A study in two El Paso (Texas) elementary school two-way bilingual education programs investigated factors in learning through first and second language, analyzed teacher development in a context of complex change, and identified promising school structures for collaborative professional development for these teachers. Of the 24 participating teachers, 12 from each school, half were bilingual (Spanish-English) and half were English monolingual. Classes were team-taught. All were observed monthly by trained observers; six of them were observed all day for an entire week. All were videotaped for an hour at randomly-selected times, and observed once a month during professional development sessions. Teachers also responded to an essay-type questionnaire asking them to elaborate on their teaching practices, team-teaching experiences, and overall problems and successes. Teachers all commented that the team teaching situation, with one monolingual and one bilingual teacher, offered new opportunities for personal and professional growth. Structures for the teams' development provided opportunities to learn collaboratively, including role-playing, peer coaching, classroom ethnography, and curriculum writing. The locally-constructed professional development program was found to be an effective structure for needed change. (MSE)
Dual Language Programs and Team-Teachers' Professional Development

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Site-based decision-making has enabled schools like Rivera and Rusk elementary schools in the El Paso Independent School District to implement two-way bilingual programs where minority and majority students can become truly bilingual, biliterate and bicultural. This more holistic aspect of bilingual program implementation has dropped such notions as "when to transition from one language to the other," "when students should exit the bilingual program," and "how to conform to district policies on curriculum and academic accountability." Teams of teachers and administrators in these progressive schools have found ways to develop student centered programs which are integrated with whole-school efforts to improve and enrich instruction for all students.

The students we are preparing along the U.S. and Mexico border must be able to manage complexity, find and use resources, and continually learn new technologies, approaches and occupations. In contrast to the low-skilled assembly lines of the past, and today's maquiladoras (twin plants), tomorrow's work sites will require employees to frame problems, design their own tasks, plan, construct, evaluate outcomes and cooperate in finding novel solutions to problems. Since these students live in bicultural or binational communities they must also understand and evaluate multidimensional issues that will constantly impact their bilingual society.

For these reasons, a quality instructional program must ensure that all students learn to think critically, invent, produce quality products, and solve problems. This complex instruction requires that teachers combine a profound knowledge of subject matter with a wide repertoire of teaching strategies, state-of-the-art knowledge about learning theory, cognition, pedagogy, curriculum, assessment, and ample knowledge of the students' language, socio-cultural and developmental background.

Because this teaching goes beyond the standard teacher-proof curriculum and traditional bilingual teaching, teachers must now undertake tasks they have never before been called to accomplish. As two-way bilingual or dual language programs begin to flourish throughout the nation, special care must be taken to give the teachers in such programs support, freedom and resources to do their job well. This paper focuses on ways we have helped teachers construct
their own professional development through an array of learning opportunities that engage teachers in experiencing what their students experience, analyzing and solving real problems, sharing and collaborating with others.

Recent research on language minority students which focuses on learners and on the interaction between teachers and learners (García, 1991; Tharp and Gallimore, 1991; Goldenberg, 1991; Duran, 1992; Prado-Olmos, 1993; Pease-Alvarez, 1993, and others) has given educators new ways of implementing programs. These researchers have focused on the developmental aspects of learner language, learning and teaching, the classroom interaction that takes place between learners, and the effect of this interaction on learner language development. This classroom-oriented research, and a myriad of existing studies on second language acquisition was the foundation of the dual language program implementation and five-year study. The study is threefold: (1) it seeks to identify the pedagogic variables that facilitate or impede learning through a first and second language simultaneously; (2) to analyze teacher development in the context of implementing complex change; and (3) to identify the most promising school structures for collaborative professional development. This paper focuses on the teacher development through peer ethnographies.

Background of the Study

El Paso has a population of 750,000 and is the largest city on the Texas-Mexico border. The El Paso Independent School District, the largest in the city, has a student enrollment of 64,859 including an Hispanic population of 46,698 and 14,917 limited English Proficient. According to the National Clearinghouse on Bilingual Education, El Paso ranks 13 in a list of 20 school districts with the largest numbers of enrolled LEP students.

The dual language program is being implemented and studied in two elementary schools, K-5. The two-way bilingual classrooms reflect the ethnic and language make-up of the community. Classes at each grade level include approximately 15 Spanish-proficient and 15 English-proficient students.
At each grade level, instruction during the day occurs 50% of the time in English and 50% in Spanish. Therefore, students are placed in cooperative learning teams of four, where two are the Spanish experts and two are the English experts.

This configuration enables the Spanish proficient students to learn English through extensive interaction with English role models and without lagging behind academically. It also provides opportunities for native English speakers to learn all subject matter in Spanish, and become proficient in the second language of the community. Students are taught to work together in a mutually supportive environment. Their curriculum is based on team inquiry, Group Investigation and Cooperative Integrated Reading and Composition (Hertz-Lazarowitz & Calderon, 1992; Stevens, R.J., Madden, N.A., Slavin, R.E., & Farnish, A.M., 1987; Calderón, 1994).

Each class is staffed by two teachers who collaborate in the teaching process, one is bilingual and one is monolingual. The curriculum centers on global questions such as “What is the significance of man's contributions resulting from the exploration of the universe?” This becomes the catalyst for multiple lines of inquiries related through a common theme. All subject areas are taught through these themes and lines of inquiry. Literature in both languages becomes the vehicle for learning to read, write and express thoughts and ideas (please see Appendix A).

The teachers are free to choose what they will teach in Spanish and what they will teach in English each day, as long as they keep the 50-50 balance. They might teach an integrated math and science segment in Spanish to be followed by a related social studies problem in English. Some weeks, the students start out most of the day in one language, but the percentage evens out as the week progresses. The two teachers use one classroom for teacher directed instruction and cooperative learning, and the other for computers and learning centers. While one teacher is conducting direct instruction, the other is actively facilitating group work or monitoring.

The organizational structures of the schools are characterized by broad participation in decision making by the teachers. They write and update their curricula in the summers, they
make decisions about grading, reporting grades, parent involvement, and all the main issues that impact their daily lives. Appendix B summarizes the philosophy and structures espoused by the program participants.

Methodology

The participants in this portion of the five-year study are 24 teachers from two schools, twelve from each school. Half are bilingual and half are monolingual. All bilingual teachers are Hispanic; all monolingual teachers are Anglo.

The 24 teachers in the study were observed all day, once a month by trained observers. Six of the teachers were observed all day, for a whole week. All teachers were arbitrarily video taped for an hour at randomly selected times during the day. The teachers also responded to an essay-type questionnaire asking them to elaborate on their teaching practices, team-teaching experiences, and overall problems and successes. The group of teachers was also observed once a month during their two-hour Teachers Learning Community sessions.

Results

The team teaching situation of one bilingual and one monolingual teacher has for the most part enabled accelerated teacher development. Unanimously, teacher teams report that working together offers new opportunities for personal and professional growth. Some of the comments about their collaborative teaching reaffirm that team teaching facilitates:

1. development of an extensive teaching repertoire,
2. easier lesson planning, "the fun of planning,"
3. enhanced and enriched lessons because two heads are better than one.
4. confidence in inventing and experimenting together,
5. the comfort of sharing of learning, of successes and failures,
6. positive feeling toward change, "it seems easier to pick up and change,"
7. a positive and uplifting outlook on children,
8. a spirit of cooperation and mutual support.

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9. giving up textbooks and workbooks with joy.
10. feeling of security that the other teacher is there.
11. learning to communicate with peers.
12. complimenting each other to achieve a more holistic instructional program.
13. not only self-esteem for the Spanish-speaking child, but for the bilingual teacher.
14. confirming or dispelling assumptions about individual student needs.
15. having someone there to clarify, reiterate, monitor, assist -- two extra hands, eyes, etc.

The structures for the teams’ development consisted of a combination of opportunities to learn collaboratively. We know from previous studies that teachers like to learn much the same way that students like to learn: through active participation in workshops, not just passive listening, where their background and talents are used to build collective knowledge through discovery, inquiry and ample discussions of why, how and what if, by having fun and sharing new learning discoveries with others.

There were the usual ten days of workshops on curricular, pedagogical and assessment approaches. The workshops provided theory, demonstrations in Spanish and English, and time for debriefing and reflection after each demonstration. However, the follow-up to each of these was more complex and comprehensive.

In planning the follow-up, teachers were asked to take on the roles of peer-coaches, classroom ethnographers, trainers of other teachers, and curriculum writers. At the same time, they were assured that much of the work would be done during school hours, except for the Wednesday evening Teacher Learning Community (TLC) sessions once a month.

The emphasis on these new roles created new tasks and other ways of looking at their daily routines. For example, the process of peer coaching took on a new veneer in comparison to other peer coaching projects conducted in other programs because ethnography was introduced from the onset. Simple techniques were demonstrated so they could practice and experiment in their classrooms. Each teacher was to do a mini-ethnography while the other was teaching.
They would analyze and discuss the data together, and derive implications. They practiced observation skills, note-taking and analysis, and brought back samples for discussion to the TLC meetings.

These samples were brought back as simple case studies of what occurred during a 30 to 90 minute segment. These case studies were rough and concise but they gave teachers a point of departure for further study and refinement. The case studies were written mostly in English. Monolingual English teachers had no problem identifying participant structures or key events in a teaching/learning segments even though the instructional conversations were conducted in Spanish. Below are four examples that generated a lot of discussion at the TLCs.

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### A TWO-WAY BILINGUAL CLASSROOM #1

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:20</td>
<td>Math review - 100s</td>
</tr>
<tr>
<td>8:35</td>
<td>Math new instruction - 1000s</td>
</tr>
<tr>
<td>8:50</td>
<td>Math in Presidential Unit - in teams of four</td>
</tr>
<tr>
<td></td>
<td>- research questions on presidential facts</td>
</tr>
<tr>
<td>9:05</td>
<td>Explanation of how to work together on these story problems</td>
</tr>
<tr>
<td></td>
<td>- students begin their work</td>
</tr>
<tr>
<td>9:15</td>
<td>Review of organizational strategies for more effective work</td>
</tr>
<tr>
<td>9:28</td>
<td>Students begin work again</td>
</tr>
<tr>
<td>9:40</td>
<td>Reality check “Who’s finished?” “come help this other team”</td>
</tr>
<tr>
<td></td>
<td>“You have 10 more minutes”</td>
</tr>
<tr>
<td>9:50</td>
<td>Students finish, put work away.</td>
</tr>
<tr>
<td></td>
<td>- Potty break for everyone</td>
</tr>
</tbody>
</table>

### A TWO-WAY BILINGUAL CLASSROOM #2

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:55</td>
<td>Students come back in and immediately start reciting English poem from last week with one teacher while the other distributes reading material and questions for next instructional event.</td>
</tr>
<tr>
<td></td>
<td>- students practice choral reading (first boys, then girls, line by line, one soft, one loud).</td>
</tr>
<tr>
<td></td>
<td>- teacher asks how students “feel” about this poem. Seven students quickly share.</td>
</tr>
<tr>
<td>10:00</td>
<td>Students recite last week’s Spanish poem. (there’s a chart with reward points for individuals who have memorized the poems).</td>
</tr>
<tr>
<td>10:05</td>
<td>“Compañeros juntos por favor” sends students to quickly pair up for reading.</td>
</tr>
<tr>
<td></td>
<td>- following the presidential theme, booklets about Lincoln become the reading selection in Spanish. (there’s a table with other books, booklets, etc. about presidents in Spanish).</td>
</tr>
<tr>
<td>10:06</td>
<td>Partner reading is fluent, interactive, helpful, on task.</td>
</tr>
<tr>
<td>10:16</td>
<td>“Vuelvan a su lugar” Mapa del cuento</td>
</tr>
<tr>
<td></td>
<td>- students are to map four important events in Lincoln’s life.</td>
</tr>
</tbody>
</table>
-teacher explains the task and interacts with students for understanding.

10:35  Students begin work.
10:40  Teacher redirects teams by talking about strategies for organization.
10:45  Students go back to work.
11:00  Teachers check work by teams. Bilingual teacher checks sentences to describe each event. Team teacher checks product and process.
11:55  Large maps have been constructed and students are getting ready to present them to the class, after they return from lunch.

A TWO-WAY BILINGUAL CLASSROOM #3

8:55  Teacher reads a poem. Then she says it's really a song.
       "What character does this remind you of?" triggers opinions about other fiction and real life characters.
9:00  How would you read the part "..." helps students get into the rhythm.
       -students go through poem and find rhyming words at end of lines.
9:05  "Let's check for comprehension" guides students to tell about their own similar experiences.
9:10  "Line up if you can sing the line after my line" The teacher selects lines scrambled throughout the song. She sings the first line and the team has to sing the second line in unison. Systematically, team by team lines up to go to PE.
9:15  Students are out the door. Teachers place materials on tables for next activity.

A TWO-WAY BILINGUAL CLASSROOM #4

10:05  Morning message: Tengo unos errores aquí, ¿quién los encuentra? (whole-class)
10:25  Basado en la canción de esta mañana. ¿qué podría recibir el niño para navidad?
       -brainstorming and speaking of students ideas follows.
10:30  Read the sentence strips in pairs and draw a picture about what those sentence strips describe. (work in pairs)
10:52  Students hand drawings to teachers and they post in sequence on a long bulletin board. The pictures from the book have been xeroxed and are also placed side by side with the students' drawings. (Students sit on the floor and chairs facing the bulletin board. Students go up, one at a time, to describe what they drew).
11:08  Teacher reads the whole story.
11:18  Students are asked to write a song about the same topic.

After sometimes heated discussions of the implications, and at other times embarrassing silence, teachers working in teams of four organize their thoughts and opinions into a framework for follow-up study. The following outline is the result of the heated discussions on the four case studies:
Teacher Recommendations After Analysis Of Vignettes:

A. Analyze the academic objective and outcome of the lesson
   1. Does the product reflect ample learning of an academic skill?
   2. What other strategic learning skill have students learned?
   3. What was the linguistic learning?
      The reading? The writing? The content?

B. How much time do teachers spend on
   1. Explanations of the task and procedures?
   2. Correcting task and procedures or re-explaining?
   3. Doing too much for the students?

C. How much time do students spend
   1. Drawing?
   2. Making products?
   3. Writing?
   4. Reading?
   5. Teaching and learning?
   6. On the computer?

D. What is the status of L1 and L2?
   1. How much time is spent in Spanish in a week?
   2. How much time is spent in English in a week?
   3. What is taught in Spanish?
   4. What is taught in English?
   5. How do students react to either one?
   6. How are we improving on a week by week basis?

E. How’s our team teaching?
   1. How do we orchestrate our roles for each teaching event?
   2. Who was on stage more this week?
   3. How does the team teacher assist? Let me count the ways.
   4. What does the team teacher really do when the other is on stage?
   5. How can we balance or improve our team teaching?

As time progressed, their observation and analysis skills became keener. With practice, their observations became more focused and more profound. This enabled them to feel more confident about rewriting their curriculum, adjusting teaching practices, revamping their assessment and grading systems altogether, and inventing very effective parental engagement strategies. The peer ethnographies also gave them greater insights into the micro aspects of program implementation. These insights were integrated into the workshops they designed to train other teachers getting ready to implement dual language programs in the district. Some of
the outcomes that teachers themselves identified were:

* Further development of dual-language instructional skills for both teachers,
* Emerging biliteracy skills for monolingual teachers,
* Renewed energy and perspective on teaching,
* High spirit of innovation, inquiry and research.
* High level of collegiality and team teaching effectiveness.
* Majority of teachers to pursue graduate degrees.

Implications

By creating a culture of inquiry through ethnography, professional learning was accelerated. With the tools of "teacher ethnography" the teams of monolingual and bilingual teachers drew closer together. They learned by observing children and their partner. And, their partner provided a mirror for their teaching. Change became meaningful, relevant, necessary and fun to live with. The continuous learning, in turn, brought about instructional program refinement.

Today, most staff development programs seem to have moved from one-shot workshops to eight-day shot workshops which still focus too much on skill and bag of tricks, are typically transmission models rather than constructivist, ignore individual teacher's needs, ignore the context and diversity of the classrooms, and offer minimal support to teachers. The limitations of the typical staff development programs were eliminated by the teachers themselves in this study. After continuous analysis and problem solving attempts, the teachers knew what they needed to learn. An array of possibilities was then offered to them to obtain that learning.

The TLC structures gave teachers opportunities for collaborative reflection and opportunities to fashion new knowledge and beliefs about their students, their teaching and their own learning. The ethnographies created a cycle of observation and analysis of concrete teaching tasks, reflection, readjustments, and a search for new learnings. This cycle might resemble the typical peer coaching cycle of pre-conference, observation, analysis, post-conference for feedback, but it went far beyond that. Most peer coaching programs do not last
very long because of the limitations imposed by their narrow connections to skill development. The peer coaching by these teams, already in the process of comprehensive change, became the vehicle for all the changes teachers discovered that needed to be made.

The locally constructed change process was by no means devoid of current information on theory and practice on the multiple issues impacting two-way bilingual programs. The program organizers see state-of-the-art knowledge as a foundation of all reflection and learner-centered activities. The district's goal to implement an excellent dual language program linked the professional development to a higher purpose. The school principals are actively engaged and participate in all the TLC activities, workshops, and parent involvement sessions so they can be sensitive to the teachers needs and adjust the support systems.

As the project progresses to the end of the school year, and standardized student achievement results arrive, teachers are gearing up for "whatever comes." They reaffirm that their students "have learned a lot this year, just like us."
DISCOVER NEW FRONTIERS
SPACE EXPLORATION
Grade 5
EL PASO INDEPENDENT SCHOOL DISTRICT
ACCELERATED SCHOOLS PROGRAM
FOR REGULAR & BILINGUAL EDUCATION

Mathematics
- Use measurements and graphs to conceptualize solar system and outer system.
- Make a 3-D display of solar system using model system.
- Graph results of student survey on possible life in outer space.
- Figure average diameters of planets.
- Write own story problem about space.

Language Arts
- Use poetry and fiction to synthesize knowledge about outer space and past, present, future pioneers.
- Read poetry and write own poem using different formats.
- Lit Study: Fallen Spaceman
- Design a missing alien report on character in book.
- Create story web.
- Write a persuasive letter.

Social Studies
- Examine Modern day and Past explorers.
- Compare and contrast past and present explorers write persuasive paper supporting why required more courage.
- Create an explorer, describe, illustrate, give characteristics.
- Creative Writing: If you could have gone with one of the explorers - which would you choose and why?

Science
- Become expert on one planet.
- Study a planet with team and write a short report and a map to present.
- Learn poem about planets: focus on order. Relate it to 3-D model.
- Use planet learning log to record information about planets.
- Design moon calendar and plot phases.

Fine Arts
- Express concepts about space through Fine Arts.
- Design a creature that could survive in planet of choice.
- Develop and present dramatization on solar system.
- Design travel postcards & brochures for your planet.
- Choral Reading.

Learner Outcomes
- Recognize and appreciate various forms of literature.
- Speaks to an audience for a particular purpose.
- Gather, organize, and graph data.
- Apply measurements and rounding techniques.
- Use the Writing Process.
- Analyze the importance of early European explorers.
- Get a better perspective of man's relation to and position in the universe.

* Major Learning Objective
Appendix B

BUILDING BILINGUAL SCHOOLS

1. TWO-WAY BILINGUAL PROGRAMS

- It is an enrichment program for all students rather than a compensatory education treatment for LEP students.
- Language minority students become literate in Spanish as well as in English.
- Monolingual English speakers become literate in English as well as in Spanish.
- It provides access to equal quality education in all subjects to all students.
- It develops better relations between two linguistic communities and positive attitudes toward the two languages being learned.

2. HIGH QUALITY BILINGUAL INSTRUCTIONAL DELIVERY

- Teachers' high level of Spanish and English proficiency.
- Team-teachers' ample repertoire of interactive teaching models such as inquiry, Concept attainment, the Bilingual Cooperative Integrated Reading and Composition, and Group Investigation.
- Team-teachers' high level of knowledge, sensitivity, and appreciation of students' culture.
- Teachers' willingness to continue to learn, study, experiment, and improve instructional practices.

3. HIGH QUALITY BILINGUAL CURRICULUM

- Instruction in English and Spanish through interdisciplinary thematic units across languages.
- Language is acquired through authentic use of language fostered by concept development, concept formation, inquiry, discovery and a myriad of cooperative learning methods.
- High quality children's literature in both languages.
- Literacy skills are developed through literature-based cooperative integrated reading, discussion, cognitive mapping and writing/publishing activities.
- Minority students' culture and history are taught through integrated units.
- Computer literacy is developed by using computers in all subject areas for skill development, content exploration, research, and creative projects.

4. REQUIRED BILINGUAL CLASSROOM STRUCTURES

- Comprehensive blocks of time for integrated subject matter.
- Equal time to content in both languages at all grade levels.
- Heterogeneous grouping of Spanish and English proficient students in cooperative groups.
- Team-teachers conduct joint instruction at all times in one classroom, while the other classroom is equipped as the computer lab and learning centers.
- A variety of alternative assessment processes are used to observe and analyze student learning, instructional delivery and curriculum articulation.
- Students' positive self-esteem is developed through a supportive and highly cooperative learning environment, high expectations, challenging tasks, involvement of their parents.

5. SCHOOL STRUCTURES

- Quality and equality in all aspects of the program.
- Program is instituted at all grade levels.
- Comprehensive staff development program processes in both languages (presentation of theory, demonstration, practice, feedback, curriculum, peer-coaching, etc.)
- Implementation of peer coaching. Teachers attend ongoing workshops on peer-coaching, and they practice it on a systematic basis.
- Comprehensive staff development program content (first and second language acquisition theories and practices, culture, history and values of the students, extensive repertoire of teaching strategies integrated with alternative assessment strategies.
- Comprehensive staff development program on implementation of change (systems thinking, building communities of learners, restructuring schools, Accelerated Schools philosophy and collegiality models).
- Principals, district resource teachers, and bilingual director participate in all staff development sessions.
- Collaborative decision-making by district bilingual director and resource teachers, school principals and teachers, university faculty, consultants, and parents.
- Teachers have their Teachers Learning Community (TLC) sessions where they construct their own learning experiences, work on the things they want to work on and plan professional development activities.
- Pre- and post-data are collected on student and teacher development.
- Curricula is revisited during summer teacher-work sessions.
- Teachers receive university credit for year-long learning.
- Traditional teacher appraisal systems are waived to empower teachers to construct their own professional growth.

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