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Analysis of Literacy Enhancement for Middle School Hispanic Students Through Curriculum Integration

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The documentation of the educational system's failure to secure the academic success of California's minority students is plentiful and powerful. Recent studies (García, 1983; García, Lomeli, & Ortiz, 1984; Matute-Bianchi, 1986; García, 1988) indicate that several factors bring about this regrettable state of affairs. Research on the effective instruction of minority populations—and Hispanic students in particular—has yielded enough information on what factors should be included in a practical, multi-faceted instructional plan to

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enhance the academic learning of minority students at the middle school level (Garcia, 1988; Molle, 1988). This research project used this knowledge base and brought together university faculty and middle school administrators and teachers to implement a restructuring in grade seven. The project incorporated instructional strategies including heterogeneous groupings (limiting present level/tracking practices) and an integrated curriculum with an emphasis on higher order cognitive and linguistic skills in reading, writing, mathematics, science, and social studies.

Background of the Study

For Hispanic and other minority students, little is known of the factors which result in successful or effective education at levels beyond elementary school (Carter & Chatfield, 1986). During the past twenty years, however, researchers have compiled a significant body of data on attributes of effective schools which serve minority students (Purkey & Smith, 1983). With respect to instructional strategies, studies of effective schooling have yielded findings relevant to limited English proficient (LEP) students (Tikunoff, 1983; Wong-Fillmore, et al., 1985; Carter & Chatfield, 1986), minority students in general (Edmonds, 1979; Chall & Snow, 1988), and Hispanic students in particular (García, 1988). The present study brought together university faculty and seventh grade teachers to design and implement an instructional intervention to enhance academic learning opportunities for Hispanic at-risk students which was based on these preliminary findings.

The project's approach incorporated instructional strategies (listed below) which have been demonstrated as effective in promoting the linguistic minority student's literacy, mathematics, and English language development in school. Because the proposed project was concerned, ultimately, with "students learning how to learn," particular significance was assigned to strategies, drawn from cognitive science and effective schooling research which support the achievement of basic skills and the acquisition of higher-order linguistic and cognitive processes, and use linguistic, analytical, cognitive, and metacognitive processing to maximize academic learning.

Strategy #1: Use of thematic, integrated curriculum, such that academic objectives are achieved through content integrated instruction;

Strategy #2: Emphasis on small group activities incorporating heterogeneous language grouping and peer tutoring, and emphasizing higher order linguistic and cognitive processes (in which learning proceeds from the

concrete to the representational and then to the symbolic);

Strategy #3: Emphasis on literacy activities: interactive journals, silent reading followed by small group discussion, interactive literature study, individual and group-written literature, and mathematics logs;

Strategy #4: Use of cooperative learning strategies, emphasizing the systematic participation of each student in processing curriculum materials.

Procedures

For an academic year, the project reorganized the seventh grade instructional environment at the participating middle school for fifty-four students. An instructional intervention was implemented for two heterogeneous groups of approximately thirty students each. One group was made up of English Only (EO) and reclassified Spanish/English Bilingual (BIL) students in the seventh grade, while a second group included EO and Fluent English Proficiency (FEP) with higher level BIL students who were near the transitional level or were already in transitional English reading. These students were together in four of six periods with the same classmates.

Eight teachers worked collaboratively with University of California, Santa Cruz faculty to implement an interdisciplinary, collaborative curriculum for these two groups (THEME students). The content area subjects taught were reading, language arts, science, mathematics, and social studies (science was taught for one semester and social studies for the other). The two groups of students were integrated with students from the rest of the student population for two periods a day, during which time they were enrolled in physical education and an elective.

A comparison group was established consisting of 48 students in the regular middle school program. These non-THEME students changed classes throughout the day with six different combinations of students from six different nonintegrated content area subjects. The THEME students were heterogeneously grouped in two strands, one bilingual and one English only, in which they remained through math, reading, language arts, a semester of social studies and a semester of science. Within the first week of school, the THEME group instruction began using the Olympics as a springboard theme around which the four content areas were taught. The teachers met to jointly plan their individual areas of curriculum focus within the Olympic theme and to integrate lessons across the curriculum.

The eight Pajaro School staff and University faculty met weekly during lunch at the school site to share, update, and relate pertinent information, including

needed resources and materials, student involvement, the theme's progress, assessment scheduling, classroom visitations, planning collective field trips, parent meetings, and other project business.

The actual instructional and collaborative planning time was handled during monthly release time meetings. The Pajaro staff and USCS faculty met to review teaching issues, share assessment data, and expand on the actual mechanics of the project. These meetings provided additional time to solve problems concerns and to build collaboratively, instructional strategies and lessons that crossed the content areas.

Organizing the meetings and facilitating and handling project business was delegated to the project's half-time site coordinator, who also taught one of the classes in the two strands. The coordinator maintained communication between the University and Pajaro Middle School, arranged field trips and substitute scheduling, ordered materials, disseminated information, arranged instructional support, dealt with problems that arose, and served as the project's contact person.

A potluck for parents at the end of the second thematic unit provided project participants an opportunity to involve and further inform parents about the project. The staff was available to present rationale and answer questions. Students presented a description of their THEME classes and showed completed projects.

In summary, THEME students were placed in heterogeneously structured learning groups which attempted to maximize effective communication and learning. Comparison group students followed the traditional curriculum and scheduling program. THEME students participated in a core integrated curriculum with the intent of increasing opportunities for language and literacy development. The integrated instruction was organized around four themes: (a) the Olympics; (b) the Fine Arts (Popular Music, Art, and Fashion); (c) the Ocean; and (d) Crime. Students and teachers together selected these themes. Students worked in collaborative learning groups characterized by academic heterogeneity and an orientation to positive interdependence.

Results

The following analysis was conducted to address the effects of academic achievement on the instructional intervention in the domains of language, reading, and writing. Academic achievement measures in English and Spanish were obtained for the various groups of the study during the spring semester of

the academic year. For English-only and bilingual students in the THEME grou and the Comparison group, six subtests of the English version of the Californi Test of Basic Skills (CTBS) along with seven subtests of the English version o the Language Assessment Scales Reading/Writing (LAS) were used for thi analysis. The Subtests for the CTBS included the following: (a) Vocabulary, (b Language Mechanics, (c) Reading Comprehension, (d) Reading Total, (e Language Expression, and (f) Language Expression Total. The subtests on the LAS included: (a) Synonyms, (b) Fluency, (c) Antonyms, (d) Mechanics and Usage, (e) Reading for Information, (f) What's Happening, (g) Let's Write.

For LAS subtests 1-5, multiple choice items were presented to students; in subtests 6 and 7 students were requested to write a description of a scene, create a description of their own identified scene, or both. In addition, bilingual students were administered the vocabulary and reading subtests of the Spanish Assessment of Basic Education (SABE).

On each subtest, the THEME English-only group performed higher on these measures of academic achievement [See Figure I] than the other groups; moreover, the THEME bilingual group did not differ significantly from the English-only comparison group on any of these measures. The THEME Bilingual group had been identified by their need for further academic development and was made up of English dominant students who participate in bilingual classrooms with their Spanish dominant peers. It was academically significant that this group did not differ from a group of English-only curriculum students.

Other results indicate that THEME groups consistently performed higher on other measures than their appropriate Comparison group cohorts [See Figure 2]. This is particularly the case for bilingual students. On six of the seven subtests, THEME bilingual students scored significantly higher than Comparison bilingual students. Of particular interest were the significant differences found between these groups in the 6th and 7th subtest which obtain a measure of written language ability.

Figure 3 presents the mean raw scores of the THEME bilingual group and the non-THEME bilingual group on the two subtests of the SABE. Differences on these measures favor the THEME bilingual group on each of these measures.

Tables 1, 2, and 3 present the means and standard deviation for each group for English CTBS subtests, English LAS subtests, and Spanish SABE subtests, respectively. These means were subjected to a series of independent t-test analysis for each of these subtest measures. This analysis produced a pattern of significant difference ($p<.05$) which is evident in Tables 1-3 and Figures 1-3. Specifically, on CTBS subtests, THEME English-only students significantly

outscored both THEME bilingual and non-THEME English-only students on four (Vocabulary, Language Expression, Language Expression Total, and Reading Comprehension) of the six subtests. No significant difference was found between THEME bilingual and non-THEME bilingual students on these CTBS measures. On the LAS subtests, a pattern of significant results favoring the THEME groups was also identified. On six of the seven subtests, THEME bilingual students significantly outscored non-THEME bilingual students. Only on subtest 4, Mechanics and Usage, was this not the case. Similarly, THEME English-only students significantly outscored non-THEME English-only students on four (Synonyms, Antonyms, Mechanics and Usage, and Reading Comprehension) of the seven subtests.

On Spanish measures, a pattern of differences favoring THEME group students was found. The difference was not statistically significant on the SABE Vocabulary subtest. However, it was statistically significant for the SABE Reading subtest.

In summary, the results of the above analysis indicate a consistent pattern of achievement outcomes which favor the THEME group students. This consistent pattern was evident for bilingual as well as English-only THEME group students.

Discussion

This study follows the pattern of recent efforts to enhance the collaboration between researchers and teachers to restructure present curriculum on behalf of students who have historically been unsuccessful in school. The present effort brought together middle school teachers with university faculty in a redesign of seventh grade instructional organization. This redesign was founded on recent empirical work which has identified effective instruction and curriculum with Hispanic students along with recent theoretical formulations which are of general relevance to enhancing academic learning. THEME students participated in an educational experience which kept them together for the majority of their school day. This experience included participation in small heterogeneously structured learning groups through which instruction was delivered around jointly determined themes which integrated reading, language arts, math, science, and social studies. The academic outcomes of these THEME students were compared to a group of students who participated in this same school's seventh grade typical organization: seven independently taught, homogeneously-leveled classes with limited curriculum integration with more traditional whole

group instructional approach.

The implementation of the project required extensive rethinking of the existing middle school organization by teachers, administrators, and participating university faculty. Moreover, the restructuring which took place required extensive collaboration, especially by the teachers. These teachers report that without the time the project allowed them to meet and plan, the project would not have been possible. In addition, they report that the on-site coordinator played a key role in bringing them together and insuring that the goals and specific objectives of the project were always at the forefront of the project activity. The teachers were provided with a minimum of one-day release each four to six weeks and met on a weekly basis during lunch. The coordinator was able to have the time to meet individually with teachers and university faculty and was a key resource person with regard to developing and finding relevant theme related curriculum material. In sum, the project could not have been implemented without the additional release time for teachers and the presence of an effective site coordinator.

The results of the project are clearly positive. That is, consistent positive comparative academic outcome data favor the student participants of the THEME intervention over the conventional program implemented at this middle school. Specifically, comparative analyses in the areas of reading comprehension, vocabulary, language mechanics, and language expression in English significantly favored the THEME students. Similar results were found on Spanish measures.

Although these empirical results are promising, it is important to identify a number of constraints of the study. First, the study was a voluntary effort by a group of self-selected and particularly motivated teachers and university faculty. Coupled with the inability of the present project implementation and data procedures to specify specific causal links between the intervention subcomponents and the dependent variables, the results of the study are difficult to interpret. It does seem appropriate, however, to conclude that the results suggest a set of possible school and classroom restructuring alternatives that may provide enhanced educational successes for a population of educationally vulnerable students.

With the present results and implementation experiences of this study in mind it seems appropriate to readdress the set of principles with which this study began. Table 4 summarizes this set of principles, particularly as they relate to the diversity of the student population which more and more teachers are serving. Diversity in language and culture is becoming commonplace in today's classrooms. The present project was designed with such circumstances in mind

and attempted to directly address this challenge. As Table 4 indicates, developing and implementing the curriculum and instruction for diverse student classrooms requires attention to curriculum comprehensiveness, quality, and integration. In addition the instructional strategies used in such situations should emphasize small group interaction, heterogeneous grouping, and active and informal learning activities of vertical and horizontal relevance. Based on the tentative results of this study, these principles carry significant promise for further educational research and educational change.

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Table 1. Means and Standard Deviations of English CTBS Subtests by Group.

Group (N)	Vocabulary	Language Mechanics	Reading Comprehension	Reading Total	Language Expression	Language Expression Total
THEME M	22.0	16.7	24.6	47.8	26.1	42.6
Bilingual S. D.	3.1	3.5	4.1	5.2	3.1	4.1
(17)						
THEME M	27.4	19.9	29.4	51.7	33.6	52.1
English- S.D.	2.6	3.1	3.1	4.1	3.2	4.4
Only						
(26)						
Non-THEME M	22.9	17.5	24.8	50.7	27.6	45.0
English- S.D.	3.6	3.2	3.1	5.3	3.8	4.2
Only						
(31)						

Table 2. Means and Standard Deviations of English LAS Reading and Writing Subtests by Group.

Group (N)	Synonyms	Fluency	Antonyms	Mechanics & Usage	Reading for Information	What's Happening	Let's Write
THEME M	8.4	8.4	8.4	13.1	14.0	12.1	4.3
Bilingual S. D.	2.1	1.6	2.5	2.4	2.5	3.6	.7
(21)							
Non-THEME M	6.6	5.6	5.4	11.8	5.6	8.2	3.0
Bilingual S.D.	1.9	1.3	1.1	2.3	1.1	2.1	.5
(14)							
THEME M	9.5	8.9	9.2	14.2	9.1	11.6	3.8
English- S.D.	2.3	2.0	2.0	3.1	2.1	1.6	.5
Only							
(26)							
Non-THEME M	6.3	8.1	7.5	12.6	7.2	11.8	4.0
English- S.D.	1.0	1.1	2.0	3.0	1.6	1.8	.6
Only							
(31)							

Table 3. Means and Standard Deviations of Spanish SABE Subtests by Group.

Group (N)	Vocabulary	Reading
THEME M	34.2	28.0
Bilingual S.D.	3.6	3.4
(22)		
Non-THEME M	31.8	24.8
Bilingual S.D.	3.9	4.1
(14)		

Table 4. Curriculum Principles for Diverse Student Populations.

Any curriculum, especially one for diverse populations of children must address all categories of learning goals.

The more linguistically and culturally diverse the children we teach, the more content must be related to the child's own environment and experience.

The more diverse the children, the more important it is for the content, knowledge, and skills to have horizontal relevance.

Vertical relevance is preparation for the next stage of life.
Horizontal relevance means that the knowledge and skills are relevant to the child's everyday life.

The more diverse the children, the more the curriculum should address learning through active endeavors rather than passive ones.

First hand experiences are major sources of learning.

The more diverse the children, the more important it is for the curriculum to offer

opportunities to *apply* what they are learning in a *meaningful context* (worksheets are not meaningful).

The more diverse the children, the more likely it is that excessive practice and drill will endanger the dispositions to use them.

The more diverse the children, the larger the proportion of time that should be spent on informal activities, particularly group work on projects.

The more diverse the children, the more integrated the curriculum should be. Children should have opportunities to study a topic in depth and to apply all kinds of skills they have acquired.

Figure 1. Mean raw scores for bilingual THEME (THBL), English-only THEME (THEO) and English-only non-THEME (NTHEO) students on the vocabulary (VOCAB), language mechanics (LNGMC), reading comprehension (RDCMP), reading total (RDTL), language expression (LNGXP), and language expression total (LNGXPT) subtests of the CTBS.

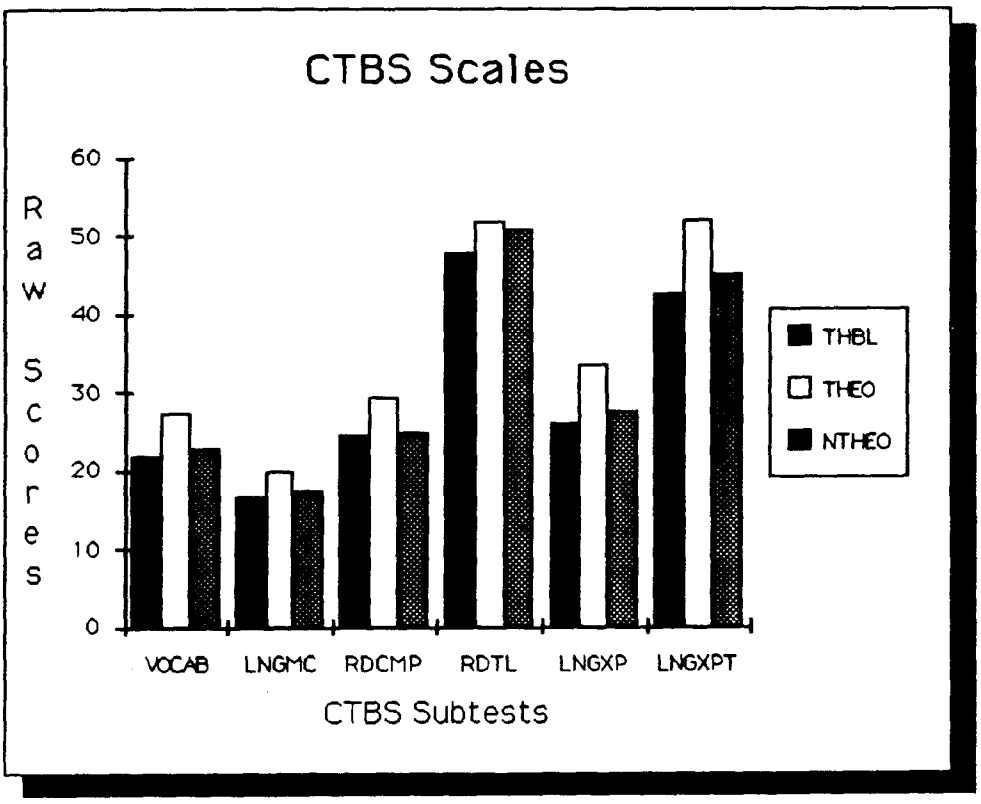

Figure 2. Mean raw scores for the bilingual THEME (THBL) bilingual non-THEME (NTHBL), English-only THEME (THEO) and English-only non-THEME (NTHEO) students on the seven subtests of the English language assessment scales.

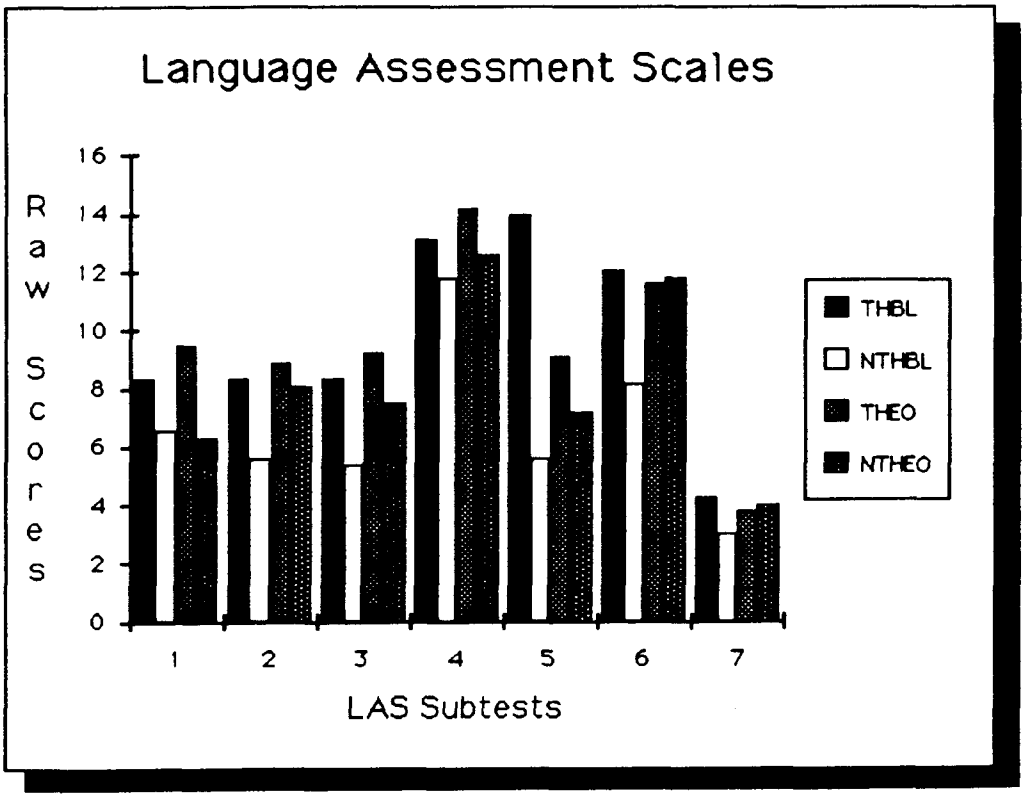

Figure 3. Mean raw scores for bilingual THEME (THBL) and bilingual non-THEME (NTHBL) students on the SABE Spanish academic achievement subtests of vocabulary (VOC) and reading (ROG).