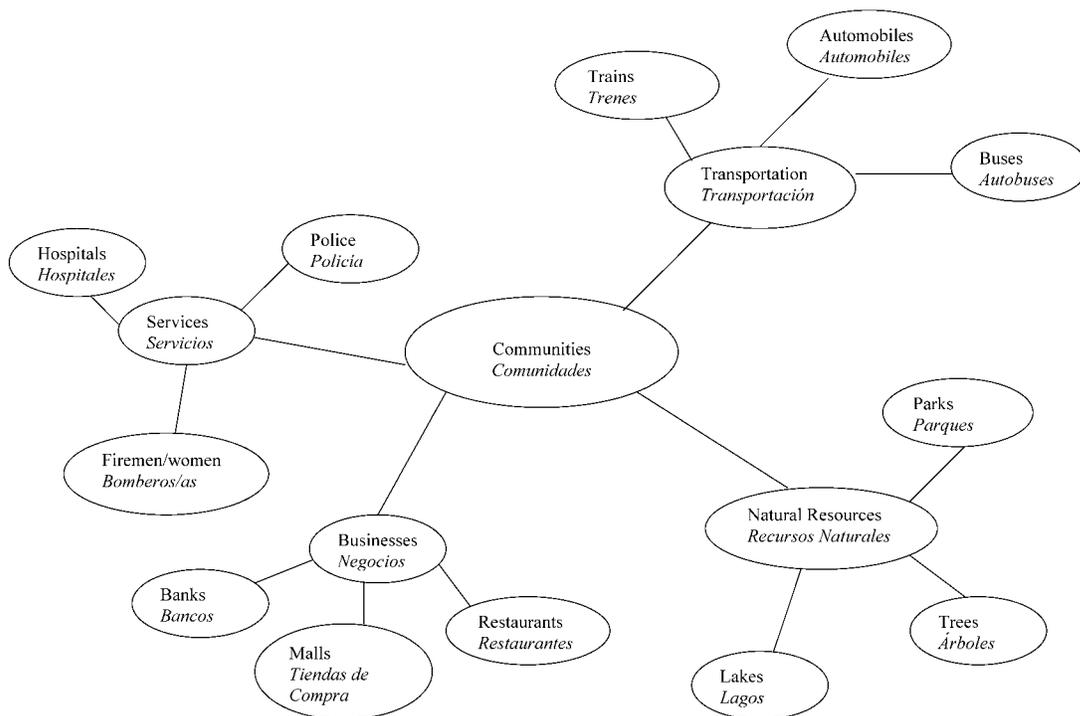


Figure 1. Sample Semantic Map

one-sentence definition (see Figure 4) until they were able to recite all definitions from memory. One class period was dedicated to this exercise. The vocabulary list was reviewed prior to students reading the text on the second and third class days. Verbal rehearsal is similar to other practices for vocabulary pre-learning which emphasize

memorization (e.g., Bradley, 1975 as cited in Bos & Vaughn, 2002; Polloway & Patton, 1997).

Materials

Three sets of materials were compiled for use in the five phases of our staff develop-

Communities/Comunidades				
	Services/ Servicios	Businesses/ Negocios	Natural Resources/ Recursos Naturales	Transportation/ Transportación
Hospitals/Hospitales	+	+	-	-
Banks/Bancos	+	+	-	-
Malls/Tiendas de Compra	-	+	-	-
Buses/Autobuses	+	-	-	+
Parks/Parques	+	-	+	-
Police/Policia	+	-	-	-
Firemen/women/Bomberos/as	+	-	-	-
Restaurants/Restaurantes	+	+	-	-
Trees/Arboles	-	-	+	-
Lakes/Lagos	-	-	+	-
Trains/Trenes	+	-	-	+
Automobiles/Automobiles	-	-	-	+

Figure 2. Sample Semantic Feature Analysis

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The cloze procedure below is completed with vocabulary words from chart above after the + and - are filled in.

Hospitals provide _____ to people who live in _____.

Hospitales provéen _____ a gente que vive en _____.

People use _____ or _____ as means of transportation.

Mucha gente usa _____ o _____ como formas de transportación.

Businesses, such as _____ or _____ are usually conveniently located close to neighborhoods.

Negocios, como _____ o _____ se encuentran convenientemente localizados cerca a vecindades.

Trees, Lakes, and _____ are _____ that people in communities must care for so they can enjoy them.

Árboles, lagos y _____ son _____ que tenemos que cuidar para disfrutarlos.

Trains can be used to transport food to _____ ; they provide an important _____.

Trenes pueden transportar comida para _____, así provéen un _____ importante.

_____ provide a service of protecting businesses and the entire community.

La _____ provee el servicio de proteger a negocios y la comunidad.

Figure 3. Sample Semantic Syntactic Feature Analysis

ment model. Separate sets were developed for each of the instructional levels: high school, junior high, and elementary. Each set of materials included passages from grade-level appropriate texts, sample teaching scripts, sample graphic organizers, or definition lists for the VR practice, and pre- and post-tests. The reading passages and tests related to social studies were identical for all elementary classrooms. All materials for teaching elementary children were provided in Spanish and English.

Consistent with interactive principles, during the first staff development day, the teachers and staff developers collaboratively refined drafts of the scripts. The teachers were asked to use the scripts only as an outline and to incorporate their own comments and language during their teaching. The teaching scripts included sample statements intended to make the purpose of the activity clear to students (e.g., “by filling in this chart we’ll learn the major ideas that the author wrote about and the important words related to those ideas. . .”). The scripts also included cues to guide instructional activities (e.g., “at this point discuss and decide whether or not to indicate a +, -, or? on the matrix”; “continue class discussion until students reach

consensus”). Sample semantic maps, matrices, and cloze sentences for the interactive strategies were provided as examples of those the teachers would create with their students in their own classrooms. In preparation for the VR practice, the teachers and staff developers reviewed the text and identified key vocabulary that they believed students would need for reading comprehension and content understanding. We then co-constructed one-sentence definitions of each term, consistent with the readability level of the texts.

Three sets of materials were developed. One set was used during teaching simulations on the Initial Staff Development Day, a second was used with students during the Classroom Trial Phase; the third was used in the Implementation Phase.

Settings and Timeline

The staff development included two full workshop days during which participants interacted in small school-level groups (i.e., elementary, junior, high) and whole-group activities. Activities on the initial workshop day were intended to familiarize the teachers with all four of the instructional practices. So that we could experimentally evaluate the rela-

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Community - A group of people living in the same locality and under the same government.
Our neighborhood is located in a diverse community.

Comunidad - *Un grupo de gente que vive en el mismo lugar.*
Nuestra vecindad esta localizada en una comunidad muy diversa.

Services - Work done for others as an occupation or business.

Servicios - *Un trabajo completado para otros como una ocupación o negocio.*

Firemen/women and Police provide important services to people in communities.

Bomberos/las y la policia provéen servicios importantes a la gente en comunidades.

Natural Resources - Something in nature that we can use or enjoy when we need it.

Recursos Naturales - *Algo disponible encontrado en la naturaleza que puede ser usado cuando lo necesitamos.*

Our parks, trees, and lakes are natural resources that enrich our community.

Nuestros parques, árboles, y lagos son recursos naturales que enriquecen nuestra comunidad.

Business - The occupation, work, or trade that a person does to make a living.

Negocios - *La ocupación, el trabajo, o el comercio en el que una persona completa para sostenerse.*

My father is in the restaurant business.

Mi papá tiene un restuarante que es su negocio.

Transportation - A means used to take or carry something or someone from one place to another.

Transportación - *Un medio utilizado para llevar algo o alguien de un lugar a otro.*

Buses and Trains provide transportation to millions of people daily.

Autobuses y trenes provéen transportación a mucha gente diariamente.

Figure 4. Examples of Vocabulary Recall

relationship of our staff development to effective practice, teachers were randomly assigned to one of the interactive strategies or the VR practice at the end of the first workshop day. A six-week period provided the teachers ample time to practice with their students before the second workshop day. The second day focused on reviewing teachers' instruction. This included identifying exemplary features of instruction for each of the four practices and connecting principles of the practices with the teachers' beliefs and knowledge. This review capitalized on the teachers' experiences with their own students

and classrooms and was essential to modification of the practices.

The Staff Development Process

The Interactive Staff Development model consisted of five Phases of major activities (see Figure 5). Each phase was important in ensuring that the teachers succeeded in implementing their assigned practices. The first phase in our staff development was to ensure that positive relationships were established between researchers and teachers, beginning with school visits before the first workshop day. The second phase occurred during the first workshop day. The collegial setting enabled the teachers to ask questions of each other, to confirm their understanding of the practices, and to predict necessary modifications for using the instructional practices in their own classrooms. They left the first workshop prepared to use their assigned practice with their own students, and anticipated the opportunity to discuss impressions and modification of the practices at the second workshop. The third phase consisted of teachers implementing their assigned interactive or VR practice at least twice in their classrooms. They used the two sets of materials with which they had practiced in phase two. Phase four was completed during the second workshop day where teachers gathered in groups based on their assigned practices to discuss their experiences with them. By asking questions and offering suggestions, they justified to one another their instructional decisions and elaborated on their instructional modifications. The final phase was used to analyze the effectiveness of the interactive staff development model. The teachers returned to their classrooms with new sets of materials. A staff developer was present in each classroom to videotape and act as a resource for the teacher.

Data Sources and Analysis

Three sources of data were used in this study, videotapes, structured interviews, and a survey. To analyze the effectiveness of our interactive approach to staff development, we first assessed whether each elementary teacher employed principles appropriate to her or his assigned practice. To do this, phase 5 vid-

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Phase 1: Establishing a Relationship and Initial Commitment Among Teachers and Developers

- Staff developers met with faculty to review the various aspects of the project, explain expectations, and to secure their commitment to the project for the duration (8 to 12 weeks).
- After the initial visit, grade-appropriate textbooks were selected and developed teaching materials using information from the textbooks.

Phase 2: Describing the purpose, rationale, and expected outcomes of each of the following instructional practices.

- On this first staff development day, teachers engaged in discussing the seven interactive principles and the steps involved in the VR practice.
- They demonstrated their knowledge and understanding of each of the strategies by practicing each strategy in groups of five to seven.
- Throughout the workshop day, teachers discussed possible classroom interactions as they alternated teacher and student roles.
- Before leaving the session, practices were randomly assigned to teachers for use in their classroom.

Phase 3: Implementing Practices in the Classroom on a Trail Basis

- After the first workshop day, all elementary teachers taught the same content lesson, using their assigned strategy/practice for six weeks.
- Staff developers visited and videotaped classrooms and coached the teachers as needed.
- Using the videotapes, staff developers identified teaching exemplars and consolidated them onto one tape for each of the four instructional practices.
- During a second workshop day (following Phase 3), teachers were grouped across school levels by the instructional practice they implemented. In these groups, teachers engaged in self-reflection regarding their specific practices and provided feedback to their peers.
- As teachers reviewed the taped demonstrations, they shared constructive comments, personal experiences, and implementation concerns and confirmed their understanding of the use of their respective practices.

Phase 5: Implementing Instruction and Trouble Shooting

- After the second workshop day, teachers returned to their classrooms with a third set of instructional materials. Within a three-week period, teachers again taught their assigned practice.
- At the midpoint of this phase, the teachers and staff developers gathered for a whole group discussion to “troubleshoot” and offer each other further suggestions.

Figure 5. Interactive Staff Development Phases of Implementation

eotapes were analyzed by categorizing the teachers' utterances during instruction. An utterance is an independently meaningful verbalization (Carlsen, 1990; Gallego, 1989); most were shorter than a complete sentence. For example a teacher's prompt, “think about a time when we studied. . .” is an utterance consistent with the interactive principle “activating prior knowledge,” the prompt “tell me the definition” is an example of an utterance typical of the VR practice. Utterances were categorized by their association to the principles of interactive teaching or the VR practice, off-task and management utterances formed a “general” utterances category. Proportions of teaching utterances were compared for each teacher and instructional practice. Reliability was calculated for all four coders using one randomly selected 50 minute classroom video. We achieved .92 reliability by consensus in coding the utterances.

The teachers participated in an audiotaped structured interview at the conclusion of

the project. Questions prompted the teachers to reflect upon their beliefs regarding the effectiveness and usefulness of (a) vocabulary and reading comprehension practices they had used prior to our staff development, (b) their assigned instructional practice in aiding students' content understanding, and (c) ways the instructional practices might be generalized for use by other teachers and students. Teachers' responses were reviewed to identify all empirical premise statements that revealed their beliefs about interactive and verbal rehearsal practices. An empirical premise is an observable and testable explanation of a phenomenon (Richardson, 1990), these might include “review and repetition helps them remember,” or “constructing the semantic map requires students to consider how concepts are related.”

Also following phase 5, each teacher completed a five-point Likert scale survey (Miller, 1987). The survey measured their beliefs about teaching reading comprehen-

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sion and the types of practices they became familiar with through the staff development. Their responses documented their beliefs about the utility of various approaches. Each teacher rated a variety of popular vocabulary-reading comprehension instructional practices for effectiveness and usability. Ratings of 4–5 represented high, 3 signaled medium, and 1–2 indicated low effectiveness and usability. Average ratings for the two types of approaches were computed.

Findings

Teacher Practice

The effectiveness of our interactive staff development was evident in teachers' consistent implementation of their assigned practice in phase 5. Classroom observations and our subsequent review of video-taped classroom interactions revealed that all of the teachers employed instructional procedures appropriate to their assigned practice (e.g., pointing to cued terms for VR or posting the matrix during reading in the SFA strategy). The discourse analysis indicated that teachers implementing the three interactive strategies used interactive utterances at fairly consistent rates. Averages across the three strategies ranged from 38.5 to 50.2%(see Table 2). With the exception of one ISM teacher, these teachers used 8% or less directive utterances. The VR teachers most often employed utterances consistent with that approach (average: 44%), and averaged only 10 percent interactive utterances. General utterances were used at relatively consistent levels across practices. The three interactive strategies teachers used general utterances in nearly equal proportion to interactive. The lowest use of general utterances among them was by Teacher 2, who relied more upon directive-type utterances for classroom management of inattentive children (e.g., "Ana, what did we just decide [vocabulary word] means?"). The two VR teachers differed from each other in proportional use of directive and general utterances.

Teacher Beliefs

The interview data revealed that all teachers most commonly generated empirical

Table 2. Percentage of teacher language reflective of the two approaches during instruction.

By condition	Utterances		
	Inter-active	Direc-tive	General
<i>Interactive Strategies</i>			
ISM			
teacher 1	44.70	7.90	47.63
teacher 2	42.35	16.47	41.18
Mean	43.53	12.19	44.41
SFA			
teacher 3	50.20	1.11	48.71
teacher 4	41.94	8.47	49.60
Mean	46.07	4.80	49.16
SSFA			
teacher 5	43.80	7.75	48.50
teacher 6	38.50	4.49	57.05
Mean	41.20	6.12	52.80
<i>Verbal Rehearsal</i>			
teacher 7	12.33	36.30	54.45
teacher 8	7.65	51.55	40.80
Mean	9.99	43.93	47.63

premise statements consistent with interactive practices (interactive teachers = 54.13%, VR teachers = 50.76 %). These statements positively reflected one or more of the interactive principles (e.g., "activating background knowledge is essential in teaching"). There were moderate trends in proportions of premise statements reflecting specific interactive principles. "Tie new knowledge to old" (interactive = 20.62%, VR = 25%), "utilize cooperative knowledge sharing" (interactive = 22.88%, VR = 27.0%) and "justify relationships" (interactive = 27.40%, VR = 24.0%) were referenced at high rates, but teachers made the fewest references to "activate prior knowledge" (interactive = 15.25%, VR = 3.0%), "teach concepts in relation to context" (interactive = 4.80%, VR = 0), and "confirm understanding" (interactive = 5.09%, VR = 6.0%). Among the directive premise statements (interactive = 14.07%, VR = 21.83%), "supervision of application of student's new skill" was cited most often by interactive strategy teachers (41.30%), while "teach new skills directly" was cited most often by the VR teachers

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(55.81%). For general teaching utterances (interactive = 31.8%, VR = 27.41%), “provide practice exercises” was cited most often (interactive = 34.62%, VR = 29.63%), while “provide overview and directions” was least cited by both groups (interactive = 10.10%, VR = 12.96%).

The beliefs survey provided the teachers an opportunity to generalize their opinions to a broader base of reading comprehension instructional practices. Teachers from both practice conditions responded similarly. They evaluated interactive-like strategies as more effective and useable than VR-like approaches. Ratings for practices consistent with interactive strategies (4 survey items) averaged 4.2 and 4.1 on scales of 1-5 for effectiveness and usability, respectively. Practices associated with VR (3 survey items) earned lower averages of 2.3 for both effectiveness and usability. Based on the similarities in ratings, the teachers perceived the feasibility of using both approaches and their impact on students’ reading comprehension as on par.

Discussion

Teachers use verbal language to prompt students to do such things as participate, observe, provide rote answers, or offer an opinion. These utterances reflect the principles that actually define a lesson. For example, a teacher might lead a class through constructing an interactive strategy’s graphic organizer but use directive prompts that violate the seven interactive principles. We found that all teachers used language consistent with the intervention they taught. This appropriate language usage indicates that the teachers understood the principles of their interventions and knew how to apply them, and that they had incorporated them into their practices. These teachers did not merely replicate the visible behaviors of a lesson. Empirical premises that supported principles of the interactive or directive interventions demonstrated that the teachers freely generated statements that favored interactive approaches. The beliefs survey responses extend this finding. They indicated that the teachers believed in the utility and effectiveness of the interactive strategies compared to directive approaches.

Developing Change in Staff Development Models

The interactive staff development described here is in sharp contrast to traditional training models (Sparks & Loucks-Horsley, 1989). We believe that three interrelated features of the interactive staff development model contributed to altering traditional staff development relationships among the teachers and staff developers: commitment to participation, informed practice, and genuine collegiality. The interactive and sustained nature of the staff development involved the teachers in contributing, questioning, and justifying or modifying their beliefs and knowledge. Teachers’ skepticism and misconceptions were honored equally with their positive perceptions of the practices. Their need to understand the practices by experimenting with them provided opportunities to modify both the practices and their thinking about them. Opportunities for experimentation with the instructional practices enabled them to benefit from informed feedback from colleagues and to engage in self-reflection (Sparks, 1995; Wise, Spiegel, & Bruning, 1999). Thus, their commitment was sustained by the interrelationship of informed practice and collegiality.

Our approach to staff development made the variability in teachers’ beliefs and practice explicit through open discussion. This variability was instrumental to group discussions, and was capitalized upon to modify the practices. The staff development discussions generated trust and built relationships among participants. Such opportunities are germane to teachers’ successful development. As teachers surveyed by CEC indicated (Coleman, 2000), teachers value each other as experts with knowledge and information to share (Loughran, 1994). In this project, the aim was for teachers to view the staff developers as collaborators, not as authoritarian leaders. In such contexts participants are more willing to experiment with new approaches (Petersen, 1991). The interactive features of our staff development enabled teachers to learn the technical aspects of a new practice by engaging in practice, reflecting and experimenting in collaboration, and being supported in fitting the new practice

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into their classroom routines (Gersten et al., 2000; Gore, 2001).

Implications for Teacher Education and Staff Development

We reported evidence to support a theoretically-derived staff development model. The process was developed based, in part, on a history of effective staff development practices. While certainly the Interactive Staff Development model could be replicated, it also provides insights into effective practices that could be incorporated into other staff development models. Readers are encouraged to consider which aspects of our process would be appropriate to their staff development contexts and how to best make use of them. Our research questions, data and analysis were matched to our staff development intentions and the model's design. Replication or borrowing from this model could never just be assumed as successful because of what we found, evaluation of both process and outcomes should be a standard part of any implementation.

The theory and research that inspired our staff development model supported incorporation of the interactive principles (Bos & Anders, 1990). Our findings validated their utility in this staff development. Interactive approaches are not the only ones that can work in staff development, but they are appropriate when shared development and alignment of teacher beliefs and practices is desired.

Finally, our process was matched to the instructional practices shared. The contexts of teacher education programs and staff development opportunities often wrongly constrain the teacher learning process (Sparks & Louchs-Horsley, 1989). Aligning theory and practice is critical for success (Bos & Anders, 1990), therefore so is aligning the staff development process with the practices it is designed to share. The effects of the mismatch of the model and VR was evidenced by lower teacher confidence in that approach, despite it too having support in theory and research. A different staff development model would likely better suit VR. Our teachers experienced the interactive process, they in turn implemented interactive strategies with fidel-

ity, deep understanding and desire to use them in their practice. Teacher are learners in staff development, no matter the contextual realities, the process cannot neglect that role.

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