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ABSTRACT

A Houston, Texas, elementary bilingual program did not produce consistently equal or superior cognitive outcomes but was effective in facilitating second language learning. In order to ascertain the effects of the program on participants' self esteem, English reading level, and grade point average (GPA), the elementary and seventh grade GPAs of an experimental group of 86 Mexican American seventh grade students who had spent at least 1 year in the program, as well as their scores on the Piers-Harris Children's Self Concept Scale and the Iowa Test of Basic Skills, were compared to those of 90 Mexican American students in a control group who had experienced a traditional English language elementary program. Length of time in the program made no difference in the seventh grade performance of the experimental group in the three variables. While the control group scored higher in English reading comprehension, vocabulary, and English language skills at the end of elementary school, the experimental group achieved comparable performance in the seventh grade in all but the last of these measures. Although the experimental group appeared more anxious, there was no difference in self-concept between groups. Finally, the GPA of the experimental group was significantly higher during elementary school but this difference disappeared in the seventh grade. (SB)

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A Comparative Study Investigating Achieved Reading Level,  
Self-Esteem and Grades as Related to Length of Exposure  
to Bilingual Education in a Major United States City



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## ABSTRACT

A quasi-experimental research design was used to compare two groups of similar students. Both groups were composed of Mexican-American seventh grade students enrolled in a traditional junior high school where all subjects of the curriculum were presented in English. The experimental group was represented by students who were previously taught for one or more years in an elementary bilingual program. The control group consisted of students who had attended a traditional elementary program where all subjects in the curriculum were presented in English. The dependent variables examined for comparison purposes included: sixth and seventh grade English reading levels, grade point average achieved during grades one through sixth grade and for the seventh grade and a self-esteem measure at the completion of the seventh grade.

Reading level was obtained by using the Iowa Test of Basic Skills, a school administered test, which yielded scores on English reading comprehension, language skills, and vocabulary. Self-esteem was assessed through the administration of the Piers-Harris Self-Concept Scale. Reading scores and school grades were obtained from the students' school records. The data were subjected to an analysis of variance (ANOVA). Demographic and socio-economic data was obtained from each student by means of an individual interview.

### Conclusion:

The significance at .05 level was used in testing the null hypothesis. Based on the statistical results the following conclusions were drawn:

- 1) Length of time in the elementary bilingual program, whether it was one to three years or four to seven years, produced equal results in the students' seventh grade school performance i.e., English reading scores,

grade point average, and in their self-concept.

- 2) The control students who were not exposed to English for six or more years achieved higher scores on all three measures of reading at the completion of elementary school.
- 3) The experimental and control students achieved comparable seventh grade reading scores on two of the three reading measures at the completion of seventh grade. No significant difference was found between the two groups in the English reading comprehension and vocabulary group test scores. The English language skills test scores of the students in the control group were significantly higher.
- 4) No significant differences were found between the two groups in the total scores of the Piers-Harris Self-Concept Scale. On one of the six subscales of the latter, significant group differences were found, i.e., the control group obtained higher scores on the anxiety subscale.
- 5) Students in the experimental group obtained a significantly higher grade point average in elementary school for grades one through six.
- 6) No statistically significant differences were found among the two groups of students in the grade point average of their seventh grade performance.

## INTRODUCTION

### The Problem

Mexican-Americans have the lowest level of education in the Southwest. The United States Commission on Civil Rights (1971, p.10) reports that Mexican-Americans have the highest estimated rate of attrition among the three major ethnic groups (i.e., Black, Mexican-Americans and native Americans) found in the Southwest. Compared with the median number of 12.0 school years completed for Anglo-Americans<sup>1</sup>, the median is 8.1 for Mexican-Americans. According to the Commission's Mexican-American Education Study, 40 percent of Mexican-American children who enter first grade never complete high school. Coleman (1966) reports that academic achievement scores for students for whom English is a second language are significantly lower than for those of majority Anglo-American students. By the twelfth grade, Mexican-American students who continue school are 3.5 years behind the national norm in verbal ability; 3.3 in reading; and 4.1 in math achievement (Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, and York, 1966).

Takesian (1967) posits that the school dropout problem develops in elementary school when the potential dropout for the first time learns that "he/she is somehow different". It is here that the student develops a dislike for school when he/she experiences little else but frustration, tension, and rejection. In this atmosphere of confusion and self-doubt, the student psychologically leaves and later, when of age, he/she leaves the school physically.

<sup>1</sup>The term Anglo-American is used to refer to Caucasian Americans whose ancestry is non-Mexican or Spanish.

Reading ability is a traditional criterion of academic achievement. The ability to read well is basic to success in almost every aspect of school curriculum. It is a prerequisite skill for nearly all jobs and is an important tool for lifelong learning. Based on an extensive survey of school principals in the five southwestern states of Arizona, California, Colorado, New Mexico and Texas, the Commission on Civil Rights found that from 50 to 70 percent of Mexican-American and black students in grades fourth, eighth, and twelfth were reading below grade level. In the eighth grade, 64 percent of the Mexican-American and 58 percent of the black students were found to be reading below grade level. In schools surveyed in Texas, nearly three-fourths, 74 percent, of the Mexican-American eighth graders were found to be reading below average. Nearly one half of the Mexican-American eighth grade student population was reading two or more years below grade level (U.S. Commission on Civil Rights, 1971, pp. 24-31).

Children discover their identity as a consequence of experiences. In school the kinds of responses that children receive from peers, teachers, and their own reactions to instructive material will be reflected in self-concept (Beatty, 1969, p. 74). Adler (1930) posited that the education and training furnished by the school determine in a crucial fashion the future life of the individual. The education of a child must be so organized that the child will recognize social feeling or a sense of solidarity with the community. In this light, bilingual education offers schools an opportunity to form an alliance with the learner's primary identification group, his family. An elementary school curriculum purposely designed to acknowledge the learner's native language is consistent with sound learning principles (Hilgard 1957). Such a bilingual curriculum complements the learner's cognitive style which Ramirez and Castaneda (1974) proposed is part of the learner's native language.

Given a learner with normal potential such a curriculum affords the non-English speaking pupil an opportunity to form positive associations with school learning. Early success in school strengthens the learner's later success in school and, most importantly, shapes the way a learner comes to view himself.

#### Purpose of the Study

The purpose of the study was to ascertain whether there were significant differences in English reading level, self-esteem, and student obtained grades between two groups of Mexican-American seventh grade students. One group, the experimental, was enrolled one or more years in a Spanish-English elementary school bilingual program. A second group, the control group, was enrolled in the regular English monolingual program throughout elementary school. To assess differences the following research questions were formulated and tested at the .05 level of significance:

1. Is there a significant relationship between length of enrollment time in the experimental elementary bilingual program and achieved seventh grade English reading, grade point average, and perceived self-concept scores?
2. Are there significant differences in group attained sixth grade English reading scores?
3. Are there significant differences in group attained seventh grade reading scores?
4. Are there significant differences in student perceived self-concept scores?
5. Are there significant differences in group grades attained in elementary school (grades one through six)?
6. Are there significant differences in group grades attained in grade seven?



## Methodology

The subjects in this study were comprised of 86 experimental and 90 control seventh grade Mexican-American students who were enrolled in one of two Houston Independent School District Junior High Schools. The 86 students in the experimental and 18 of the 90 students in the control group were subjects of a previous study conducted in 1973-74. A random procedure was used to select additional students for the control group.

Demographic variables that were collected included: 1) the students' age, sex, religion, male/female siblings, ordinal position, and languages spoken in the home; 2) characteristics of the home environment such as family structure, nature of broken homes, feelings related to childhood home life, and place of origin (birthplace) for student and parents; 3) socioeconomic status variables, i.e. parents' education and occupation, source of employment, level of job responsibility, and home artifacts and personal possessions of parents such as use and presence of a telephone, radio, television, home library, or automobile, and 4) select school related variables reflecting seventh grade student experience, i.e., home study time, feelings about school, days absent by quarter, plus one variable which addressed the student's total school experience; that is, the number of times the student was retained in the same grade. Previous investigations have shown a relationship between the latter variables and academic achievement (Coleman, 1966).

The data obtained consisted of student attained scores on the Piers-Harris Children's Self-Concept Scale; the Iowa Test of Basic Skills test scores for sixth and seventh grade on English reading comprehension, language skills, and vocabulary, and school letter grades. The Pearson (product/moment) Correlation Coefficient was determined by comparing seventh grade obtained measures of English reading, grade point average, and self-concept by high



and low length of enrollment time in the bilingual program.

The experimental and control group attained self-concept, reading and school mark measures were subjected to analysis of variance (ANOVA). A .05 level of significance was used to determine group differences.

### Results

Table 1 (Appendix) reveals a correlation matrix of the six variables used to examine the relationship of length of time in the elementary bilingual program and seventh grade school performance measures. Column one in Table 1 (Appendix) reveals no significant correlations among the variables. In Table 2 (Appendix) results are reported of an ancillary analysis which compares the experimental group's seventh grade school performance measures by short versus longer enrollment periods in the elementary school bilingual program. One group composed of 52 students was enrolled one to three years. A second group composed of 34 students was enrolled four to seven years. The mean scores in columns one and three do not reveal significant differences with the findings of the ancillary analysis lending support to the initial analysis. A similar finding on the effect of time in a bilingual program has been reported by Maldonado (1977).

Reading Comprehension, Language Skills, and Vocabulary of the subject's scores attained on the Iowa Test of Basic Skills were utilized to measure English reading at completion of elementary school. The data in Table 3 indicate that there were significant differences on all three measures (see Appendix).

The same three reading measures, i.e., Reading Comprehension, Language Skills, and Vocabulary on the Iowa Test of Basic Skills were utilized to examine English reading performance at the completion of seventh grade. The data in Table 4 (Appendix) indicate that there were no significant

differences in seventh grade reading comprehension and vocabulary test scores, and there was a significant difference on the observed results of the Language Skills test. ---

Total scores on the Piers-Harris Self-Concept Scale were utilized to measure self-concept at the completion of seventh grade. Table 5 (Appendix) reveals that there were no significant differences found in the groups' self-concept scores. An analysis of the six sub-scales revealed significant differences on one scale, a measure of Anxiety. The findings indicate that the students in the experimental group perceived themselves as more anxious.

The data in Table 6 (Appendix) indicate that significant differences were found in grade point average for school performance in elementary school. The students in the experimental group obtained a significantly higher grade point average.

The data in Table 7 (Appendix) reveals that no significant differences were found in grade point average for the students' school performance in seventh grade.

### Summary

The data analysis based on the Pearson (product/moment) Correlation Coefficient indicates that there were no significant correlations between length of time in the elementary bilingual program and seventh grade English reading measures, grade point average and self-concept scores. An ancillary analysis which compared students by enrollment periods in the elementary bilingual program, one to three years and four to seven years, also revealed no significant differences. Students in the control group obtained significantly higher sixth grade scores on all three of the Iowa Test of Basic Skills reading measures examined. However, in seventh grade no significant differences

were found in two of the three seventh grade reading measures examined. The control group obtained significantly higher scores at the  $p. = .02$  level on the seventh grade Language Skills test. No significant differences were found at completion of seventh grade on the total self-concept scores. The experimental group grade point average in elementary grades was found to be significantly higher at the  $p. = .03$  level. No significant group differences were found in grade point average for grades attained in seventh grade.

### Discussion

The results of this investigation suggest that the HISD bilingual program was effective in facilitating second language learning. However, a case cannot be made that the bilingual program produced consistently equal or superior cognitive outcomes since the program participants started out with a language barrier. Evidence of the program's effectiveness was found in the higher grade point average obtained by the experimental students in elementary grades and the observed similarity in the reading and grade point average scores achieved in the seventh grade. Primary differences observed between the two groups were in three obtained sixth grade reading scores, one reading score in the seventh grade, and grade point average in elementary grades. The difference in sixth grade reading scores was anticipated given the time differential in English instruction. The experimental students were learning to read and write in both Spanish and English while the control students were progressing in English only. The difference in seventh grade Language Skills test scores suggests that the experimental students were experiencing some difficulty with English writing skills. One explanation for this observation is suggested by Ben-Zeev (1977) who indicates that no matter what the conditions of bilingual language learning are, it seems to be cognitively more difficult to become bilingual. Another explanation is

that in second language learning, initial instruction emphasizes learning audio and oral skills. Presumably with increasing use of English, the deficit will be corrected as evidenced by the results of the seventh grade reading scores. The difference in elementary school grade point average indicates that application of Hilgard's (1957) principles of readiness and pacing proved beneficial for the experimental group. The instructional use of the student's language complemented the pupil's reality. It permitted the student to form early positive associations with learning.

Non-significant differences observed between the two groups were in two of three seventh grade reading scores, grade point average for the seventh grade, and total self-concept scores. The finding in seventh grade reading scores indicates that the experimental students were as proficient as the control students in English reading and English vocabulary.

The grade point average seventh grade finding represents a regression from the grade point average held through elementary school by the experimental group. This non-significant finding suggests and is supported by the group difference found in seventh grade language skills that the all English curriculum proved to be more difficult for the students in the experimental group.

Total self-concept scores indicate that participation in the bilingual program was not detrimental to self-esteem. Students placed in "special programs" frequently feel stigmatized. Given the transitional nature of the program students could easily perceive their enrollment as remedial. Differences observed on the Anxiety scale may in part be explained by the perceived status of participants in the "special program".

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APPENDIX

TABLE 1

Relationship Between Time in an Elementary Bilingual Program  
and Seventh Grade Iowa Reading Scores, Grade Point Average, and Self-Concept

N = 86

Variable	Time in Program r	Reading Comprehension r	Language Skills r	Vocabulary r	Grade Point Average r	Self-Concept r
Time in Program	1.000					
Reading Comprehension	-0.070	1.000				
Language Skills	-0.161	.507**	1.000			
Vocabulary	-0.110	.510**	.578**	1.000		
Grade Point Average	.121	.388**	.548**	.349**	1.000	
Self-Concept	-0.083	.263*	.384**	.349**	.444**	1.000

\* Significant beyond .05 level ( $r = .211$ )

\*\*Significant beyond .01 level ( $r = .276$ )



TABLE 2

Relationship Between Length of Time in the Experimental Elementary Bilingual Program  
and Seventh Grade Reading, Self-Esteem, and Grade Point Average Scores Summary Data

Variable	1-3 Years		4-7 Years		ANOVA	
	Mean N = 52	SD	Mean N = 34	SD	F Ratio	P
Reading	5.94	1.31	5.97	1.27	.187	NS
Language	6.29	1.42	6.29	1.56	.007	NS
Vocabulary	5.93	1.66	5.67	1.60	.428	NS
Self-Concept	54.47	10.72	55.20	13.91	.192	NS
Grade Point Average	2.18	.831	2.41	.917	.252	NS

TABLE 3

Anova: Differences in Sixth Grade Reading Comprehension,  
Language Skills, and Vocabulary Scores by Group  
on Iowa Test of Basic Skills

Variable	Bilingual (Experimental) N = 86*		Monolingual (Control) N = 90**		ANOVA	
	$\bar{X}$	SD	$\bar{X}$	SD	F Ratios	P
Reading Comprehension	4.78	1.21	5.38	1.10	10.883	.001
Language Skills	5.09	1.41	6.24	1.56	23.765	.001
Vocabulary	4.83	1.51	5.85	2.08	12.659	.001

\* Analysis adjusted for four missing students absent when the test was administered.

\*\*Analysis adjusted for eleven missing students absent when the test was administered.

TABL

Anova: Differences in Seventh Grade Reading Comprehension,  
 Language Skills, and Vocabulary Scores by Group  
 on Iowa Test of Basic Skills

Variable	Bilingual (Experimental) N = 86*		Monolingual (Control) N = 90**		ANOVA	
	$\bar{X}$	SD	$\bar{X}$	SD	F Ratios	P
	Reading Comprehension	5.98	1.29	6.35	1.46	2.151
Language Skills	6.34	1.48	6.95	1.57	5.375	.021
Vocabulary	5.84	1.62	6.02	1.67	.704	NS

\* Analysis adjusted to account for 9 missing students when test was administered.

\*\*Analysis adjusted to account for 19 missing students when test was administered.

TABLE 5  
Analysis of Variance on the Self-Concept Scale by Group

Self-Concept Sub-Scales	Bilingual (Experimental) N = 86		Monolingual (Control) N = 90		ANOVA	
	Mean	SD	Mean	SD	F Ratio	P
Behavior	14.04	2.96	13.78	3.45	0.306	NS
Intellectual and School Status	11.29	3.91	11.10	3.56	0.114	NS
Physical Appearance & Attributes	6.53	3.09	6.10	3.02	0.890	NS
Anxiety	7.76	2.54	8.82	2.50	7.694	.006
Popularity	8.60	2.38	8.94	2.27	0.939	NS
Happiness and Satisfaction	7.26	1.87	6.85	1.99	1.991	NS
Total Self-Concept	54.94	12.01	54.21	11.87	0.165	NS

TABLE 6  
Comparative Bilingual and Monolingual Group Mean Grade Point Average  
and F Ratios for Grades One Through Six

Variable	Bilingual (Experimental) N = 86		Monolingual (Control) N = 90		ANOVA	
	Mean	SD	Mean	SD	F Ratio	P
	Grade Point	2.43	.810	2.18	.795	4.510

TABLE 7  
Comparative Bilingual and Monolingual Group Mean Grade Point Average  
and F Ratio for Seventh Grade

Variable	Bilingual (Experimental) N = 85*		Monolingual (Control) N = 85**		ANOVA	
	Mean	SD	Mean	SD	F Ratio	P
	Grade Point	2.28	.87	2.18	.85	.485

\* Analysis adjusted to account for one missing student, records were not available.

\*\*Analysis adjusted to account for five missing students, records were not available.