

Enhancing Content Areas Through a Cognitive Academic Language Learning Based Collaborative in South Texas

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Abstract

This article describes the implementation and assessment of the Content Area Program Enhancement (CAPE) model. Based on the Cognitive Academic Language Learning Approach, CAPE fosters a collaborative environment among teachers, administrators, and practitioners to improve instruction and achievement for English language learners. Specifically, the CAPE implementation in a predominantly Hispanic school district in south Texas is examined in terms of program goals, instructional support, administrator and teacher program critical assessment, and student assessment through the Texas Assessment of Academic Skills, a high-stakes, state-mandated test. The CAPE approach was found effective with English language learning students, including those who were at-risk of dropping out of the school. Through several paired-samples t-tests on the students' reading and mathematics Texas Learning Indexes, the program was found to improve the student scores in both domains. The research also confirms that school commitment to improve their teacher instructional approach was crucial to the success of program implementation.

Introduction

The purpose of this article is to describe the implementation and assessment of the Content Area Program Enhancement (CAPE) model. The main concern for the program was to find an instructional approach that increased English language learning (ELL) students' chances of academic success. Finding such an instructional approach is paramount because the number of ELL students continues to increase nationwide and their academic performance to decrease. According to a survey of state education agencies conducted by the National Association for Bilingual Education (NABE) for the Office of Bilingual Education and Minority Languages Affairs (OBEMLA),

the total number of ELL students enrolled in public and non-public schools reached 3,184,696 students in the 1994–95 school year, a 4.8 percent increase from the previous year. According to the same survey (Macías & Kelly, 1996), Texas has the second largest enrollment of ELL students in the country. There were 514,139 ELL students enrolled in Texas public schools in 1996–97, or 13% of all the students in the state. The Texas Education Agency (TEA, 1999) also reported that 11.9% of the state students participated in bilingual or English as a second language (ESL) programs. This amounted to 463,134 students for the school year 1997–98, when the study started. This percentage has been increasing steadily to 12.1, 12.5, and 12.6 percent for school years 1998–99, 1999–2000, and 2000–01 respectively (Texas Education Agency, 2000; 2001; 2002).

An analysis of the Texas Assessment of Academic Skills (TAAS), a high-stakes, state-mandated test, shows that the gap between the percentage of ELL students that passed the test and that of non-ELL passing increased with the grade level (TEA, 1998). At the secondary level, the gap ranges from 42 percentage points to 48 percentage points in sixth and tenth grades, respectively. Likewise, the percentage of ELL students passing the 1997 TAAS decreased markedly as these students progressed through the grade levels. Thus in the third grade, 60% of ELL students passed the test compared to only 22% in the tenth grade. These findings suggest a systematic weeding out of ELL students from the educational system. This weeding out is in part the result of schools not meeting the ELL needs (Green & Solís, 1997).

Part of the problem, as reported by the TEA (1998), is a severe shortage of bilingual and ESL certified teachers, from kindergarten to the twelfth grades. Seventy-four districts reported needing more than 2,000 additional bilingual/ESL teachers. In a teacher demand survey for school year 2001–02 prepared by Texas A&M University's Institute for School-University Partnerships, the greatest teacher needs were in the areas of elementary bilingual/ESL education with 2,906 teachers (Institute for School-University Partnerships, 2002). The study also found acute demands for secondary content area teachers for mathematics (2,508) and science (2,191), and for special education teachers in elementary (2,267) and secondary (2,273) schools. State policy requires districts to assign bilingual/ESL teachers to the lower grades when there is a shortage. As a result, higher-grade instruction for ELL students is inadequate in many school districts. Through a variety of instructional supports, CAPE attempted to help ameliorate this problem.

The CAPE Model

The CAPE program is a collaborative between the Intercultural Development Research Association (IDRA) of San Antonio, Texas, and a predominantly Hispanic (96%) school district in South Texas. In this district, one of every four students enrolled is ELL and virtually all (93.4%) of its more than 14,000 students are economically disadvantaged.

In 1997, IDRA was awarded a Title VII grant to implement CAPE. CAPE sponsors a teaching training program based on the Cognitive Academic Language Learning Approach (CALLA). CAPE training was designed to meet the needs of ELL students at the intermediate grade levels. CAPE focuses on using learning strategies in cooperative settings to accelerate the acquisition of both language skills and academic content. Based on the work of Cummins (1980; 1981) and Collier (1987; 1989), CALLA is supported by a strong research base in the areas of cognition and metacognition (Anderson, 1976; Gagné, Yekovich, & Yekovich, 1993.) and second language research (O'Malley, Chamot, & Küpper, 1989; Chamot & O'Malley, 1994; Chamot, 1995). According to this research, CALLA can help to meet the academic needs of students who (a) have English communicative ability, but who find it difficult to use English as a tool for acquiring academic content; (b) have acquired academic concepts in their native language, but who need help in transferring them to English; or (c) are English dominant bilinguals and have not acquired academic language skills in their home language.

From our knowledge of the students and their community, we believed they met one or more of these conditions. Therefore, we hypothesized that this approach would be beneficial to improve their English language skills and their content area knowledge, which would be manifested in better academic performance.

When the CALLA pedagogy is applied, the classroom looks very different from the traditional model, both physically and behaviorally. In a traditional classroom, the teacher tends to lecture continuously while the students follow the explanations and occasionally participate and respond to questions, the answers to which the teacher knows. Students sit in the traditional, aligned row arrangement. The teachers might require some individual reading, but there is little educational interaction among the students themselves. Interactions tend to be non-educational and render students out of task.

In a CAPE classroom, the teacher used cooperative learning structures to increase motivation and facilitate class management. Interactions among students were educational and part of the class structure, as they sat in groups to work on projects or solve problems collaboratively. Content is addressed, particularly those pertaining to the Texas Educational Knowledge and Skills (TEKS), but the teacher also explicitly taught at least one CALLA learning strategy, either cognitive (resourcing, grouping, note-taking, elaboration of prior knowledge, summarizing, deduction, induction, imaginary, and making inferences) or metacognitive (organization, planning, selective attention, self-management, self-assessment). This helps students understand their own learning process. The class begins and ends with students assessing their own learning, both their learning strategies usage and content area knowledge and skills. Students are engaged in active listening, speaking, reading, and writing, and these activities are appropriate for their individual language skills level. Finally, the teacher explicitly acknowledged and honored students' life

experiences and cultural backgrounds. The benefits of these student-centric approaches have been documented in practical and theoretical ways (Montes, 1996; Montes, 1997; Green, 1997; Cook, 1999). Table 1 outlines the anticipated changes in instructional practices once the CAPE approach is adopted:

Table 1

Anticipated Changes in Instructional and Assessment Practices

Before CAPE	After CAPE
None or limited assessment of prior knowledge when beginning instruction	Assessment and activation of prior knowledge when beginning instruction
Indirect or no instruction on cognitive and metacognitive learning strategies	Direct instruction on cognitive and metacognitive learning strategies
Teachers evaluate student progress	Teachers and students evaluate student progress
Expectations for student learning are <i>hidden</i>	Expectations for student learning are made <i>clear</i>
Evaluation of content area knowledge is <i>confounded</i> by language proficiency	Evaluation of content area knowledge is <i>kept separate</i> from language proficiency levels
Oral and written language issues relevant to content area knowledge and skills are <i>ignored</i>	Oral and written language issues relevant to content area knowledge and skills are <i>identified and incorporated into instruction</i>

CAPE Instructional Support

Structurally, the project required that the teachers be organized in teams and worked collaboratively throughout the year. This cooperative setting emulated the way teachers were expected to organize their own classrooms. In each school, CAPE teachers teamed with colleagues from their own grade level to apply the CAPE strategies, review their effectiveness, and for mutual support. Teachers from all content areas, including mathematics, sciences, social studies, and language arts, participated in both the program and comparison groups. CAPE was designed to support teachers to fully re-structure their classrooms to make them more effective; no paraprofessionals were involved in the CAPE project. Some teachers were bilingual, but most were English monolingual. This is a reflection of the bilingual teacher shortage explained in the introduction section above. Therefore, all training was conducted in English, although the trainers themselves were bilingual and provided any additional bilingual support the bilingual teachers needed.

The CAPE collaborative afforded targeted instructional support in three distinct formats. First, all CAPE teachers participated in monthly in-service interactive training sessions conducted in a central district location. During these daylong sessions, the teachers were exposed to the CALLA strategies, interdisciplinary unit planning, and the usage of technology to support the development and delivery of CAPE-based lessons. The emphasis was on the instructional strategies, but these strategies were brought alive with practical examples from the various content areas. A relevant aspect of the CAPE training was that it took the conceptual models out of their abstraction and demonstrated practical techniques that could be immediately applied to the classroom. These practical techniques are relevant to all content areas and can be grouped in three general language skill areas essential to all students but crucial for the ELL students: vocabulary development, reading comprehension, and writing. For vocabulary development, some of the techniques used included: definition diagonals, word and concept maps, and semantic feature analyses. For reading comprehension, techniques included: anticipation/reaction guides, book talk, know/want to know/learned plus (KWL+), question/answer relationships (QAR), and reciprocal teaching. For writing, techniques included: leaning logs, t-list notes, role/audience/format/topic (RAFT), and four-step summary. These techniques have been documented in the general literature. See, for example, Parks and Black (1992), Kagan (1999), Buehl (2001), and McLaughlin and Allen (2002).

Second, each teacher participated in seven classroom demonstrations throughout the school year. All the CAPE teachers in a school attended the demonstrations in that school. During these demonstrations, program staff showed teachers how to use the strategies studied during the in-service workshops, using actual classroom activities with teachers' own students. A standardized process was followed in conducting these demonstrations, which included prior classroom preparation, actual demonstration, and post demo debriefing. Standard prior classroom preparations are all the activities the host teacher would do before the demo, including providing the project staff a list of knowledge and skills being currently worked on in the class, informing students of this special activity, making appropriate arrangement in the classroom including grouping the students in teams of four, providing name tags, and adding appropriate seating for the guest teachers. The demos lasted one hour and a half or one class block period. The post demo debriefings were conducted with all the school CAPE teachers following the demonstration during the teams' planning period. The main goal of the debriefing was to analyze the lesson so that teachers could adapt it for their own classrooms regardless of the content area. During each debriefing, for one hour and a half of guided discussion, the teachers engaged in addressing questions such as, "What were the lessons objectives?" "Which content area, language, and learning strategies were taught?" "What was the most interesting part of the lesson?" "What was the most challenging part?" and "How could you modify

the lesson for your subject area and students?" This iteration of in-service training and classroom demonstrations recurred throughout the school year.

Finally, once a year, a weeklong summer institute was conducted. The institute was an opportunity for the teachers to review in a relatively short time the CALLA strategies sponsored by the program, reflect about the progress made so far, and plan for the next year's activities. In a retreat-like atmosphere, teachers focused on learning effective ways to meet the needs of ELL students. There were important theoretical reviews, but the emphasis was in practical methodologies. Teachers spent a substantial portion of the institute creating, demonstrating, and receiving feedback for a model CALLA lesson. Teachers would then take this lesson with them and adapt it to their own subject area and students. The institute also had a strong emphasis on technology. Teachers learned to use technology to obtain materials and to create and organize their own classroom lessons. At the end, teachers left the institute with folders of paper and electronic materials of their own creation that gave them a head start for the next school year.

The Students

The students in this school district correspond to the usual profile of students in high poverty and high minority communities. Out of the 1,603 students participating in this study, including the program and non-program classrooms, 1,554 were Hispanics (96.9%), 25 were African American (1.6%), 21 were White (1.3%), and three were Asian or Pacific Islander (0.2%). About 94.9% were economically disadvantaged, and half received free or reduced-price lunch. The students were equally distributed by gender: 51.6% male and 48.4% female. These students were born in the United States or have been here for many years. Only 1.6% were categorized as migrants in their school records. The most recent immigrants have been in the American education system for at least three years. For the most part, the students come from a community where Spanish is spoken regularly by its older members and most recent immigrants. However, the majority freely code switch between English and Spanish, and its younger members, including most of the students, tended to prefer English.

These students attended three similar schools serving the same Hispanic community. About 40% attended one school and 30% attended each of the other two schools. They were sixth- (9.2%), seventh- (46%), and eighth-grade (44.8%) students. When the students first entered the district, they were assessed to determine whether they needed additional language support in English, in accordance with House Bill 72 of the 1984 Education Reform Law in Texas. The identification, assessment and placement process included oral and written tests prescribed by the district. This process and its associated tests are similar to other processes in schools in Texas and other states with high percentages of similar populations. In our sample, 17.2%, or 277 students (out of the 1,603) were found to be in this group, which we called English

language learners (ELL). Most of these students (88.4%) were enrolled in ESL classes. Only two, or .7%, were enrolled in gifted and talented classes, compared to 8.9% for the complete study sample.

School staff also make a determination of whether students are at risk of dropping out of school, so that additional academic and non-academic services can be targeted to increase their chances of remaining in school and graduating. Factors considered to make this determination include: in-grade retention, low academic performance, low English proficiency, teen pregnancy, early parenthood, homelessness, and a history of disciplinary or legal misconducts. About two-thirds (66.9%) of the students in our study, in both program and non-program classrooms, were at risk of dropping out of school.

As can be inferred from the above description, the group with the most need includes students who are both ELL and at risk of dropping out. There were 211 students, or 76.2%, of the ELL students in this group. This grouping is important for this research because the schools use these categorizations to provide students needed additional academic and non-academic supports. As a consequence, the results from this research can be immediately useful to the schools and have national implication for addressing the academic needs of these populations in other contexts, since similar processes are followed throughout Texas and other states with similar populations in an attempt to ensure equal educational opportunity to all their students.

Research Design

In 1998, IDRA was awarded a Title VII bilingual education, field-initiated research grant to assess the degree to which classrooms using CAPE provided more appropriate instructions for ELL students than non-CAPE classrooms as measured by the student performance. Thus the main question investigated was, did participating in CAPE classrooms improve the achievement of ELL students?

The design compared the performance of ELL students in sixth through eight grades in the program classrooms with similar students in non-program classrooms at three middle school campuses. Both participant and non-participant students attended the same middle schools. Within each school, about half of the classrooms in each of the participating grade levels were assigned to the CAPE program. The other half constituted the comparison group. Both groups of students had identical characteristics, which were described above. The design involved several sources of data. Student scores on the TAAS were collected on a pre- and post-test basis, for both the program and non-program groups. This allowed the assessment of any significant difference attributable to the program. In addition, several qualitative data sources were used to allow for a better understanding of the program impact on the students, teachers, and schools. A set of in-depth interviews with team leaders, other teachers, and program staff were conducted to clarify issues of

implementation, and to help interpret some of the findings from the statistical analyses. School principals and instructional facilitators were also interviewed in-depth to understand the impact of the program on the school as a whole.

Results

First, a general assessment of the program from the administrators' perspective is presented. This provides a macrocosmic view of how the program was implemented and its effects on the schools. Second, the teachers provided insights about the operation of the program on a day-to-day basis, its problems and benefits, and their assessment of its effectiveness on the students. Finally, an analysis of the student information is provided to directly assess the main research issue: program effectiveness on students' performance.

Administrators

The support from the administrators to promote the implementation of the program with integrity in their school was crucial. Principals and instructional facilitators who provided the teachers with both institutional support and a safe place to experiment with the new techniques were more satisfied with the program results. The most committed and supportive administrators were from campuses 1 and 3, which as we will show below benefited the most from the program. These administrators knew what the program was attempting to accomplish. As one principal put it, "I feel that teachers have to have as many tools as they can to reach out to students. They all have different learning styles. When we had our first meeting, I could see that the proposed strategies would be useful to teach the students."

These administrators realized that there were difficult issues confronting program implementation. Perhaps the most problematic issue was what they called, "the pull-out problem." On the one hand, they recognized the need for teachers to participate in program activities that pulled them out of the classroom. On the other hand, they were concerned about causing teachers to be absent from the classroom. The shortage of substitutes available to cover for the participating teachers was immediately apparent. The district maintained a pool of substitute teachers, but when many teachers from the various schools needed to be absent, the pool was easily depleted and some schools could not get enough substitutes. A related issue was the quality of the substitute teachers. As one principal said, "If you are a devoted teacher, you don't want to leave your children in the sub's hands."

Partial solutions to this problem were found and implemented. They included scheduling training on Saturdays or after class. But the best alternative was part of the program itself: in-class demonstrations. Principals and instructional facilitators were very impressed by these demonstrations because fewer substitutes were needed and because of their intrinsically practical nature. As one principal put it:

The actual demonstrations are invaluable tools that very seldom get used. It is very time intensive and costly in subtle ways, but it is very important to see these strategies work or not work with your own students. And sometimes even the presenters might have a problem with certain students. And that is where they can monitor and adjust and the teachers can learn. That makes for a good relationship between the teachers and presenters. The demos are really special.

Most administrators were quite aware of the difficulties of reaching conclusions from short-term interventions. Many recognized that it might be too early to observe significant changes on the students. However, others indicated that they had witnessed how the teachers were very enthusiastic about the program and the results they were observing in their own students. As another principal stated:

Actually, I was just doing an appraisal on the teachers. One teacher wrote in her self-evaluation how she really enjoyed incorporating the formal training and CAPE training and doing interdisciplinary units. She felt that they fit together well. The debriefings helped toward that, the demos have helped toward that. The other thing that helped was one week in the summer in which they developed an interdisciplinary unit as part of the program. They were very excited about the resources offered.

In summary, administrators participating in the program saw it as valuable and were appreciative of the potential benefits the program had for the students.

Teachers

Most teachers felt that the program was beneficial to the schools. They also echoed the concerns expressed by the administrators about the logistic problem posed by the shortage of substitute teachers. Teachers indicated they perceived the program generated certain benefits:

1. It provided tools that helped in reaching a much broader range of students;
2. Brought fresh ideas that research has shown work with students;
3. Allowed the research to move forward in the field so we know what works;
4. Provided lessons for students who speak a different language and provided them with a way of feeling more secure in learning new material;
5. Was useful for social studies, reading, and language arts and even in science and mathematics; and
6. Taught strategies that involved language acquisition and content vocabulary easier for students to relate.

However, teachers indicated that they encountered problems:

1. Scheduling different sessions when there are not enough substitutes to cover for the attending teachers caused difficulties. Some teachers could not attend or were recalled to their classrooms in the middle of training sessions.
2. Teachers were unable to attend some training due to internal school priorities such as preparing the students to take the TAAS.
3. Everyone needs to participate as this program is collaborative. Without such collaboration, the programs outcome is doubtful.

Teachers also thought about possible solutions to these problems:

1. In the next implementation of the program, collaborate with an institution of higher education. A college or university can provide the much-needed substitutes. These students would in turn have experience in actual classrooms. They would work an extra year with the same teachers so that continuity and quality in the classroom would be assured.
2. Get a higher level of collaboration with the district to deal with the issue of substitutes and the general scheduling of program activities. Consider the school's internal activities needs such as training for TAAS and other predefined tasks. Plan from the beginning with everybody involved.
3. Emphasize modes of intervention that minimize pulling teachers out of the classroom, such as in-class demonstrations. This might require a significant increase in the number of CAPE staff, but might have a much better result in the long run.

An important aspect of the program was an anticipated impact on the TAAS scores. Teachers were asked if they thought the program had improved the chances of passing this state-mandated test among the students involved. The teachers formed several conclusions:

1. It did improve their chances of passing the TAAS. When CAPE staff came they demonstrated how to implement learning strategies with the students that would get them to participate. Through these strategies, teachers encouraged their students to start thinking. Teachers used them extensively in their teaching process.
2. With the ELL students the language barrier seemed less formidable. The program gave them the opportunity to learn English, but the TAAS requires the student to know English and know skills and to know how to decipher information. Many students were still on level one, trying to learn English. Eventually, with the program they should pass the TAAS. Some of them were under-level in Spanish as well as in English. It seemed hard enough to get them to learn English.
3. For writing and reading, some concluded that it would help. For the math it would help with reading the problem, with problem solving skills, and knowing what to do to solve the problem.

4. The CAPE program allowed the students to have a better foundation with language so they did not fear the reading as much. It gave them a level of comfort. Teachers approached the material from different angles and different ways, including paired reading, oral reading, teacher-modeled reading, and so forth. If one put a 100-page novel in front of students, they were not afraid. Students' reading scores were very good on the pre-TAAS—mid to high 70s. The teachers hoped to hit the 80s in TAAS in reading.

Reading Student Performance

The most relevant aspect of the program research component was investigating the effects of CAPE on the student performance as measured by a high-stakes, state-required test such as the TAAS. To answer this question, we compared the performance of the students in the program classrooms with similar students in non-program classrooms at the three middle school campuses. Two dependent variables were used: The Reading Texas Learning Index, or Reading TLI, and the Mathematics Texas Learning Index, or Mathematics TLI. The value of these indexes ranges from zero to 100. Given the diversity within this population and their generally low performance in TAAS, means of 50 to 70 and standard deviations in the upper 20s and lower 30s are not uncommon. These two indexes, derived from the TAAS, are good indicators of whether the students are on target to pass the TAAS at the end of their high school year. In this section and the next, we present the results of the statistical analyses.

Paired-samples t-tests were used to examine the significance of the pre-test–post-test differences for the various sub-groups within the CAPE and non-CAPE groups. Table 2 shows the descriptive statistics and tests of significance resulting from the main analysis for the Reading TLI measure.

Table 2

1998 and 1999 Reading TLI: Descriptive Demographics and Tests of Significance

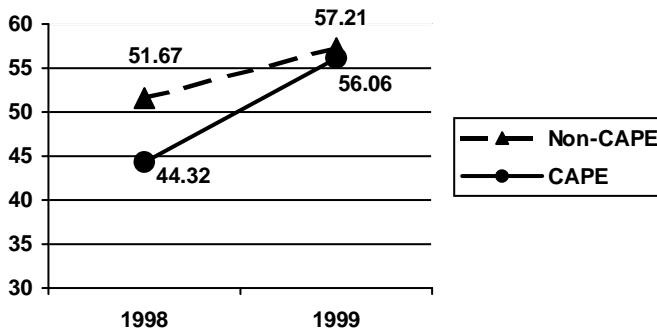
Sub-Groups & Campuses	Year	CAPE Classrooms				Non-CAPE Classrooms				
		N	Mean	SD	t-test	N	Mean	SD	t-test	
All Students	All	1998 1999	985	64.72 69.87	30.28 26.57	6.36*	618	64.71 68.44	29.70 28.34	3.67*
	1	1998 1999	366	67.69 71.87	29.44 25.93	3.12*	284	69.04 71.43	28.07 27.52	1.70
	2	1998 1999	335	68.34 70.02	27.32 25.25	1.25	132	62.82 65.92	27.64 25.75	1.36
	3	1998 1999	284	58.61 67.11	33.10 28.67	6.92*	202	59.84 65.87	32.37 30.71	3.20*
ELL	All	1998 1999	177	44.32 56.06	32.16 29.11	5.26*	100	51.67 57.21	28.92 28.16	2.19*
	1	1998 1999	45	47.04 59.64	31.88 28.92	2.72*	30	57.63 60.50	24.54 24.83	0.67
	2	1998 1999	48	57.56 61.23	26.92 25.64	0.96	31	54.65 53.48	25.09 26.33	-0.32
	3	1998 1999	84	35.30 51.18	32.49 30.56	4.81*	39	44.72 57.64	33.71 32.06	2.78*
At-Risk	All	1998 1999	637	63.40 67.95	27.31 24.44	4.57*	436	62.04 65.73	28.30 27.15	3.08*
	1	1998 1999	222	66.21 69.41	26.75 24.49	1.95*	196	65.67 67.67	27.36 26.98	1.17
	2	1998 1999	228	64.37 65.78	25.81 24.39	0.88	100	60.39 62.71	25.37 24.92	0.91
	3	1998 1999	187	58.88 68.88	29.25 24.38	5.15*	140	58.14 65.17	30.99 28.81	3.15*
ELL & At-Risk	All	1998 1999	126	50.23 59.21	28.44 25.35	3.35*	85	54.89 60.72	27.79 26.26	2.10*
	1	1998 1999	38	50.58 62.47	28.77 26.46	2.29*	25	57.68 62.24	25.10 22.65	0.96
	2	1998 1999	42	54.67 57.74	25.42 25.46	0.77	27	57.37 55.67	23.09 25.16	-0.42
	3	1998 1999	46	45.89 57.85	30.64 24.62	2.53*	33	50.76 63.70	33.05 29.63	2.55*

Note. * Difference is statistically significant at $p < .05$

The most immediate conclusion that the tests of significance indicates is that virtually all groups improved their reading achievement from pre-test to post-test. For all campuses, both CAPE and non-CAPE student average scores improved significantly from one year to the next (see first row of each subgroup in Table 2). This is the case for all students and for the various large sub-groups, including ELL students and students in at-risk situations.

However, there was a trend indicating that the program contributed to the improvement of CAPE student reading performance more than their comparable non-CAPE students. For example, CAPE ELL student scores showed greater improvement than non-CAPE ELL student scores (Figure 1). In 1998, the gap between the two groups was 7.35 points. By 1999 the gap was reduced to only 1.15 points.

Figure 1. Means comparisons of Reading TLI scores for ELL students in CAPE and non-CAPE classrooms in all schools, 1998–1999

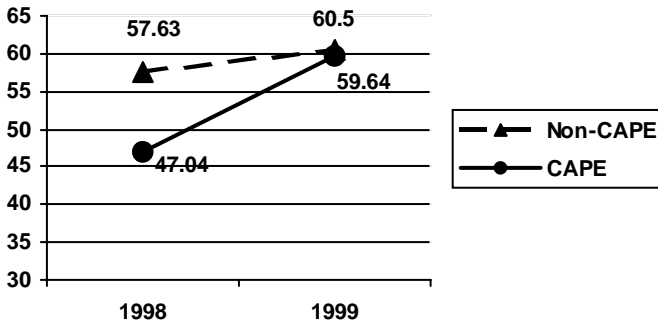


The same trend can be observed for ELL students who are in at-risk situations. While both groups registered significant gains, the CAPE group gain was larger, and virtually eliminated the gap between them, from 4.66 to 1.51 points. This suggests that the trend for the ELL group to improve their reading skills given continued CAPE support is a valid assumption. This supports the perception of teachers and administrators that CAPE was beneficial for all students and especially for the ELL students.

From the interviews with the teachers, principals, other administrators and program staff, we obtained a clear indicator that the program was implemented with different levels of support at each school. This was a reflection of the commitment the school leaders were able to provide to the program, the school level of organization, ability to create the collaborative environment the program required, and in general the effectiveness of the leadership in each institution. The analysis by campus supported these impressions. Table 2 also shows the descriptive statistics and tests of significance resulting from the analysis for the Reading TLI measure for each campus (see rows with 1 to 3 in the campus column for each sub-group). The

analysis suggests that the campuses had varying degrees of success with the program. Campuses 1 and 3 had the most success improving the student scores. For example, campus 1 closed a 10-point gap between pre- and post-test for ELL students (Figure 2).

Figure 2. Means comparisons of Reading TLI scores for ELL students in CAPE and non-CAPE classrooms in Campus 1, 1998–1999



If we were to graph each of the other sub-groups for this or the other schools, similar relationships would be depicted, with varying degrees of gap reduction. This suggests that the program had a positive influence on the students’ reading scores in all three campuses. In the analysis by campus, there were eight statistically significant gains in the CAPE groups, compared to four in the comparison groups. Although there was no statistically significant difference in any of the groups for campus 2, it also benefited from the program. For campus 2, all the CAPE classrooms had positive differences. In contrast, two of its comparison groups, ELL and ELL (students who are in at risk situations), had negative differences, indicating declining student scores from pre-test to post-test, although not statistically significant. The analysis suggests that the CAPE intervention kept campus 2 from further negatively affecting their students’ reading performance.

Student Mathematics Performance

Table 3 shows the descriptive statistics and tests of significance resulting from the main analysis for the student Mathematics TLI scores. The analysis suggests that CAPE instruction made an important and positive contribution to the student mathematics performance. The four All CAPE groups under analysis obtained statistically significant gains from 1998 to 1999, for all campuses (see first row of each sub-group). For the non-CAPE groups the opposite was the case. Only one group had a statistically significant gain.

Table 3

1998 and 1999 Mathematics TLI: Descriptive Demographics and Tests of Significance

Sub-Groups & Campuses	Year	CAPE Classrooms				Non-CAPE Classrooms				
		N	Mean	SD	t-test	N	Mean	SD	t-test	
All Students	All	1998 1999	985	64.27 68.04	28.75 25.99	4.73*	618	64.55 66.66	28.66 27.50	2.09*
	1	1998 1999	366	66.27 70.19	27.62 25.50	2.87*	284	66.88 68.82	26.83 27.45	1.37
	2	1998 1999	335	68.10 68.95	25.00 23.46	0.72	132	65.43 65.70	27.53 25.31	0.11
	3	1998 1999	284	57.16 64.19	32.85 28.96	4.38*	202	60.70 64.25	31.47 28.79	1.98*
ELL	All	1998 1999	177	46.46 55.59	32.22 30.36	3.96*	100	55.35 58.71	30.15 28.45	1.27
	1	1998 1999	45	48.44 57.84	32.04 31.39	2.01*	30	59.37 61.87	25.50 26.19	0.50
	2	1998 1999	48	61.83 64.81	25.17 24.24	0.92	31	62.90 58.68	25.24 28.13	-1.16
	3	1998 1999	84	36.61 49.12	34.64 31.69	3.36*	39	46.26 56.31	34.99 30.75	2.15*
At-Risk	All	1998 1999	637	63.84 66.65	25.98 23.92	2.87*	436	62.75 64.48	27.58 26.67	1.42
	1	1998 1999	222	65.35 65.80	25.65 24.10	2.09*	196	63.70 65.79	26.82 27.38	1.17
	2	1998 1999	228	65.35 65.30	23.42 22.76	-0.03	100	65.41 62.99	25.33 25.37	-0.95
	3	1998 1999	187	60.20 65.75	28.95 24.99	2.73*	140	59.53 63.73	29.95 26.66	1.89
ELL & At-Risk	All	1998 1999	126	53.21 59.14	29.42 26.61	2.15*	85	59.58 62.55	28.10 25.62	1.02
	1	1998 1999	38	52.63 60.87	29.13 29.21	1.59	25	61.04 64.08	25.89 23.64	0.53
	2	1998 1999	42	58.50 61.74	25.16 24.40	0.87	27	66.04 61.30	21.19 26.16	-1.15
	3	1998 1999	46	48.85 55.35	32.92 26.43	1.21	33	53.18 62.42	33.56 27.28	1.84

Note. * Difference is statistically significant at $p < .05$

Figure 3 below shows a trend for Mathematics TLI scores similar to that presented by the Reading TLI scores in Figure 1. The CAPE group showed greater improvement in its mathematics scores than the non-CAPE comparison group for ELL students. This was also evident for ELL students who are at risk.

Figure 3. Means comparisons of Mathematics TLI scores for ELL students in CAPE and non-CAPE classrooms for all campuses, 1998–1999

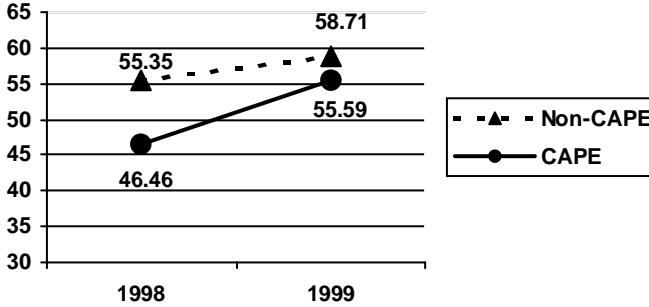
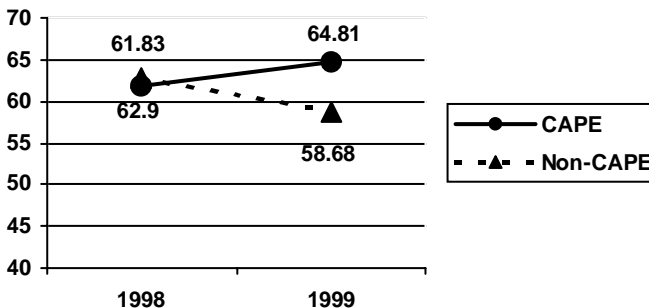


Table 3 shows the analysis by school in campus rows 1 to 3 for each subgroup. There were six significant differences in the CAPE groups and only two in the non-CAPE groups. The analysis suggests that the CAPE program benefited all campuses, but particularly campuses 1 and 3. This also parallels the reading analysis. For campus 2, which had three negative differences in its non-CAPE groups, the program probably helped the school maintain the scores and prevented them from falling significantly below their pre-test levels, a conclusion also reached in the reading analysis. The trend for campus 2 was for the CAPE students to improve their mathematics scores and for the non-CAPE to decline (Figure 4). Both groups having started at about the same level (CAPE: 61.83, non-CAPE: 62.90), the CAPE group gained near 3 points while the non-CAPE group lost more than 4 points.

Figure 4. Means comparisons of Mathematics TLI scores for ELL students in CAPE and non-CAPE classrooms for Campus 2, 1998–1999



Conclusions

CAPE improved students' chances of passing the TAAS. It is important to note that most groups improved from one year to the next, indicating that in addition to the CAPE program, the district was probably implementing some other improvements. This was particularly evident for campuses 1 and 3. For campus 2, the program seemed to have helped the school prevent the scores from further declining. The statistical analysis supported the impressions given by the program teachers and administrators, who were excited about the program and—although recognizing problems—acknowledged its potential benefits for all students, but especially the ELL and at-risk students.

Although the instructional support was universally well received, a significant issue became the pulling of teachers out from the classroom for the workshops. The main problem was the limited substitute pool maintained by the district. Some principals were also concerned about the quality of these substitutes. To diminish this problem, some workshops were scheduled on Saturdays or after class. However, some teachers naturally objected using this method on a regular basis. In retrospect, a more fundamental solution that did not take away the teachers' rest time should have been found. We suspect that the solution is connected to somehow refining the CAPE collaborative.

It has been said that the solution to the problems of democracy is more democracy. Likewise, the solution to the problems of this collaborative resides in an improved collaborative. This new collaborative would include the district, the practitioners, and possibly an institution of higher education, as suggested by the teachers. This would secure substitutes to work all year long with the same teachers, so that continuity and quality in the classroom would be assured and teachers would be able to participate in all program activities. At the same time, these substitutes will probably be of higher quality and commitment. Nevertheless, this would represent only an interim solution to the problem of substitute teachers; the larger problem of teacher shortage is an important issue that merits further research. The collaborative should also be enriched with the overt reinforcement of the notions of professional collegiality and educational leadership as suggested in Clarke, Davis, Rhodes, and Baker (1998). That is, teachers and practitioners should work together based on the notion that effective instruction is more a team "instructional accomplishment than an individual *tour de force*." Although the mystique of these principles was present, the collaborative did not make every partner aware of them. For example, the collaborative principles proposed by Clarke et al. (1998) to be critical, grounded, pragmatic, and attuned to scale might be discussed and an explicit agreement on the rules for collaboration be reached.

The in-class demonstration lessons showed great promise, and were heralded by all participants as the preferred method of instructional support. However, teachers still needed some time for collaborative planning, demonstration debriefing, and for reviewing the learning strategies. Repeating

the in-class demonstrations in every classroom would require a significant increase in the number of CAPE staff. This would also weaken the group debriefings and teacher interactions. Therefore, from a theoretical and practical standpoint, the collaborative described in the previous paragraph would still be required.

The difference by campus supports the notion that CAPE is more effective with schools that have strong leadership committed to supporting the program, to facilitating teachers' participation in it, and to creating the collaborative environment in the school essential for its successful implementation. This might lead one to suggest that prior to implementing the program, a pre-assessment of school readiness might help forecast the chances of program success. It might be one criterion for school selection, if efficient utilization of resources is an issue.

The idea that the existence of a strong, committed leadership, as an important condition for educational programs to work, is not new. Any kind of comprehensive teaching re-structuring requires a supportive school environment, enlightened leadership, and committed teachers and administrators. For example, Montecel and Cortez (2002), and Montecel, Cortez, Cortez, and Villarreal (2002) indicated in an important work about successful bilingual education programs that a non-conducive school environment for such programs to flourish is one in which, "Program leaders are either indifferent or hostile to the program. They provide minimal support to enrich the program for limited English proficient students." They also pointed out that the most promising school environment took place when, "Program leaders are well-informed of the rationale for bilingual education and share an active commitment to bilingualism. They pro-actively involve teachers, the community, and private sector in the design and development of the bilingual education program and are open to innovation." Our experience implementing and evaluating CAPE fully supports these findings. Campuses with pro-active, involved, and committed principals and administrators benefited more from the CAPE program, resulting in increased improvements to their student academic performance in both reading and mathematics.

In summary, the experience of enhancing the content areas with CALLA-based strategies in a collaborative setting has shown that this approach can be successful in helping students become more successful academically.

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