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ABSTRACT

This phase of the downstate Illinois bilingual education program included: locating all past data still in existence in 1976; determining what data were actually retrievable and usable; reporting on these data retrospectively; and finally, collecting new data for a continuing longitudinal study. There were 44 school districts with 4,579 students in the database, and information on 273 variables including many different tests and scales. However, only 204 pupils in grades 3 and 4 with at least 3 years of bilingual education could be used in the experimental group, and 109 pupils in the control group were just starting in the bilingual program. Achievement test scores indicated that students with more years in the program were stronger in both the productive English skills (speaking and writing) and the receptive skills (listening and reading). It appeared that bilingual schooling enhanced conceptual development. However, bilingual schooling did not appear to enhance native language skill in all areas; and it appeared that attitudes toward self, school, and community were negatively influenced by years of bilingual schooling. Language use in the home affected native language proficiency. The author regrets that lack of rigor in experimental design makes interpretation of the findings subject to debate. Questionnaires in English and Spanish, as well as resulting statistical data are appended. (CTM)

EVALUATION IN MODERATE-TO-SMALL SCHOOL DISTRICTS: DOWNSTATE ILLINOIS*

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It has been suggested that there should be more "tracer" studies to determine the probability that a pupil will go out into the community and function comfortably in English or bilingually (Tucker, 1977). Such a study would help determine whether students who leave bilingual programs are really functioning in English. Investigations could include types of higher education, if any, success at studies, jobs selected, skills required, proficiency at jobs, etc. Such follow up studies have been done linking graduate studies to job performance, but few if any have linked elementary-school bilingual experiences to adult performance. But in order for such studies to be successful, there must be an efficient system of record keeping. The task is complicated by the sometimes high transiency rate among minority families who move around in search of work. Clearly, the model of a database as constructed for the present study could suggest to an evaluation staff a means of storing data over time.

In many ways this present study was an exercise in compromise, reflecting the trials and tribulations of evaluation in the non-laboratory setting. Perhaps the biggest asset of the study was the creation of the database. This database now exists for use in future downstate evaluations and comparative evaluations within the state and across states. It is reassuring that this study is only one of several studies beginning to appear regarding the impact of bilingual schooling. The California-based American Institute for Research, for example, has completed the first phase of a nationwide study on Spanish-English bilinguals for the U.S. Office of Education. But there is still much work to be done in the area of research design and data analysis (see Rodríguez-Brown, Cohen, Ritayanon, & Ripley, 1976). The comparability of research findings depends to a significant degree on the comparability of the research methods. This American Institute for Research report has already been criticized for shortcomings in the research design (through a Center for Applied Linguistics, Arlington, Virginia, written statement on April 18, 1977). As stated above,

Research Institute that they did not have time to mobilize complex programs (i.e., multivariate analysis) nor money to carry out such analyses. (One way to guard against incomplete analyses would be to supervise the analysis directly, rather than subcontracting it out as in this case.)

There is clearly a purpose for continuing longitudinal study of the B-B and B-O groups over subsequent years--if for no other reason than to see if the B-O group catches up in English and in academic subjects, as well as to assess its maintenance of Spanish skills. Also, the attitudinal data here suggest the importance of looking at attitudes over time rather than cross-sectionally by cohorts. Also, it would be worthwhile to relate attitudinal measures to achievement measures, again an analysis that was not included in the present study. Neither was multivariate analysis of variance run on groups of related tests, e.g., Spanish and English reading test. Such analyses might reveal relationships that are masked by analyzing separately tests which are related, such as the Spanish and English versions of the Inter-American Reading Tests.

Particularly now that so much has gone into the formation of the database, time needs to be spent doing a variety of statistical analyses to provide even greater insights into the effects of bilingual schooling in downstate Illinois. There is also room for continued test development and the administration of new and different tests in the evaluation process. As reported on in Chapter 4, "Assessing Spanish Reading," we also conducted a pilot study to determine Spanish reading progress through a criterion-referenced test developed professionally and marketed commercially--thus marking a compromise between a teacher-made test and a standardized test in terms of its proximity to the objectives of the local classroom. Plans are already underway to continue seeking means of criterion-referenced testing of reading, as well as of math (Rodríguez-Brown, 1976).

Again we must point out that whether the data met the assumptions behind the statistical techniques used in the analysis is debatable. Theoretically-irrefutable conclusions would have required a rigorous control group rather than a grade-cohort approach, as used here, particularly as concerns the B-3 and B-0 groups, i.e., the group with 3+ prior years of bilingual schooling and the group with no prior bilingual schooling as of Fall 1975.

Other unknowns also make interpretation of findings anything but definitive. First, there was no easy means of determining just what treatments the students received over their several years of bilingual schooling. There was no attempt to document approaches on a yearly basis, through specification of models, recording of classroom schedules, teacher reports of language use, and so forth (see Cohen, 1975, Ch. 6). It may be that such documentation of treatments is simply impractical at the cross-district level, when following large numbers of students. Another issue regarding these data results concerns the possibility that those students in bilingual programs longer had most likely also been tested longer, and had thus become "test-wise," possibly inflating their test scores slightly, particularly on repeated administrations of the same type of test. Of course, such children could also become tired of so much testing and thus not try as hard as students in a new control group.

There are other problems inherent in these analyses. Aside from the obvious consideration that achievement gains could be due to factors other than the treatment, i.e., bilingual schooling, there is also the confounding of school experience, age of student, and level of test. These analyses did not control for age, which in itself could explain some of the variance. Also, when controls were applied statistically through ANCOVA, there was no check on the validity of the statistic through analysis of the parallelism of regression lines. Although thousands of dollars went into the data analysis phase alone (separate from the thousands spent on the formation of the database), a number of seemingly important analyses were not run. We were informed by the IIT

There were also findings less consistent with the aims of bilingual programs. First, whereas a goal of bilingual programs in Illinois is to promote fluency and literacy in two languages, this study suggested that incremental years of bilingual schooling were not serving to enhance native language skill in all areas. Whereas the Spanish-English bilingual programs sampled appeared to be promoting Spanish listening and writing skills, speaking and reading skills did not appear to improve with increased years in a bilingual program (as assessed cross-sectionally). Second, another goal of the bilingual programs in Illinois is to insure that every student will be proud of himself, his family, and his background. The findings in this study would suggest that attitudes toward self, toward school, and toward community were negatively influenced by incremental years of bilingual schooling, at least at the elementary school level. It may be that the particular programs and methods that downstate Illinois programs have selected may be producing these negative consequences, at least among those students sampled.

The findings relating home language use to school language proficiency indicate the potential influence of native language use out of school on native language proficiency as measured at school. Students who did not speak Spanish to their mothers at home performed low in Spanish achievement at school. Those students who spoke Spanish with their siblings at home had high Spanish achievement scores. These findings simply underscore the role that out-of-school linguistic or sociolinguistic factors may play in school language achievement, regardless of the nature of the bilingual program. It may be that if societal forces are working against maintenance of Spanish, a subordinate language in the society, even the best of bilingual programs will have difficulty promoting the maintenance of Spanish literacy and fluency skills among their students.

other hand, we wouldn't expect Spanish to change as dramatically, unless the Spanish component in a bilingual program were strong enough to promote greater Spanish-media exposure out of school and more use of Spanish at home. Such seemed to be the case with the Spanish component in the Redwood City, California, program (Cohen, 1975, Ch. 9)--i.e., that the bilingual program actually stimulated Spanish language maintenance. But it would not seem that such was the case in downstate Illinois. On the other hand, the Illinois State objectives for bilingual programs emphasize their transitional nature--providing a bridge from native tongue to English. The Redwood City, California, program, to the contrary, was equally concerned with the maintenance of Spanish as it was with the acquisition of English by the Spanish-mother-tongue students.

6. General Conclusions

The findings from this study indicate that children in downstate Illinois bilingual classrooms are in certain ways better off for having received bilingual schooling. For example, incremental years of bilingual schooling for minority-group children enhanced their fluency and literacy skills in the dominant language of the society, namely English. Students with more years of bilingual schooling were stronger in both the productive English skills--speaking and writing--and the receptive skills--listening and reading. Furthermore, incremental years of bilingual schooling appeared to enhance conceptual development in general. A sampling of different assessment measures all produced indications that bilingual schooling enhanced cognitive functioning on tasks assessing non-verbal conceptual skills and verbal concepts, particularly English language concepts. Incremental years of bilingual schooling also appeared to contribute to growth in specific subject matter areas as well. Students with more years of bilingual schooling performed stronger on math, science, and social studies achievement measures.

language spoken to the mother and that spoken to siblings were significant at the .05 level (Tables 74 & 75). Students who spoke English to their mothers had lower means on the Spanish TOBE, and correspondingly, students who reportedly spoke Spanish to siblings had higher mean Spanish TOBE scores.

Discussion and Conclusion: Results show that English language performance as measured by the TOBE test was not significantly related either to media exposure--radio or T.V.--or to language use with parents or siblings. Perhaps there is enough reinforcement for English in school and elsewhere that effects of such exposure are less important. But Spanish performance was more sensitive both to exposure to Spanish radio and to use of Spanish at home, with mother and siblings.

These findings give us some feel for the sociolinguistic environment in downstate Illinois. In a community where Spanish is maintained, we might expect that students will perform better on Spanish tests. It might also be that those students who favor English media and use English at home are weaker in Spanish language performance to begin with. The position of Spanish among students in Illinois downstate is that of a subordinate language. English is the dominant, prestigious language. Hence, the school children's Spanish is probably more responsive to subordinate status than their English is to superordinate status.

One major question about the analysis is the fact that the background questionnaire data were collected in Fall 1974, while the TOBE was administered during the 1972-73 school year. Therefore, the language exposure and use data were obtained more than a year after the tests were taken. Might there have been changes in language exposure and language use patterns during this time period? It is likely that students generally were exposed to English media and using more English at home over that time. This may explain why results with the English TOBE were non-significant. From grades 1 to 3, we might expect "surprising" gains in English. On the

main effects being reported exposure to radio and T.V. and the covariate being the 1972 TOBE Language score. For the second set of analyses, a predetermined order was used to enter the independent variables of language spoken to mother, father, and siblings into the analysis. Thus, the effect of language spoken to mother was evaluated based on the students' TOBE Spring 1973 Language scores adjusted for the Fall 1972 TOBE scores. The effect of language spoken to father was evaluated by the TOBE score adjusted for the covariate and for language spoken to the mother. And finally, the effect of language spoken to siblings was regressed on the TOBE scores adjusted for the covariate and for language spoken both to the mother and to the father.

Results: The first set of analyses investigated the effect of English and Spanish language performance respectively on language listened to on radio and T.V. Whether the students listened to radio or T.V. in English, Spanish, or both, had no significant effect on English performance as measured by the TOBE 1973 Language subtest, after controlling for the TOBE 1972 scores (Tables 68 & 69). Media exposure did influence Spanish performance on the TOBE 1973 Language subtest (Tables 70 & 71). The main effect of language listened to on the radio was significant at the .01 level. Students who stated that they listened to Spanish language radio programs had a higher mean score on the TOBE Spanish language test in Spring 1973, controlling for performance on the Fall 1972 scores, than students who reported listening to programs in both languages or in English only.

As stated above, the second set of analyses investigated the effect on English and Spanish language performance respectively of language spoken to mother, father and siblings. When the results on the English TOBE subtest of Spring 1973 was the dependent measure, none of the main effects of language use (English, Spanish, or both) were significant (Tables 72 & 73). When the dependent measure was the TOBE Spanish language subtest of Spring 1973, however, there were significant main effects. Both the

interpretation is that the bilingual program is working against societal forces of an assimilationist nature, and that student attitudes reflect less the school program and more the social reality out of school. All the same, the question does emerge as to whether students in the elementary grades in bilingual programs in downstate Illinois are in some ways paying for their bilingual schooling in terms of adverse personal and social consequences. It is also important not to generalize beyond those Illinois classrooms sampled because results elsewhere have shown very positive attitudinal outcomes associated with bilingual schooling, using other instruments such as the Cross-Cultural Attitude Inventory (see, for example, Cohen, 1975, Ch. 11). It may also be that a negative shift in attitudes was simply due to increased schooling not related to bilingual programs in particular.

c. How does the sociolinguistic environment at home affect language performance at school? Specifically,

1) How does exposure to media, radio and T.V., in English and Spanish influence language performance?

2) How does student's choice of language in speaking to mother, father, and siblings relate to language at school?

Instruments: TOBE Language subtest, Level L, Spanish and English versions; five questions from the 1974-75 Background Questionnaire: language for radio, language for T.V., language spoken in home to mother, father and siblings.

Subjects and Administration: The subjects were the 140 students who had taken the TOBE Language subtest in Fall 1972 and then again in Spring 1973, when in grade 1. When they were in grade 3, their parents were asked to fill out the background questionnaire (Fall 1974).

Data Analysis: For the first set of analyses, ANCOVA was computed using as the dependent variable the Spring 1973 TOBE Language score, with

d) Achievement Motivation. Grade 3 had monotonically decreasing means across years of bilingual schooling (Table 61).

3) Self Security. At grade 4, students with two years of bilingual schooling scored significantly more positively than those with three years ($p < .05$) (Table 62).

With respect to 1973 BTB data, 3rd graders with one year of bilingual schooling scored significantly higher in attitude ($p < .05$) than those just entering a program (Table 66). In 1976, 2-way ANOVA indicated no significant differences between the B-3 and B-0 groups (66 & 67).

Discussion and Conclusion: The findings suggest that at the upper elementary and junior high levels bilingual schooling may enhance at least social confidence--but more data are needed to support such an assertion. On the other hand, there do appear to be ample data to suggest that bilingual programs as constituted in Illinois for elementary school students are not enhancing the kinds of attitudes toward self, school, and community as tapped by the SOS measure. The findings from this set of scales suggest that bilingual programs may be having adverse consequences attitudinally, particularly the longer the student receives bilingual schooling. The BTB Attitude subtest results are more mixed--in favor of bilingual schooling with respect to the 1973 data and no visible effects either way with respect to the 1976 data. Of course, whereas the BTB simply represents 20 items, dealing primarily with self-esteem, the SOS entails a much more lengthy set of scales, thus lending greater validity to the latter.

One interpretation of the findings based on the SOS is that in the first year or two, the program is novel, and therefore attitudes peak. Then, as things become more routine--as the novelty wears off--attitudes taper off as well. It is also possible that the bilingual programs in Illinois are not reinforcing linguistic and cultural attributes of the minority group enough to really enhance attitudes. Also, a less palatable

Data Analysis: Means and standard deviations were calculated for the SOS and for the BTB. On the SOS, one-way ANOVA with Scheffe's multiple comparisons test ($p<.05$) was computed. For the BTB, 1973 data were submitted to a t-test and 1976 data underwent 2-way ANOVA with number of years in the program and grade as factors.

Results: The findings for the students in grades 5,7 and 8 (Tables 58-65) tended to show some indication of higher mean scores for groups with more years of bilingual schooling, particularly in the case of the Social Confluence subtest (Table 64). However, the N's for the upper grades were too small (average cell size = 11) to make definitive statements. The results for the young students (grades 1-4) perhaps provided more valid findings in that the average cell size for a given grade and number of years of bilingual schooling was 52. At the Primary level of the instrument, there were indications within every subscale that attitudes were decreasingly favorable with increasing years of bilingual schooling. The following were the results by subscale.

a) Self Acceptance. Grade 3 had monotonically decreasing means across years of bilingual schooling with those having only one year of bilingual schooling scoring significantly more positively than students with three or four years of bilingual schooling ($p<.05$) (Table 58).

b) Social Maturity. Grades 1 and 4 had monotonically decreasing means across years of bilingual schooling, and at grade 3 students with only one year of bilingual schooling scored more positively than those with three years ($p<.05$) (Table 59).

c) School Affiliation. Grade 1 had monotonically decreasing means across years of bilingual schooling, and at grade 3, students with only one year of bilingual schooling scored more positively than those with three years ($p<.05$) (Table 60).

Discussion and Conclusion: There appears to be some support for the contention that years of bilingual schooling has a positive influence on development of math skills. Two out of three adminstrations of the same BTB subtest to different populations all favored the group in bilingual schooling the longest. Even though the IIEP results did not yield significant differences in favor of the B-3 group over the B-0 group, all the same the B-3 group mean was higher (23.4 vs. 21.3--Table 24). The IIEP test perhaps was not as closely linked to the school curriculum as the BTB was and probably had not gone through as many revisions as the BTB either, since the IIEP had just been introduced in 1976.

The reason why years of bilingual schooling produced significant findings for science and social studies with the 1976 data may reflect on the composition of the B-3 and B-0 groups. Perhaps a fair number of students in the B-0 group had been studying these subjects in other countries first, or at least in school districts with different curricula. The gap appears greatest in social studies, comparing B-3 and B-0 group results for social studies (Table 56) vs. those for science (table 54) and math (Table 52). It may be that social studies is the subject area least tranferrable across cultures, particularly with reference to those social studies items on the BTB test which were intended to be criterion referenced.

c. Do increased years in a bilingual program foster positive attitudes toward self, school, and community?

Intruments: Self-Observation Scale (SOS), Levels 1 & 2; BTB Attitude subtest, Level 1.

Subjects and Administration: On the SOS, Level 1 was given to 782 1st-4th graders in Fall 1974. Level 2 was given to 87 5th, 7th, and 8th graders at the same time. The BTB was given to 84 2nd-4th graders in Fall 1973 and to the B-3 and B-0 group 3rd and 4th graders in Winter 1976.

Data Analysis: Means and standard deviations by grade and by years in bilingual schooling, and t-tests of the differences in means according to years in the program were computed on 1973 3rd-grade data. For 1976 data, a 2-way factorial analysis of variance of the three BTB subtests by years in bilingual education and grade was computed.

Results:

a) Math. For 1973 data, 3rd graders in a bilingual program for one year scored significantly higher ($p<.05$) in math on the BTB than those 3rd graders just starting a bilingual program (Table 52). There was no significant difference by years in bilingual schooling (2 vs. 1) for 4th graders tested in Fall 1974 (Table 52). Regarding the 1976 data on the B-3 and B-0 groups, the B-3 group scored significantly higher ($p<.001$) than the B-0 group (Tables 52 & 53). Also, the students in 4th grade scored significantly better than those in 3rd grade ($p<.001$). On the IIEP Math subtest, the B-3 4th graders did not score significantly better than the B-0 graders (see Table 24).

b) Science. On the BTB Science subtest, there were no significant differences between 1973 3rd graders with 0 vs. 1 year of bilingual schooling, nor for 3rd graders in 1974 with 1 vs. 2 years of bilingual schooling. However, for the 1976 data, the B-3 group students outscored the B-0 group ($p<.001$). Also, 4th graders performed significantly better than 3rd graders ($p<.001$) (Tables 54 & 55).

c) Social Studies. As with science, differences by years of bilingual schooling for 1973 and for 1974 3rd graders on the BTB were non-significant. As with Math and Science tests, 1976 B-3 group 3rd and 4th graders performed better than the B-0 group students in Social Studies ($p<.001$). Also, 4th graders performed better than 3rd graders ($p<.001$) (see Tables 56 & 57).

were available) increased at each administration, i.e., from Fall to Winter and from Winter to Spring (Table 51). At grade 1, performance was not so regular. Whereas on the math items in English, the highest mean score was achieved at the end of the year, on the Spanish math items, the highest score appeared in Winter. With respect to language, performance on the English items also peaked in Winter. On the Spanish language items, there was a steady mean decline from Fall to Spring (8.65→7.80→6.03) (Table 51).

Discussion and Conclusion: We could conclude from the downstate Illinois Boehm results that length of time in a bilingual program had a positive effect on conceptual development, both in Spanish and in English. The I-A General Ability results provide some support for the Boehm findings and at more grade levels. The TOBE results indicate an interesting phenomenon —a possible backsliding or regression in Spanish performance. Perhaps the bilingual programs were stressing English more than Spanish. This finding is consistent with that for Spanish reading (above), namely that Spanish reading scores were lower for the children who were in a bilingual program longer. The microethnographic study presented below provides some insights into classroom dynamics that might help explain slippage in Spanish. Perhaps the forces at play both in and out of class impose a set of rules for language use and development/maintenance in downstate Illinois, and this set of rules endorses English primarily.

2) What effect does years of bilingual schooling have on achievement in the content subjects?

Instruments: The BTB Math, Science, and Social Studies subtests, Level 1; the IIEP Math subtest, Level 1.

Subjects and Administration: The BTB was given in Fall 1973 to 88 2nd-4th graders, to 19 3rd graders in Fall 1974, and to the B-3 and B-0 group 3rd and 4th graders in Winter 1976. The IIEP Math subtest was also administered to the B-3 and B-0 groups in Winter 1976.

for 2nd graders taking the Spanish version of the Boehm in Fall 1973, and for those taking the Spanish version and Part 1 of the English version in Spring 1974. For Fall 1973 results on the English version and Spring 1974 results just on Part 2, those 2nd graders with no prior bilingual schooling had slightly higher mean scores than those with one year, but the sample size for those with one year was much smaller ($n=6, 7$ vs. $n=40,42$). All the above differences are simply trends in the data. No statistical tests of differences in means were run.

With respect to the ANCOVA analysis, after controlling for pretest scores, the trend of increased performance with years in the program was still significant for Part 2 of the Spanish version ($p<.05$) (Tables 39, 40) and for Part 1 of the English version ($p<.05$) (Tables 41,42). Also, grade was significant ($p<.05$) for Part 2 of the Spanish version, meaning that 2nd graders scored better than 1st graders, who in turn scored better than kindergarteners on this subtest (Tables 39 & 40). However, the differences across grades weren't significant for Part 1 of the Spanish version or for the English version (Tables 37 & 38, 41-44).

On the I-A General Ability Test, at Level 1, grade 1, there was an overall trend of increasing means across subtests with increasing number of years in bilingual programs (Tables 45-48). The Sentence Completion subtest, Level 2, grade 3, and the Classification subtest, Level 3, grade 4, also showed continually increasing means over an increasing number of years in the program (Tables 45 & 46). For grades 2, 5, and 7, there were no continally increasing trends, but generally the pattern was one of increase, particularly comparing 5th-and 7th-grade students having one year of bilingual schooling to those having three yaars (Tables 45-50).

On the TOBE test, the mean score at the kindergarten level (where data

of general abilities--basic language concepts (word relationships, classifications, analogies) and math concepts(computation, number series)?

Instruments: Boehm Spanish (Version A) and English (Version B), Parts 1 & 2; I-A General Ability Tests, Levels 1-4; TOBE Tests of Language and Math, Level L, Spanish and English versions.

Subjects and Administration: The Boehm in Spanish was administered in Fall 1972 to 326 1st graders, and the English version, Part 1, to 118 1st graders. In Winter 1973, the English version, Part 2, was administered to 316 1st graders. Both the Spanish and the English versions were administered to 1st graders in Spring 1973. In Fall 1973 and in Spring 1974, both versions of the Boehm were again administered to over 300 students grades K-2. In Fall 1974, the Spanish version was given to 20 1st graders, and the English version to 146 1st graders. The General Abilities Test was given to about 800 students grades 1-5, and 7, in Fall 1974. The TOBE Tests were given to about 600 K-1 students in Fall 1972, Winter and Spring 1973. The students received the odd-numbered items from the English version and the even-numbered items from the Spanish version.

Data Analysis: Means and standard deviations were calculated by level of test, by grade, and by years of bilingual schooling for the Boehm and the General Ability Test. For the TOBE, mean scores were computed from Fall to Winter to Spring within K and grade 1. For the Boehm, ANCOVA of Spring 1974 scores by years in the program and grade were computed, using Fall 1973 scores as the covariate.

Results: On the Boehm Test of Basic Concepts, generally those students in bilingual schooling longer performed better. Both in Fall 1973 and in Spring 1974, kindergarten and grade 1 students in bilingual schooling longer (1-2 years) did better in all Spanish and English subtests than those students just starting bilingual schooling (Tables 33-36). This was also true for 1st graders taking the English version of the Boehm in Fall 1974;

to those of the B-O group children. We noted in Section 3.b.2, above, that the B-O group was composed of children from families that were more Spanish-dominant, a portion of whom had arrived recently from Spanish-speaking countries. This would certainly help explain the B-O students' strength in Spanish speaking.

The finding that performance by grade level was not significantly different on the Speaking subtest, in either English or Spanish, as it was on the Listening and Writing subtests, might simply indicate that speaking is not so much grade-related as the other skills, particularly at the early grades and with only one grade difference, i.e., 3rd vs. 4th.

General Conclusions for Research Question a: Given the limitations inherent in the 1976 B-3/B-O group comparison, we can still say that bilingual schooling does appear to enhance fluency and literacy in English. Bilingual programs appear to help maintain Spanish listening and writing skills, but in the areas of speaking and reading may have lesser impact. This is probably to be expected from students living in an English-dominant society. Children just coming to bilingual schooling at grades 3 and 4, a portion having had prior Spanish-medium schooling in Spanish-speaking contries, outperformed Illinois bilingual schooling students in Spanish speaking and to a certain extent in Spanish reading as well.

b. Do students in a bilingual program achieve at a rate commensurate with their age, ability, and grade level in all subject areas? We were not equipped to answer this question directly, since there were no state norms for most of the tests at the time, and in fact some of the tests were only taken by bilingual children (e.g., tests in Spanish). We were, however, able to find answers for the question as to whether years in bilingual schooling improved general ability and achievement in the subject areas.

1) What effect does years of bilingual schooling have on development

Subjects and Administration: In Fall 1974, Level 4 of the STEP was given to roughly 90 4th and 5th graders, and Level 3 to roughly 70 7th-9th graders. The STLS was given to the B-3 and B-0 group 3rd and 4th graders in Winter 1976.

Data Analysis: Means and standard deviations were calculated for the STEP results by level of test, grade, and years of bilingual schooling for listening and writing. For the STLS subtests, 2-way ANOVA was computed for each subtest by years in program and by grade.

Results: For STEP, no trends emerged at any given grade level (4-5, 7-9) regarding English listening or writing achievement as a function of number of years in a bilingual program. Even at the fourth grade level, where the most complete data were available (i.e., mean STEP data for students with no prior bilingual education to those with four years), there were still no noticeable patterns (see Table 26).

On the STLS English subtest, the B-3 group outperformed the B-0 group on Listening, Speaking, and Writing scores ($p<.001$). 4th graders did significantly better than third graders in listening and writing ($p<.001$) but not in speaking (Tables 22, 27 -29). On the Spanish subtests, years in program was not a statistically significant factor for the Listening and Writing subtests, but was for Speaking, with the B-0 group performing slightly better than the B-3 group ($p<.01$). As with English, 4th graders did better than 3rd graders in listening and writing ($p<.01$), but not in speaking (Tables 22, 30-32).

Discussion and Conclusion: STEP results didn't provide insights as to whether the bilingual programs were enhancing English listening and writing. The STLS results, however, did suggest that bilingual programs reinforced both English listening and writing, plus speaking as well. The Spanish STLS results might suggest that the bilingual programs were not doing much to enhance Spanish speaking, but it is noteworthy that Spanish listening and writing skills of children in bilingual schooling for three years were comparable

Discussion and Conclusion: Since only one year separates the 1974 groups in the analysis of English reading based on the I-A test, it is not surprising that no significant difference by year is found. For the 1976 groups, the B-3 group clearly had the edge over the B-0 group in English reading, not just on the I-A Reading Test, but on the STLS and IIEP tests as well. Lest we attribute all the advantage to years of bilingual schooling, we must point out that a portion of the B-0 group students began their reading in Spanish in Spanish-speaking countries and were just beginning to transfer those reading skills to the reading of English. B-3 students had, for the most part, started learning to read in Spanish and in English concurrently (see Section 3.c, above).

Performance in Spanish reading would tend to support the notion that the B-0 students had a firmer foundation in Spanish reading, both with respect to reading vocabulary (the I-A test results) and in general (the STLS test results). It may be that the Illinois State program is not emphasizing Spanish reading as much as English reading. It is interesting that a difference in Spanish reading by grade showed up in the B-0 group, which contained more recent immigrants, but not in the B-3 group. The suggestion here is that perhaps the bilingual program is not producing noticeable gains in performance after grade 3--due to a deemphasis on Spanish reading.[6] With the new group, B-0, however, the difference between 3rd and 4th graders is perhaps more reflective of the normal gains found among children studying Spanish reading in a Spanish-speaking school and community.

2) What is the effect of number of years in bilingual schooling on listening, speaking, and writing English and Spanish?

Instruments: STEP Listening and Writing subtests, Levels 3 &4; STLS Listening, Speaking, and Writing subtests.

of years of prior bilingual education (1 or 2) didn't seem to affect performance in English reading at either grade level, although no statistical tests were run (see Tables 10, 12, & 14). For the 1976 groups, years in program was a significant factor ($p<.001$) in English reading on all subtests of the I-A Reading Test (Tables 10-15), on the STLS ($p<.001$) (Tables 22 & 23), and on the IIEP Reading Test ($p<.05$) (Table 24). With respect to grade, 4th graders did significantly better than 3rd graders on the I-A and STLS reading tests.

b) Spanish Reading. With respect to Spanish reading, the group sizes for those with no prior bilingual schooling vs. those with one year (in 1974) were too small to make any statements at all (Table 16, 18, & 20). For the 1976 groups, there were no significant differences on the level of Comprehension and Speed of Comprehension subtests of the I-A, but on Vocabulary those without prior bilingual schooling (the B-0 group) performed better than the B-3 group ($p<.001$)(Tables 16-21). Likewise, those without bilingual schooling scored higher on the STLS ($p<.01$), at least at the grade 4 level (Tables 22 & 25). On all three subtests of the I-A test, 4th graders scored better than the 3rd graders ($p<.01$). With respect to the vocabulary subtest, there was a significant interaction between grade and years of bilingual schooling ($p<.05$), meaning that the impact of number of years of treatment was greater for 4th graders than for 3rd graders. It can also be seen that there was more of a difference between the means for 3rd and 4th graders new to the program (6+points) than for 3rd and 4th graders in the program for over three years (2+points) (Table 20). On the Spanish STLS, there was also a significant interaction between grade and years of bilingual schooling ($p<.05$), indicating that there was a greater mean difference in Spanish reading between 3rd and 4th graders new to the program (2.3 points) than between those in the program for 3+years (0.1) (Tables 22 & 25).

the subjects involved, the times of administration, and the data analysis procedures employed to answer the questions under discussion. Again, it should be pointed out that in order to answer the research questions as amply as possible, data were drawn from as many sources within the database as possible, thus frequently going beyond the special 3rd-4th grade comparison of the B-3 and B-0 groups set up for longitudinal study. All groups of subjects are clearly identified below.

a. Do students in a bilingual program over several years achieve fluency and literacy in two languages?

1) What is the effect of number of years in bilingual schooling on English and Spanish reading achievement?

Instruments: English Reading--I-A Reading, Level 2; STLS English Reading; IIEP Reading. Spanish Reading--I-A Lectura, Level 2; STLS Spanish Reading.

Subjects and Administration: The I-A Reading tests were administered to 204 3rd and 4th graders in Fall 1974 and to the B-3 and B-0 3rd and 4th graders in Winter 1976. The STLS and IIEP reading tests were administered only to the B-3 and B-0 group students in Winter 1976, and the IIEP only to the 4th graders among the B-3 and B-0 students (see Table 9a).

Data Analysis: The independent variables for the analysis were number of years in bilingual schooling and grade of entry. The 1974 3rd and 4th graders were in bilingual schooling for either 0, 1 or 2 years. The 1976 group had had either no prior bilingual schooling or 3+ years. The means and standard deviations for grades 3 and 4 in 1974 and 1976 were calculated. Two-way ANOVA was run on the 1976 I-A Reading/Lectura and STLS data, with years in program and grades as factors. For IIEP data, one-way analysis of variance was computed.

Results:

a) English Reading. Regarding the 1974 groups, number

In Section 3.b.2, above, it was documented that there were basic differences between background characteristics of the B-3 group (students with 3+ years of bilingual schooling as of Fall 1975) and the B-0 group (students just entering bilingual programs at the 3rd or 4th-grade level in Fall 1975), selected for comparative analysis in 1975-76. Of course, these differences have become part of the longitudinal analysis itself. The ongoing question becomes: If a group begins a bilingual program in, say, grade 3 or 4 because they are recent arrivals from Spanish-speaking countries or elsewhere and have certain corresponding characteristics--e.g., more Spanish in the home, parents having somewhat lower-status occupations, education, etc.--what will the effect of these differences be on outcomes? Of particular interest is the continuing effect of these differences. Thus, this analysis in many ways is no more than an interim report, in that these students can continue to be compared with those having previous bilingual schooling.

The data analysis was sub-contracted to the Illinois Institute of Technology's Research Institute (IITRI) and IITRI reported that because of time constraints and budget limitations, certain statistical analyses that would have further validated the statistical procedure utilized, were not carried out. Such analysis would have included checking for the parallelism of regression lines between groups in analysis of covariance (ANCOVA) and the use of multivariate analysis of variance procedures. Thus, no attempt was made to analyze together related tests such as those of Spanish and English reading. The use of multiveriate analysis would indicate how much shared variance there is between presumably related tests.

5. Findings

This section provides not only findings regarding specific research questions posed above (Section 2), but also related information to make the findings more meaningful--i.e., a brief description of the instruments,

analysis of groups of students at the same grade level who differ on some characteristic, in this case on number of years of bilingual schooling. Data from single school programs usually are not ample enough to allow such analyses. In this instance, grade cohort analysis produced a compromise approach to the problem of no existing control group, allowing instead the possibility of comparing across students all within bilingual schooling programs, but with differing amounts of exposure time.

The actual statistical techniques varied according to the extent of available data on the students concerned. One of the first analyses involved the computation of an intercorrelation matrix of test scores for all available data between 1972 and 1976. This matrix helped identify groups of individual students who had taken two or more tests at different times over the four years under investigation. (This correlation matrix appears in Ripley, 1976, p. 13.) Other techniques employed included t-tests, one-way analysis of variance with and without the Scheffé multiple range test, two-way analysis of variance, and two-way analysis of covariance, primarily using programs from the Statistical Package for the Social Sciences (Nie et al., 1975). The Findings section below, specifies which statistical tests were used for which specific analyses.

Analysis of variance, one-way and two-way, were used for analysis even when it could not be assumed that the groups were similar. Likewise, analysis of covariance was used to adjust posttest score differences according to pretest score differences. Lord (1967) and subsequent researchers have pointed out that if groups are not random to begin with, strong evidence is needed to determine that the selection was random "in effect." It is difficult to say whether the downstate Illinois data met this assumption. It was nevertheless assumed that these pre-existing groups were sufficiently similar to warrant use of analysis of covariance. The SPSS 2-way ANOVA program did adjust for unequal cell sizes.

tape, describing attributes and academic achievement of 4,698 students from grades K-12 in 44 school districts in Illinois downstate. The data span the four school years from 1972 through 1976.

It was not until this elaborate matching procedure had been completed that we were able to identify just which 3rd and 4th graders had had 3+ years of bilingual schooling as of Fall 1975. The database identified the 200+ such cases, from 15 school districts, and then we set out to locate the students, as well as to administer supplemental tests to them. These are the students referred to as the B-3 group in Section 3.b, above.

Returning to the general format of the database, the data were thus set up on a personal student basis, with one identification number for each student. The database, then, has two sections, one with constant information such as school, district, birthyear, year entered bilingual program, grade entered bilingual program, birthplace of various family members, etc. The other section consists of data that are added to over the years as additional data on the students are obtained. Such data include achievement scores and background data of a changing nature over the years, such as student's language ability and language use patterns.

d. Data Analysis

Data analysis procedures posed a problem in this study as they have in many educational evaluation programs, in that there was no carefully-set up control group with random assignment of pupils to experimental and non-experimental conditions. It was with this constraint on statistical analysis and with the awareness of consequent limitations as to generalizability of results that statistical analysis was carried out.

The "cross-sectional aggregate data" approach to analysis seemed the most practical in that there was a large database with which to work. This cross-sectional approach, also called "grade cohort" analysis when working with school grades as in this instance, calls for comparative

professional keypuncher before the data were submitted for analysis to the Illinois Institute of Technology Research Institute (see Ripley, 1976).

c. The Formation of the Database

As of Fall 1975, there was an accumulation of data from students in bilingual programs downstate dating back to Fall 1971. Some data were on tape, some on cards, some simply in the original exam booklets. Most of the data were, in fact, out of state--in the hands of a small data analysis outfit in North Carolina (IBEX). The rest of the data were at the Bilingual Service Center in Illinois. Unfortunately, student identification numbers were purposely not preserved over the years when students were retested (if they were), out of a concern for confidentiality. Although a concern for anonymity is legitimate, there could have been other means of preseving anonymity without all but prohibiting longitudinal use of student records. Even in the face of the given reality, it was clear that if any statements were going to be made about the effects of bilingual programs over the years, there was a need to merge the existing data into a comprehensive database. This database could then serve not only as a repository from whence information could be available for evaluation and research, but also as a source of data for decision-making and proposal writing.

The Illinois Institute of Technology's Research Institute developed routines for building such a database, using their DEC's PDP-11/45 (Ripley, 1976). (Interested parties wishing to obtain this software should consult the Illinois Office of Education, Bilingual Section, Chicago, Illinois.) IIT designed programs which built "logical records" for each student for whom there were data. The staff "built" records in the sense that they had to construct routines for searching through data from disparate testing sessions and years for multiple matches. Such matches, then, would indicate that the records belonged, in fact, to the same student. The outcome was a database with over 273 variables from 70 data files on a master

The first testing session included the administration of the Bilingual Test Battery and the Inter-American Reading Test. This session was divided into two parts: the Science, Social Studies, and Math subtests of the BTB were given at one sitting, and after a break, the Attitudes subtest of the BTB and the I-A Reading Test were administered.

The second session included the administration of the Listening, Reading and Writing parts of the Short Test of Linguistic Skills, in Spanish and in English. The subtests were given in one language in the morning, and in the other language in the afternoon. As time allowed, the fourth graders were administered the Speaking subtest in English or Spanish individually.

The third session included continuation of the individual administration of the Speaking section of the STLS in Spanish and English, and the administration of the I-A Prueba de Lectura. In addition, the Illinois Inventory of Educational Progress was given to the fourth graders, i.e., the Reading and Mathematics subtests.

With the approval of program administrators, teachers were asked to release from their classes for the testing sessions those students designated as subjects in the study. Each school provided the test administrators with a room for testing purposes.

All tests, except the Speaking subtest of the STLS, were group-administered. To administer the Speaking subtest of the STLS, the children were individually tested. A native speaker of Spanish gave the Spanish subtest and a native English speaker administered the English subtest. The test administrators were mainly Puerto Rican or Mexican bilinguals, although some monolingual English speakers gave the English subtests.

Subsequently, the tests were hand-scored by the same staff assistants. The results were coded onto Fortran coding sheets from which they were keypunched. Keypunching and verification of cards were performed by a

The TOBE Language and Math subtests, Level L, were administered in Fall 1972, in Winter 1973, and in Spring 1973. Altogether, 1,844 students took the Language subtest and 1,413 took the Math subtest over the course of that school year (Table 9).

Levels 2-5 of the I-A General Ability Test was administered to 1,900 students in Fall 1974, and Level 3 alone was administered to 64 children in Spring 1975. Levels 3 and 4 of the I-A Habilidad General, the Spanish version of the same test, were administered to 102 students in Fall 1974.

The Bilingual Test Battery (BTB), Level 1, was administered to 783 children altogether: to 3rd and 4th graders in Fall 1973, in Spring 1974, in Fall 1974, and again to the B-3 and B-4 groups in Winter 1976. Level 2 was given to 77 5th and 6th graders in Fall 1975, while Level 3 was given to three 8th graders in Spring 1974 and to 108 7th and 8th graders in Fall 1974.

The Primary level of the Self-Observation Scale (SOS) was administered in Fall 1974 to 1,643 children in grades 1-4. The Intermediate Level was administered to 751 children in grades 5, 7, and 8, at the same time.

Whereas the current researchers were unable to obtain an account of how tests were actually administered before the beginning of this longitudinal study in Fall 1975, test administration procedures for the school year 1975-76 were carefully documented. The tests were administered by staff assistants of the Illinois Bilingual Evaluation Center (Downstate), previously trained for this task. Two people were sent to each of the 15 school districts in which testing took place. Although most of the staff assistants were bilingual, each team had a native English speaker and a native Spanish speaker as an additional precaution. The tests were administered in three sessions, with a two-week span between each session. Thus, the tests were administered within a six week period from the middle of January to the end of February.

Illinois evaluation went through a variety of phases with little, if any, cohesive, continuing longitudinal overview. Thus, data were collected in what may seem like a disparate fashion. In reality, however, there were various short-term plans for data collection which were as much concerned with issues of test development (such as test reliability) as with the actual achievement of the youngsters tested. There was a reluctance to report achievement scores before the reliability and validity of the instruments were established on Illinois bilingual students. In any event, the following is a description of when the various measures were administered. Table 9 provides a summary overview to that effect.

The I-A English Reading Test, Level 2 (Forms CE and DE), was administered in Fall 1974 to 505 2nd and 3rd graders. Form DE of Level 2 was given to 326 3rd and 4th graders in Winter 1976. Three levels of the I-A Lecture (Levels 2-4, Forms CEs and DEs) were administered in Spring 1974 to 556 students, Levels 3 and 4 in Fall 1974 to 485 students, and Level 2, Form CEs, in Winter 1976 to the B-3 and B-0 group 3rd and 4th graders.

The Short Test of Linguistic Skills (STLS) was administered to the B-3 and B-0 group 3rd and 4th graders during Winter 1976. The Reading and Math subtests from the Illinois Inventory of Educational progress (IIEP) were administered to B-3 and B-0 group 4th graders in Winter 1976, as well.

The STEP tests of Listening and Writing were administered to 170 4th-9th-grade students in Fall 1974. Level 4 was administered to 4th and 5th graders, Level 3 to 7th, 8th, and 9th graders.

The Boehm test was administered six times between Fall 1972 and Fall 1974, both in Spanish and in English. During that time, Part 1 of the Spanish version, for example, was given to as many as 917 students (Spring 1974) and to as few as 58 (Fall 1974) and to no one at all in Winter 1973 (see Table 9).

the continuation of bilingual program funding.

The test has three levels: Level 1 covers grades 3 and 4, Level 2 covers grades 5 and 6, and Level 3 covers grades 7 and 8. For each level, the 80-item test is divided into four subtests: mathematics (20 items), social studies (20 items), science (20 items), and attitudes (20 items). The special feature of this test is that the items are presented to the children in Spanish and English concurrently, on opposite sides of the page. The children are encouraged to read the items in the language with which they are more familiar. The test is group administered and is not timed.

9) Self-Observation Scales (SOS)

The Self-Observation Scales, developed by the National Testing Service, Durham, North Carolina, consist of a group-administered instrument at the primary and intermediate levels, with versions in English and in Spanish. The Primary level (intended for grades K-3) consists of 45 items. It measures five dimensions of children's affective behavior: Self Acceptance, Social Maturity, School Affiliation, Achievement Motivation, and Self Security.[5] The Intermediate level (intended for grades 4-6) consists of 60 items. It measures the same five dimensions as on the Primary form and adds three more: Teacher Affiliation, Social Confidence, and Peer Affiliation.

The norms for the primary level were based on a sample of 9,030 students in grades K-3, and the norms for the intermediate level were based on a sample of 7,580 children in grades 4-6. Special attention was paid to the social, geographic and socioeconomic characteristics of the participating schools. In all, 150 schools nationwide participated in the norming of the test.

b. Test Administration

As mentioned in the introduction to this chapter on evaluation of bilingual schooling in moderate-to-small school districts, the downstate

to provide an estimate of the ability to do academic work in general. The verbal subtest measures the understanding of written language and the ability to recognize relationships among concepts expressed by words. The non-verbal subtest tests for a grasp of relationships among concepts represented by pictorial stimuli. The mathematics subtest assesses the ability to think quantitatively through exercises in arithmetic computation and reasoning.

The test has six levels to it, each having an English and a Spanish version. This study used levels 2-5, which are described below.

a) Level 2 is to be administered to 2nd-and 3rd-grade children. The test consists of 100 items divided into 2 parts: a verbal-numerical subtest (60 items) and a non-verbal subtest, which consists of classification and analogies (40 items).

b) Level 3 is to be administered in grades 4-6. It is a timed test which consists of 150 items. It has three subtests: verbal (sentence completion and word selection), non-verbal (figures, analogies, figure classification), and numerical (computation and number series).

c) Level 4 is for grades 7-9, and consists of 150 items with the same format as Level 3.

d) Level 5 is for grades 10 through 13 (i.e., first year college). It is timed, and comprises 150 items, with the same format as for Levels 3 and 4.

8) <u>The Bilingual Test Battery (BTB)</u>

The Bilingual Test Battery (BTB) was developed by the Department of Research and Evaluation of the Chicago Board of Education. The BTB is designed to assess both achievement in the content areas of math, science, and social studies, and attitudes toward self. Items were constructed on the basis of a review of both standardized and teacher-made tests and on the basis of program objectives as listed in school districts' proposals for

administration to kindergarten and first-grade students. The test was developed to identify and offer remedial help to children who do not have the linguistic-conceptual level of comprehension expected of them. The test has two parts, each having its own booklet (numbered 1 and 2, respectively). There are both Spanish and English versions, forms A and B respectively.

The test consists of 50 sets of pictorial items which are organized in order of difficulty. For each item, the test administrator describes a depicted concept to the children and then instructs the children to mark the picture which corresponds to the concept. The test can be administered on a group basis and is not timed.

6) The Test of Basic Experiences (TOBE)

The Language and Mathematics subtests from a battery of tests of basic experience published by McGraw-Hill, were selected for administration to bilingual students in downstate Illinois. According to the authors, this test battery is designed according to the premise that experiences and associated learning opportunities vary considerably among children. The test is based on the theory that for a pupil to progress in school, he must master certain concepts and skills which are often acquired before his exposure to formal education. The level L form, for kindergarten and grade 1, was selected for this study. There are both English and Spanish versions of the test. The publishers report an average Kuder-Richardson 20 reliability coefficient of .82 and assure content validity.

7) The Inter-American Tests of General Ability (I-A General Ability & Habilidad General)

The Tests of General Ability (Guidance Testing Associates, 1967a, 1967b, 1973) and its Spanish version Prueba de Habilidad General, were developed under the direction of the late Dr. Herschel T. Manuel and published by Guidance Testing Associates, Austin, Texas. According to the publishers, these tests are not intended to measure general intelligence, but are intended rather

3) The Illinois Inventory of Educational Progress (IIEP)

The Illinois Inventory of Educational Progress(IIEP) was developed by the Assessment and Evaluation Planning Section of the Illinois Office of Education to provide the State with a comprehensive inventory of the State's educational progress in selected subject areas, at three key points in the students' public schooling. The inventory is primarily concerned with the assessment of "survival skills" in reading, mathematics, etc. According to the developers, "the IIEP provides for a systematic, continuous, census-like survey of knowledge, skills, and understanding established by students in three age groups (9, 13, and 17 years of age) and three grade levels (4, 8, and 11)" (Illinois Office of Education, 1976). The inventory covers six different subject areas: Reading, Mathematics, Science, Social Studies, Writing, Career and Occupational Development, as well as some selected dimensions of the affective and psychomotor domain. This present study used only the Reading and Mathematics subtests.

4) Sequential Tests of Educational Progress (STEP)

The Sequential Tests of Educational Progress (STEP) Series II is published by the Educational Testing Service. It consists of a battery of achievement tests designed to measure students' progress in academic areas. The STEP Listening and Writing Tests were selected for this study. According to the publishers, the tests are supposed to assess strength of performance, rather than speed, although they are timed. The publishers indicate the tests were standardized on a representative population within the United States, and norms are provided. Levels 2-4 of the test have been used in downstate Illinois, with Level 4 corresponding to grades 4-6, Level 3 to grades 7-9, and level 2 to grades 10-12.

5) Boehm Test of Basic Concepts (Boehm)

This test, published by the Psychological Corporation, is designed to assess the child's knowledge of basic concepts. It is intended for

For the Spanish version of the test, the first criterion was satisfied but not the second one, if we can assume that all the children were native speakers of Spanish and that English predominated in the community. For the English tests, the second condition was satisfied but not the first. Due to this discrepancy, the children in the bilingual programs were given both Spanish and English versions of the test one level lower than the level corresponding to the grade that they were attending.

2) The Short Test of Linguistic Skills (STLS)

The Short Test of Linguistic Skills (STLS) was developed by the Department of Research and Evaluation of the Chicago Board of Education to measure language dominance in children whose native language is not English. According to the authors, the test attempts to be "culture fair" in its content selection and considers the child's first language as a point of reference in isolating problems that the student might have with English (Chicago Board of Education, 1976). The test is available in 11 parallel forms, including English, Arabic, Chinese, Greek, Italian, Japanese, Korean, Philipino, Polish, Spanish, and Vietnamese. The English and Spanish forms were used in this study.

The test is intended for administration to children in grades 3 through 8. It has four subtests: Listening, Reading, Writing, and Speaking. Each subtest has 20 items divided into four parts. Within each part, the items are ordered according to difficulty. The listening, reading, and writing subtests are group-administered, and the speaking subtest is administered individually. The test was normed on 252 third graders and 248 fourth graders in Fall 1976 and norms are available upon request. Kuder-Richardson 20 reliability coefficients ranged from a low of .83 (Spanish Reading, 3rd graders) to a high of .97 (English Speaking, 4th graders) (Table 8).

developed under the direction of the late Dr. Herschel T. Manual and are published by Guidance Testing Associates (1967a, 1967b, 1973). According to the author, these tests not only measure reading but form a basis "for estimating ability to do school work in other areas in which the ability to read is related to achievement" (Havassy, 1972). The tests were developed by educators from Puerto Rico, Mexico, and Texas. The publishers report that "the language of the tests was chosen to avoid local idioms, and instead to use 'standard' language that could be understood generally" (Guidance Testing Associates, 1967a). It is also reported that the English and Spanish versions of the test were checked for similarity of difficulty at all levels, grades K-12. Levels 2-4 of the Spanish version (Forms CEs and DEs) and of the English version (Forms CE and DE) were used in this study.

Level 2 has three subtests: Level of Comprehension (40 items), Speed of Comprehension (30 items), and Vocabulary (40 items). At this level, the child chooses a picture which is suggested by a printed word, a phrase, a sentence, or a paragraph. Levels 3 and 4 have the same subtest format as Level 2, but substitute written for pictorial stimuli. The tests are timed and group administered. Reliability coefficients (Kuder-Richardson 20) were calculated for both the English and Spanish versions Level 2, using groups of downstate Illinois third and fourth graders (Fall 1976) respectively. In all cases, Total-test reliability was .95 or higher. Complete reliability data appear in Table 8.

There were problems in deciding specifically which levels of the test to administer to the bilingual children in the study. The grade-level designations are based on two criteria: 1) that the children should be native speakers of the language of the test, and 2) that the language of the test should be used actively in the environment in which the child lives.

and 19% reportedly spoke English more than Spanish.[4]

Looking at the teachers' appraisals of their own language proficiency, 87% of the teachers rated their spoken Spanish ability as either "good" or "native," while 65% of the teachers rated their spoken English ability as "native." In contrast, only 50% of the teacher aides were rated by teachers as having native command of Spanish and 56% as having native command of English. Thus, the teachers appear to have been Spanish-dominant on the whole, while aides were characterized by dominance in both directions. This finding regarding language dominance is in contrast to that of teachers and aides in other bilingual programs in Chicago and in the rest of the country especially in the Southwest (see Cohen, 1975, Ch. 6, for an example). In parts of the Southwest, for example, parents were upset, at least at the outset of the bilingual programs, that most, if not all of the Spanish-language instruction seemed to be provided exclusively by teacher aides, who were not considered as qualified as the teachers. Illinois is to be acknowledged for having recruited teachers with strong Spanish skills to teach in bilingual programs.

4. Method

a. Instrumentation

Between Fall 1972 and Spring 1976, a series of instruments, including tests of language dominance, reading, achievement in the content subjects, and attitudes were given to children attending bilingual programs in downstate Illinois. The following is a description of these tests, with indication as to the level or form of the test used in this study and the grade level(s) to which it corresponds.

1) The Inter-American English and Spanish Reading Tests (1-A Reading & Lectura)

The Test of Reading and its Spanish equivalent Prueba de Lectura were

These teachers had taught in their district's bilingual program for four years, on the average.

The teachers indicated differences in the models of bilingual schooling that they employed in ther classrooms. The most commonly-used model was the half-day bilingual program, where children attended the bilingual program for half a day and the regular program for the other half. 39% of the teachers were involved in this approach. The second most common program was that of tutorial pull-out. In this program the child attended the bilingual classroom for only an hour or so each day. Sometimes he received an English-as-a-second-language or a culture lesson (with emphasis on the culture of his ethnic group) during that time. 37% of the teachers indicated that they used this model. Other models reported were the team-teaching model (found in 13% of the classrooms), where the class had one bilingual and one regular teacher who taught together all the time, and the self-contained bilingual classrom (implemented by 11% of the classrooms), where the child spent all the time in a bilingual classroom with a bilingual teacher.[3] Twenty-four teachers (75% of those responding) reported that they had a teacher aide in their classrooms as well, thus bringing the average student-staff ratio to 11 children per adult.

Three-quarters of the teachers reported that children who had been in the bilingual program since its inception received beginning instruction in English and Spanish reading concurrently.

Regarding language use in the classroom, twenty-five teachers (78%) specified that they used Spanish in their classroom primarily for the following purposes: Spanish language arts instruction, as a medium of instruction for all subjects, and for general classroom interaction. They reported speaking Spanish approximately 30% of the time on the average. With respect to student language use patterns at school, they reported that on the average 52% of their students spoke English and Spanish about half the time, 29% reportedly spoke Spanish more than English,

English to their parents than were B-0 group children. In both cases, children used considerably more Spanish with parents than English (Table 7). B-3 group students were reported using mostly English among themselves (75% just English), while B-0 group students were reported using mostly Spanish (51% just Spanish vs. 31% just English). B-0 group families tended to be in more Anglo communities where the language of the neighborhood was English.

Thus, the comparative picture is one of more established Spanish-speaking families (the B-3 group) vs. more recent immigrant families (the B-0 group), with the former having stronger English language skills, better educational backgrounds, and somewhat better jobs. Rather than avoiding comparison of B-3 and B-0 group students' performance at school because of these baseline differences, we felt that comparisons should still be made, but paying careful attention to such initial differences as the longitudinal study progresses. The basic issue might actually concern the extent of the deficit that the more recent immigrants really have at the outset, given such background differences as those enumerated above. Just as bilingual schooling itself is not a static process, but rather an ever-changing one given the advances in the field, so student characteristics as well as parental characteristics do not remain static. These characteristics change with the assimilation and acculturation processes. Thus, the decision here was to consider these initial differences as important intervening variables to be watched closely over time and to be considered seriously when interpreting any comparative results between the B-3 and B-0 group children.

c. Description of Bilingual Schooling Treatments

During Winter 1976, questionnaires were distributed to the teachers who taught the B-3 and B-0 group children included in the longitudinal study (see Appendix C). The teachers sampled represented fifteen school districts which had implemented bilingual education on or before September 1972. Thirty-two teachers returned the questionnaires out of a population of 75, hence 43%.

born in the U.S. (10%) (see Table 7).

With respect to education and occupation, the B-3 fathers tended to have completed more higher education and tended to have slightly better jobs than B-0 group parents. There was also some indication that B-3 mothers had better jobs than B-0 mothers (Table 7). There was greater reported illiteracy among mothers in reading of Spanish in the B-0 group than in the B-3 group, while the groups had similar limitations in reading English. The B-3 group parents reported speaking English better than the B-0 group, and the B-3 fathers reported better English reading skills, commensurate with their higher education, better jobs, and longer residence in the U.S. (Table 7). Student differences in reported Spanish reading skill slightly favored the B-0 group. Whereas 35% of the B-0 group were rated "good", only 28% of the B-3 group were so rated. In English reading, however, the B-3 group excelled dramatically (74% of B-3 group reported good or native vs. 35% of B-0 group reported good or native). In English speaking, the B-0 group were reported to have as many as 47% in the "little or none" categories, while the B-3 group had only 8% so rated.

Language use patterns also showed differences between the B-3 and B-0 groups, more so for fathers and for students than for mothers. Mothers' home language use indicated somewhat more English in the B-3 group than in the B-0 group (19% vs. 8%). Fathers of B-3 group students generally reported using more English or both English and Spanish at home, outside the home, and in reading and listening to the radio than did B-0 fathers. B-3 students themselves were also reported using more English than B-0 students at home, for reading, watching T.V., and listening to the radio (Table 7).

B-3 group parents reported using more English with their children than B-0 group parents. Likewise, B-3 children were reported speaking more

Thus, in summary, the majority of the parents were of Latin American heritage, half being recent residents of Illinois. Their educational backgrounds were limited primarily to the elementary level, their families were large, the men worked mainly as manual laborers, and the women were housewives. The parents were generally more proficient in Spanish than in English and used Spanish more frequently. Their children were either balanced bilinguals or dominant in English and were reported to use English more than Spanish.

2) The B-3 Group vs. the B-0 Group

It is important to indicate the major differences between the B-3 group (the group with 3+ years of bilingual schooling at the start of the 1975-76 school year) and the B-0 group (the group just beginning bilingual schooling at the 3rd and 4th-grade levels at that time). The very fact that the B-0 group were starting bilingual programs in grades 3 or 4 is an indication that these pupils included recent arrivals to those school districts, very possibly as immigrants from Mexico, Puerto Rico, or Cuba. In that this is a continuing longitudinal study, it will be possible to see which initial differences between the B-3 and B-0 groups with respect to background characteristics disappear over time and which persist.

As it turns out in this case, there were basic diferences in baseline comparative data relating to the following areas: birthplace of the parents and children, parents' occupation, mother's schooling, parents' and children's language skills and language use patterns. (Complete comparative data may be found in Appendix B to Ripley (1976)).

With respect to birthplace, 51% of the B-3 group were born in the U.S. and 30% in latin America, whereas only 18% of the B-0 group were born in the U.S. and 63% in Latin America. Whereas fewer B-3 group parents were born in the U.S. than their children (30%), fewer still B-0 group parents were

with their reported language ability. Parents tended to use Spanish exclusively at home (76% of mothers, 63% of fathers). They tended to read in Spanish (57% of mothers in Spanish alone, 11% in both, 21% in English only; 45% of fathers in Spanish, 13% in both, 24% in English) and listen to Spanish radio programs (58% of mothers, 46% of fathers). With respect to T.V., fathers watched more English programs (38% English only, 21% in both, 28% in Spanish only). Most parents also reported using just Spanish when speaking with each other. When speaking to their children, the parents reported slightly more English use (68% used just English, 15% used both, and 15% just English). The children were reported speaking Spanish back to their parents, but not as frequently (58% just Spanish, 14% both, and 23% English only). In contrast to language directed at parents, a full 57% of the children were reported to speak only English among themselves, with 17% using both, and only 23% using Spanish exclusively. In fact, the children in general were reported to use more English than Spanish at home altogether (49% English only vs. 31% Spanish only). More children read only in English (61% English, 16% both, 13% Spanish), more listened to radio in English (69% English, 12% both, 13% Spanish), and watched T.V. in English (69% only English, 12% both, 13% Spanish only). (With regard to T.V., it is fair to say that the selection of programs was far greater in English, which would help explain both parental and children T.V. language use patterns.)

Outside the home, the mothers continued to use primarily Spanish (63% Spanish only, 7% both, 22% English only). Almost as many fathers, on the other hand, reported using only English as reported using only Spanish (35% just English vs. 40% just Spanish). Such would be a result of the types of jobs they had found--i.e., in which English was required. Only 10% of the fathers who responded to the question reported using both English and Spanish outside the home.

There was an average of 5 children per family and it would seem that many of these children were actually participating in bilingual education programs. When asked how many children were currently attending or had attended bilingual programs, 26% of the parents said "two," 18% said "three," 11% said "four," and so on. The neighborhoods that they moved into were largely Anglo (53%) and 81% of the neighborhood spoke either English only or English as well as Spanish.

Fathers and mothers had similar educational backgrounds, with the bulk of each group having only an elementary school education (Table 6). With respect to occupation, the fathers were predominantly manual laborers and the mothers mostly housewives (Table 6).

Regarding oral language skills, 85% of the mothers and 80% of the fathers reported having Spanish skills that were from adequate to native-like, whereas only 34 of the mothers and 37% of the fathers reported English-speaking skills that were from adequate to native-like. With respect to literacy, 62% of the mothers and 60% of the fathers reported Spanish reading skills as from adequate to native-like, while only half as many of the parents (29% of mothers and 31% of fathers) reported adequate to native-like reading skills in English. In fact, 47% of the mothers and 30% of the fathers reported no English reading ability at all.

While the parents appeared to be Spanish-dominant, they reported their children as being strong in English, perhaps even English-dominant. For example, 72% of the children were reported by their parents to have from adequate to native-like English speaking skills, compared to 58% reported to have native-like Spanish speaking skills. Furthermore, two-thirds of the children (66%) were said to have from adequate to native-like English reading skills, whereas only half (49%) were reported to have from adequate to native-like Spanish reading skills.

The reported language use patterns of parents and children were consistent

students who were just beginning bilingual schooling. Hence, a second group of third graders (N=66) and fourth graders (N=49) just beginning bilingual schooling was selected for comparative purposes (referred to as the B-0 group). Thus, in essence, the B-3 group formed a group for continuing longitudinal study and the B-0 group initially a comparison group, but with the intention of the B-0 group's also becoming a group to be followed longitudinally from their point of entry into bilingual programs. Since most, if not all bilingual students were receiving some bilingual schooling during the 1975-76 year, it was not possible to find a genuine control group. The compromise approach was to use as a comparison group, students who were just beginning bilingual schooling, hence the selection of the B-0 group.

As stated above, the parents of these 333 children were mailed a bilingual questionnaire to fill out in Winter 1976. 111 of the sets of parents of the B-3 group students responded (51%) and 71 sets of parents of the B-0 group responded (62%).

Spanish-English bilingual pupils were selected for intensive study because they comprised the overwhelming majority of bilingual students downstate.

First, we will provide some demographic characteristics for the B-3 and B-0 group students and their families combined. Then, we will focus on differences between the B-3 and B-0 students.

1) General Description

The majority of the parents were born in Latin America, i.e., Mexico, Puerto Rico, and Cuba (63% vs. 20% in the U.S.). Fewer of their children were born in Latin America (46% vs. 35% in the U.S.).[2] The families had resided primarily in Illinois during their years in the U.S. While 18% of the parents were actually born in Illinois, 33% had lived there for from 7 to 25 years. The remaining 47% had lived in Illinois for from one to 6 years. Migrants to Illinois came predominantly from Texas or from Mexico.

used both languages. When speaking to their friends, English apparently predominated to an even greater extent. 46% were reported to use English, 23% reported using their home language, and 31% using both English and their home language.

The 1974-75 questionnaire also requested the language listened to on radio and television and that used for reading the paper, magazines, and books. The primary language reportedly used by students in these media was English. Table 4 presents the percentages of students using either English, the home language, or both, for media.

The distribution of students tested by grade were also obtained for four years of bilingual schooling, 1972-1976. The number of students in each grade are given in Table 5. These figures are compiled only for students in the database who had valid responses. It is important to continually make this point clear because unfortunately a considerable number of cases had to be discarded for lack of valid data entries(usually due to poor key punching and verifying) or due to an inability to identify the students at all.

b. Sample for Longitudinal Study

The pupils selected for longitudinal study attended bilingual education programs in 15 different school districts in Illinois. The database provided us with a group of Spanish-speaking third graders (N=109) and fourth graders (N=109) who were identified as having been in a bilingual program for at least three years as of Fall 1975 (referred to as the B-3 group). The rationale for choosing only these grade levels was to obtain a sample of children whose only schooling experience had been through bilingual education in downstate Illinois.

It was not possible to find a genuine control group since most, if not all bilingual students were receiving some bilingual schooling during the 1975-76 year. The compromise approach was to use as a comparison group,

the grades, but that new students still appear as late as grade 12 (N=24) (see Table 2).

Approximately 30% of the students in the database had entered a bilingual program in 1972-73, 21% in 1973-74, and 48% in 1974-75. The year in which the students were born ranged from 1956 to 1969, but the majority were born after 1965 (Table 3). There is an equal representation of males and females (50.5% vs. 49.5%) in the database. However, 19% of the records did not contain this item of information.

The single most common birthplace of the parents was Mexico: 45% of the fathers and 44% of the mothers were born there. The next most predominant birthplaces of parents were either the U.S. Soutwest (18% of the fathers and 19% of the mothers) or other regions of the United States (17% of the fathers and 18% of the mothers). Other birthplaces represented were Central America, Cuba, Puerto Rico, South America, China, Japan, Greece, Italy, and other European countries. Most of the students (56%) were born in the U.S. or had lived in the U.S. over 10 years (3%). Of the remaining 41%, 9% had lived in the U.S. for from 6 to 10 years, 13% for between 3 and 5 years, and 20% for one to 2 years. Unfortunately as many as 35% of the cases in the database did not contain this data, for whatever reasons.

Over two-thirds (70%) of the students in the database indicated Spanish as the principle home language. Twenty-seven percent also indicated English as a language used at home. Chinese and Greek were also indicated as home languages. Sixty-two percent of the valid records indicated that the students used their principle home language when speaking to their father, while 17% used English and 21% used both. Similar figures were found for the language students repeatedly used when speaking to their mothers: 67% used their principle home language, 15% used English, and 17% used both. When the students spoke to their brothers and sisters, on the other hand, only 37% used their home language, while 36% used English and 27% reportedly

who were in bilingual programs during the 1974-75 school year (see Appendix A). The second questionnaire was sent in Winter 1976 to parents of those 333 3rd and 4th graders tested during the 1975-76 school year (i. e., 218 students from the B-3 group and 115 students from the B-O group) (see Appendix B). Other information was obtained directly from the students' computerized records that accompanied test scores (i.e., information that would usually be filled out on the front of a test jacket). Such information included school district, grade of entry and year of entry into a bilingual program, birth date, and sex. All of these data were entered into the database.

a. The General Characteristics of the Database for Illinois Downstate Bilingual Schooling

The following is a general description of the database, containing downstate Illinois data up through Fall 1975, including 1974-75 questionnaire data. Questionnaire data from 1975-76 are discussed in Section 3.b, below. Note that the overall database contains more than just Spanish-English bilingual program students, although this group forms the majority.

There are 44 school districts represented in the database, with a total of 4,579 students. Of these 44 school districts, the Elgin, Joliet and Waukegan school districts have the most representation with 407, 549 and 550 students, respectively. Total numbers of students by district and their relative frequencies compared to the total population are found in Table 1. These numbers reflect the students in the database who entered a bilingual program in their respective district sometime between 1972 and 1975 for whom data exist in the database.

Most of the students in the database (48%) entered a bilingual program while they were in kindergarten or first grade. Table 2 presents the distribution of students according to the grades that they were in upon entering a bilingual program. We can see that numbers decrease up through

cross-section of students.

d. How does the sociolinguistic environment at home effect language performance at school? Specifically,

1) How does exposure to media, radio and television, in Spanish and English influence language performance?

2) How does student's choice of language in speaking to mother, father, and siblings relate to language at school?

This is just one set of research questions attempting to relate background characteristics to performance outcomes. The database actually offers an opportunity to relate many other background variables to performance outcomes. The present analysis was selected because it relates sociolinguistic environment variables to performance outcomes in a rigorous way. Fishman (1977) notes the lack of research efforts to determine the direct influence of community and parental factors on achievement in bilingual programs. Fishman points out how previous studies, such as Cohen (1975), have employed community variables, but not as independent variables or as predictors of achiement outcomes.

3. Database Population

The population of students entering into this eavluation consist of two basic groups. The first is a cross-section of stuuents grade K-9 for whom at least one piece of data was collected at any point between Fall 1972 and Spring 1975. The second group is a special group of 218 3rd and 4th graders who were identified as having been in a bilingual program for at least three years as of Fall 1975 and for whom longitudinal data already existed (group B-3, n=218) or as having just entered a bilingual program, at the 3rd or 4th grade level in Fall 1975 (B-0 group, n=115).

Most of the information available on the population under study came from two questionnaires. One was adminstered to about 3,000 parents of students in grades K-3 and to the students themselves in grades 4 and above.

1) What is the effect of number of years in bilingual schooling on English and Spanish reading achievement?

2) What is the effect of number of years in bilingual schooling on listening, speaking, and writing English and Spanish?

Questions of language proficiency concern legislators, teachers, and educational administrators. More specifically, it is the hope of educators in Illinois that bilingual programs will strengthen both languages, especially English. Whereas legislators in Illinois put emphasis on rapid and successful transition to English, they are also concerned about the effect of such programs on the maintenance of fluency and literacy in the students' home language.

b. Do students in a bilingual program achieve at a rate commensurate with their age, ability, and grade level in all subject areas? Unfortunately, this question cannot be answered directly with Illinois downstate data since there are no state norms for most tests (especially tests in Spanish) and many tests were not taken statewide. However, we can ask the question as to whether years of bilingual schooling is associated with increases in general ability and in academic achievement. Specifically,

1) What effect does years of bilingual schooling have on the development of general abilities—basic language concepts (word relationships, classifications, analogies) and mathematical concepts (computation and number series)?

2) What effect does years of bilingual schooling have on achievement in the content subjects (i.e., math, science, and social studies)?

c. Do increased years in a bilingual program foster positive attitudes toward self, school, and community? A basic tenet of bilingual schooling is that a bilingual pupil's use of his mother tongue, particularly in a program that enhances his ethnic background, will concurrently instill within him or reinforce positive attitudes toward self, school, and community. This study provided an opportunity to ask this question of a rather substantial

the outcomes) are not included in the database and will not, consequently, be treated in this chapter, with the exception of the teachers' despriptions of their classrooms (3.c, below). (Findings from process evaluations are included as part of the specifically process-oriented study reported on in Chapter__, "Assessing the Process of Bilingual Schooling" (Garcelon & Seelye)).

Assessment in this section focuses primarily on the effect of bilingual schooling and home environment on student outcomes (the product). No attempt is made to evaluate the curriculum or the methods of instruction. An effort was made to re-utilize in the ongoing evaluation the best of the former assessment measures, adding new measures intended to enchance insights as to outcomes from bilingual schooling--such as a new Illinois State test of survival skills in reading and math (the Illinois Inventory of Educational Progress) and a Chicago-developed short test of bilingual speaking, listening, reading and writing skills (the Short Test of Linguistic Skills).

In brief, then, the aims of this study were:

- to locate and describe disparate data from former years.
- to add to the best of these data new data of value.
- to isolate a usable sample for continuing research.
- to make product statements, however qualified, about the effects of bilingual schooling on language ability, achievement, and self-concept.

Generally, we attempted to evaluate with the intent of improving, not defending, ongoing programs in bilingual education in downstate Illinois.

2. Research Questions

The following are a series of specific research questions intended to give the presentation of findings a clearer, more precise focus. These questions are meant to reflect questions asked about bilingual schooling by a variety of different interest groups.

a. Do students in a bilingual program over several years achieve fluency and literacy in two languages? In particular,

programs, but in the case of retrospective data, limitations on the data restricted the range of questions for which answers could be obtained.

It is unfortunately rather common for program evaluation to be a "pick-up-the-pieces" effort, taking place after the program is well into the implementation phase. This situation is sometimes (as in Illinois) provoked by the inconclusive efforts of early evaluators. This means that whereas the later evaluators my prefer to evaluate a program having clearly-defined characteristics, thus making the results of evaluation more easily interpretable, such is often impossible — unless the new evaluators intervene and change the very nature of the program on a post hoc basis.

When working at the cross-district level, as in downstate Illinois (15 selected districts), rather than at the level of one school district or even one individual school (unit) within that district, there is the further reality that "the" bilingual treatment is an assortment of treatments, sometimes changing in nature several times during the school year. Part of the task at hand, then, was to attain consensus as to the principle characteristics of downstate Illinois bilingual programs.

In part because of limitations on existing data and in part out of a desire to continue the research effort longitudinally, new data were collected during the 1975-76 school year, both from subjects already having records in the database and from new subjects. By Spring 1976, the database provided opportunities to assess language ability, achievement, self-concept, and the relation between home language use and student language performance at school.

The retrospective data were generally concerned with the "product" (outcomes of bilingual schooling), generally either on a "summative" basis (i.e., at the end of the years) or, occasionally, on a "formative" basis (i.e., at several intervals over the course of the years: e.g., Fall, Winter, Spring). Data from "process" evaluation (assessment of the means of achieving

This evaluation was intended as one of improvement-oriented evaluation (i.e., results were intended to improve the program). Hence, if any results reflected negatively on aims of the programs, these would still be reported, rather than attempting to defend the program at all costs. This approach differs from that of many bilingual evaluations in that there has been a relative absence of negative findings regarding individual bilingual programs in the program evaluation literature (in the ERIC System or even on file at the U. S. Office of Bilingual Education). Such findings have simply not been reported or have been reported in an uneven, sometimes unintelligible way (e.g., differing formats for statistical data, goals not stated in achievable terms, minimal information on the nature of classroom activities (Office of the Comptroller General, 1976)).

The first step in the present Illinois downstate evaluation was to locate and describe all existing bilingual evaluation data from Fall 1971 through Spring 1975. As it turned out, student records for the first year, 1971-72, were not complete enough with respect to basic information to allow their inclusion in the matching program aimed at identifying participating students across school years. Consequently, the effort actually began with 1972-73 data. Although there were still gaps across students and across skill areas, the need for insights into the effectiveness of state bilingual programs warranted the analysis of these data. It was felt that qualified answers would emerge from such analysis--i.e., an analysis based on scores for some children on some measures at some points in time.

The second step, then, was to form a database from the usable data. Suffice it to say here that the effort was time-consuming and expensive and could have been avoided had a database been established at the outset of evaluation (Fall 1971). Once that data were collected and put in the database, then the decision became that of what issues were accessible for discussion given the data. Clearly, there are many questions one would like to ask about bilingual

1. Introduction

The downstate Illinois experience in assessment of bilingual programs in many ways reflects that of school districts all over the United States. Although there were initial talks of a design for a comprehensive longitudinal evaluation, this design was not carried out as planned. In that the downstate programs were consistently state-funded and in that the state requested only a statement of proposed evaluation and no yearly interim and final evaluation reports (unlike the federal government), there is no concise ongoing record of what actually happened (i.e., what tests were actually given to whom in what languages, when, etc.) from Fall 1971 to Spring 1975. There are yearly statements of what evaluation was to be conducted (inserted in the funding proposal) but little accountability (Seelye and Balasubramonian, 1973, being one exception).

Furthermore, the amount of data far exceeded the amount of data analysis supplied to the data collected--another problem in evaluation, i.e., that data are collected sometimes in mass quantities, but then are never analyzed or only inadequately. In sum, the data on downstate Illinois bilingual programs from their inception in 1971 can best be described as patchwork: some scores for some children at some times, with many gaps.

As a result of these past evaluation procedures and experiences, the current effort was undertaken, with the purpose of (1) trying to locate all past data still in existence, (2) determining what data were actually retrievable and usable, (3) reporting on these data retrospectively, and then (4) collecting new data for a continuing longitudinal study involving a select group of subjects remaining from previous evaluation. Thus, it was both a retrospective and a longitudinal effort.

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criticism can undoubtedly be levelled at this study as well. The question really becomes one of the degree of compromise permissible in the effort to assess the impact of bilingual schooling. We feel that as long as methods and their shortcomings are made clear, then the reader can use the findings profitably. Hopefully, an accumulation of such reports over time will begin to paint an honest picture of the impact of bilingual schooling. For example, there may begin to emerge more definite conclusions as to the effects of such programs on English language acquisition, on native language maintenance, on attitudes toward self and community and so forth. At the present time, the results are still "mixed" at best.

Footnotes

1. Portions of this chapter, particularly parts of sections 3 and 5, are based on Ripley (1976), a technical report on the formulation of a database and on data analyses run on data contained within the database. For the most part, the interpretations of findings are our own and do not reflect on the IIT Research Institute, which served simply as a service group.

2. For complete statistical frequencies reported in tabular form, see Ripley (1976). Here only major differences are emphasized and percentages don't necessarily add to 100% within a given category. "No response" and "other response" are omitted.

3. There was also variation within a model--perhaps not so surprisingly, in that there were no prescribed State guidelines as to the "standard" features of any given model.

4. It is interesting to note that parent report of student language use out of school (see pp. 12-13, above) suggested more use of English than Spanish, whereas the teachers' in-school report suggested greater balance or even more use of Spanish.

5. The 45 items were selected from a pool of 135 items through factor analysis. Item reponses apparently contribute to subscale scores according to their weightings as derived from factor analysis.

6. Results from 1976-77 testing lend support to this finding that in downstate Illinois bilingual students are not reading very well in Spanish.

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TABLE 1
DISTRICTS REPRESENTED IN DATABASE

District	Absolute Frequency	Relative Frequency (Percent)
Arcola	14	.3
Aurora	146	3.2
Barrington	66	1.4
Barrington High	23	.5
Bellwood	68	1.4
Bensenville	66	1.4
Blue Island	118	2.6
Blue Island High	44	1.0
Chicago Heights	131	2.9
Crete	213	4.7
Danville	12	.3
DeKalb	27	.6
Des Plaines	16	.3
Des Plaines Area	71	1.6
District 15	26	.6
Dundee	77	1.7
East Moline	44	1.0
Elgin	407	8.9
Elmhurst	116	2.5
Evanston	93	2.0
Harvey	30	.7
Joliet	549	12.0
Joliet	44	1.0
Lake Zurich	43	.9
LaSalle	20	.4
Marengo	23	.5
Maywood Area	252	5.5
McHenry	31	.7
Mendota	37	.8
Moline Area	120	2.6
Mundelein High	50	1.1
North Chicago	46	1.0
Onarga	12	.3
Palatine	108	2.4
Pontiac	2	.0
Rockford	167	3.6
Round Lake	17	.4
Steger	167	3.6
Sterling	33	.7
Waukegan	550	12.0
West Chicago	204	4.5
Wheeling	209	4.6
Wheeling High	25	.5
Not Recorded	62	1.4
TOTAL	4579	100.0

TABLE 2

GRADE UPON ENTRY INTO A BILINGUAL PROGRAM

Grade	Absolute Frequency	Relative Frequency (Percent)	Cumulative Frequency (Percent)
K	1216	26.8	26.8
1	954	20.8	47.6
2	548	12.0	59.6
3	415	9.1	68.7
4	305	6.7	75.4
5	238	5.2	80.6
6	196	4.3	84.9
7	177	3.9	88.8
8	110	2.4	91.2
9	180	3.9	95.1
10	103	2.2	97.3
11	32	.7	98.0
12	24	.5	98.5

TABLE 3

BIRTHYEAR DISTRIBUTION

Year	Absolute Frequency	Relative Frequency (Percent)
56	29	.6
57	44	1.0
58	91	2.0
59	100	2.2
60	116	2.5
61	119	2.6
62	174	3.8
63	256	5.6
64	329	7.2
65	315	6.9
66	408	8.9
67	452	9.9
68	475	10.4
69	422	9.2

TABLE 4

STUDENTS' REPORTED LANGUAGE USE FOR THE MEDIA

Media	No. of Valid Cases	Percent English	Percent Home Lang.	Percent Both
Radio	2711	47.6	22.0	30.4
Television	2793	54.7	10.6	34.7
Papers and Magazines	2333	48.0	24.8	27.2
Books and Novels	2375	44.0	23.9	32.1

TABLE 5

DISTRIBUTION OF STUDENTS BY GRADE TESTED OVER FOUR YEARS OF BILINGUAL SCHOOLING

Year	Grade												
	K	1	2	3	4	5	6	7	8	9	10	11	12
1972-73	452	499											
1973-74	361	252	212	95	41	57	34	31	11	9	10	2	2
1974-75		359	299	351	241	56	3	46	25	22	17	12	5
1975-76				182	164								

TABLE 6

EDUCATION & OCCUPATION OF PARENTS

N = 182

(Data expressed as percentages)

Educational Level	Father	Mother
University	5	3
High School	11	15
Junior High	8	9
Elementary	65	76
None	11	7

Occupation	Father	Occupation	Mother
Manual Laborer	65	Housewife	69
Deceased	15	Manual Laborer	16
Service/Clerk	11	Service/Clerk	3
Unemployed	5	Unemployed	3
Professional	2	Deceased	1
Retired	2	No Response	8

TABLE 7

DIFFERENCES IN BASELINE DATA BETWEEN
B-3 AND B-0 GROUPS (N = 196)

VARIABLES	GROUPS B-3	B-0
Student's Birthplace	51% U.S. 30% Latin America	18% U.S. 63% Latin America
Parents' Birthplace	30% U.S. 56% Latin America	10% U.A. 71% Latin America
Father's Education	32% J.H., H.S., or University	14% J.H., H.S., or University
Father's Occupation	18% Service/Clerk 2% Unemployed	4% Service/Clerk 8% Unemployed
Mother's Occupation	10% Manual Laborer 6% Professional	21% Manual Laborer 1% Professional
Mother's Spanish Reading	40% good, 11% little	32% good, 22% little
Mother's English Speaking	13% native, 33% none	4% native, 47% none
Father's English Speaking	15% native, 26% little	4% native, 40% little
Father's English Reading	15% native, 28% little, 21% none	3% native, 16% little, 44% none
Student's Spanish Reading	28% good	35% good
Student's English Speaking	22% native, 61% good, 9% little	10% native, 34% good, 31% little, 18% none
Student's English Reading	74% good or native	35% good or native
Mother's Home Language Use	19% English	9% English
Father's Home Language Use	22% English	10% English
Father's Language Outside Home	44% English, 36% Spanish	21% English, 46% Spanish
Father's Language for Reading	29% English, 42% Spanish, 18% both	18% English, 51% Spanish, 4% both
Father's Language for Radio	24% English, 43% Spanish, 23% both	11% English, 51% Spanish, 11% both
Student's Home Language Use	68% English, 16% Spanish	27% English, 57% Spanish
Student's Language for Reading	71% English, 7% Spanish	46% English, 21% Spanish

Table 7 (Continued) *

VARIABLES	GROUPS B-3	B-0
Student's Language for T.V.	83% English, 3% Spanish, 9% both	57% English, 13% Spanish, 19% both
Student's Language for Radio	80% English, 5% Spanish	51% English, 25% Spanish
Parental Language Spoken to Children	18% English, 63% Spanish	10% English, 79% Spanish
Child Language Spoken to Parents	29% English, 52% Spanish, 18% both	18% English, 73% Spanish, 10% both
Language Use Among Siblings	76% English, 5% Spanish	32% English, 53% Spanish
Ethnicity/Country of Origin of Neighborhood	59% Anglo/U.S.	47% Anglo/U.S.
Language of Neighborhood	87% English or both, 6% Spanish	75% English or both, 17% Spanish

* Note that all categories are not reported here, for purposes of emphasis, so percentages do not add to 100%. Complete data may be found in Appendix B to Ripley (1976).

TABLE 8

RELIABILITY COEFFICIENTS FOR I-A READING & STLS

TEST/SUBTEST	GRADE											
	3RD GRADE						4TH GRADE					
	ENGLISH			SPANISH			ENGLISH			SPANISH		
	FORM	COEFFICIENT	N	FORM	COEFFICIENT	N	FORM	COEFFICIENT	N	FORM	COEFFICIENT	N
INTER-AMERICAN READING												
1. LEVEL OF COMPREHENSION	CE	.90	24	CEs	.92	54	CE	.92	42	CEs	.91	39
	DE	.92	32	DEs	.94	35	DE	.94	36	DEs	.93	23
2. SPEED OF COMPREHENSION	CE	.89	24	CEs	.84	54	CE	.91	42	CEs	.79	39
	DE	.85	32	DEs	.96	35	DE	.90	36	DEs	.92	23
3. VOCABULARY	CE	.91	24	CEs	.92	54	CE	.93	42	CEs	.90	39
	DE	.92	32	DEs	.93	34	DE	.94	36	DEs	.92	23
4. TOTAL	CE	.95	24	CEs	.96	54	CE	.97	42	CEs	.95	39
	DE	.96	32	DEs	.98	35	DE	.97	36	DEs	.97	23
SHORT TEST OF LINGUISTIC SKILLS	N=252						N=248					
1. LISTENING	.86			.87			.88			.88		
2. READING	.88			.83			.87			.88		
3. WRITING	.88			.86			.90			.90		
4. SPEAKING	.96			.94			.97			.95		

Time of Administration	(1) I-A Reading (English)	(1) I-A Lectura (Spanish)			(2) STLS	(3) IIEP	(4) STEP				(5) Boehm				(6) TOBE		(7) I-A						(8) BTB			(9) SOS	
									L4	W4	L3	W3	A 1	A 2	B 1	B 2	L	M	Gen. Abil. 2	Gen. Abil. 3	Gen. Abil. 4	Gen. Abil. 5	H.G. 3	H.G. 4	1	2	3	P	I
Fall 1972													590	317	481		589	259											
Winter 1973														240		562	672	571											
Spring 1973													361	380	367	359	583	583											
Fall 1973													816	903	860	844									168				
Spring 1974		452	98	6									917	915	857	860									147	13			
Fall 1974	505	339	146				91	83	79	52	58	43	396	414					551	817	289	243	80	22	140	77	108	1,643	751
Spring 1975																				64									
Winter 1976	326 (Form DE)	329 (Form CEs)			324	97																			325				

Key:

(1) I-A Reading (English), Forms CE and DE.
I-A Lectura (Spanish), Forms CEs and DEs.
(2) Short Test of Linguistic Skills (Sp. & Eng.)
(3) Illinois Inventory of Educational Progress (Reading and Math Subtests)
(4) Sequential Tests of Educational Progress
L = Listening, W = Writing
Level 4 -grades 4-5. Level 3--grades 7-9.
~~Level 4/5 grades 4-5~~
(5) Boehm A-1 & 2 in Spanish, B-1 &.2 in English.
(6) Test of Basic Experiences, Language and Math Subtests
(7) Inter-American General Ability Tests -- Gen. Abil. - English version, H.G. - Spanish version.
(8) Bilingual Test Battery - Subtests in Science, Math, Social Studies, and Attitudes
(9) Self-Observation Scale - Primary (P) and Intermediate (I) levels.

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TABLE 10

INTER-AMERICAN READING

LEVEL OF COMPREHENSION SUBTEST

(LEVEL 2)

Time of Administration	Grade		Years in Program			
			0	1	2	3
Fall 1974	3	$\bar{X}$		16.98	18.75	
		SD		8.04	8.93	-
		N		(54)	(59)	
	4	$\bar{X}$		25.07	25.65	
		SD		10.06	6.09	-
		N		(54)	(37)	
B-3 & B-0 Groups Winter 1976	3	$\bar{X}$	15.28			21.88
		SD	8.28	-	-	8.34
		N	(64)			(109)
	4	$\bar{X}$	22.09			27.52
		SD	9.04	-	-	7.47
		N	(45)			(109)

TABLE 11

ANALYSIS OF VARIANCE

IA READING: LEVEL OF COMPREHENSION
BY GRADE IN 1976 AND YEARS IN BILINGUAL PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF. OF F
MAIN EFFECTS	6101.143	2	3050.572	45.831	.001
Grade	2973.327	1	2973.327	44.670	.001
Years in Program	2675.712	1	2675.712	40.199	.001
2-WAY INTERACTIONS					
Grade Years in Program	24.897	1	24.897	.374	.999
RESIDUAL	21565.936	324	66.562		
TOTAL	27691.977	327	84.665		

346 Cases were processed.
18 Cases (5.2PCT) were missing.

TABLE 12

INTER-AMERICAN READING

SPEED OF COMPREHENSION, SUBTEST

(LEVEL 2)

Time of Administration	Grade		Years in Program			
			0	1	2	3
Fall 1974	3	$\bar{X}$	-	4.81	3.70	-
		SD		2.87	2.12	
		N		(42)	(54)	
	4	$\bar{X}$	-	4.45	3.86	
		SD		2.54	2.15	
		N		(51)	(36)	
B-3 & B-0 Groups Winter 1976	3	$\bar{X}$	8.50	-	-	13.50
		SD	5.58			6.90
		N	(64)			(109)
	4	$\bar{X}$	10.93	-	-	15.39
		SD	5.94			7.02
		N	(45)			(109)

TABLE 13

ANALYSIS OF VARIANCE

I-A READING: SPEED OF COMPREHENSION
BY GRADE AND YEARS IN PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	2235.511	2	1117.755	28.794	.001
Grade	980.327	1	980.327	25.254	.001
Years in Program	1089.530	1	1089.530	28.067	.001
2-WAY INTERACTIONS					
Grade Years in Program	18.099	1	18.099	.466	.999
RESIDUAL	12577.257	324	38.819		
TOTAL	14630.867	327	45.354		

346 Cases were processed,
18 Cases (5.2 PCT) were missing.

TABLE 14

INTER-AMERICAN READING

VOCABULARY SUBTEST

(LEVEL 2)

Time of Administration	Grade		Years in Program			
			0	1	2	3
Fall 1974	3	$\bar{X}$	-	7.04	7.03	-
		SD		2.84	2.95	
		N		(52)	(58)	
	4	$\bar{X}$	-	6.53	7.35	-
		SD		2.37	1.92	
		N		(53)	(37)	
B-3 & B-0 Groups Winter 1976	3	$\bar{X}$	19.81	-	-	26.40
		SD	12.58			8.50
		N	(64)			(109)
	4	$\bar{X}$	24.49	-	-	30.40
		SD	8.94			7.42
		N	(45)			(109)

TABLE 15

ANALYSIS OF VARIANCE

I-A READING: VOCABULARY
BY GRADE AND YEARS IN PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	5318.774	2	2659.387	34.872	.001
Grade	1709.254	1	1709.254	22.477	.001
Years in Program	3231.518	1	3231.518	42.495	.001
2-WAY INTERACTIONS					
Grade Years in Program	34.982	1	34.982	.460	.999
RESIDUAL	24638.207	324	76.044		
TOTAL	29991.963	327	91.719		

346 Cases were processed.
18 Cases (5.2 PCT) were missing.

TABLE 16

PRUEBA DE LECTURA

LEVEL OF COMPREHENSION SUBTEST

(LEVEL 2)

Time of Administration	Grade		Years in Program		
			0	1	3
Spring 1974	3	$\bar{X}$	18.57	13.80	
		SD	6.42	8.41	
		N	(21)	(15)	
	4	$\bar{X}$	15.92	20.67	
		SD	5.53	6.35	
		N	(12)	(3)	
B-3 & B-0 Groups Winter 1976	3	$\bar{X}$	16.98		17.00
		SD	8.35		6.12
		N	(66)		(108)
	4	$\bar{X}$	21.44		19.50
		SD	8.17		7.14
		N	(48)		(107)

TABLE 17

ANALYSIS OF VARIANCE

I-A. LECTURA: LEVEL OF COMPREHENSION
BY GRADE AND YEARS IN PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	875.737	2	437.868	8.352	.001
Grade	843.488	1	843.488	16.088	.001
Years in Program	58.640	1	58.640	1.118	.291
2-WAY INTERACTIONS	65.245	1	65.245	1.244	.264
Grade Years in Program					
RESIDUAL	17144.082	327	52.428		
TOTAL	18085.064	330	54.803		

346 Cases were processed.
15 Cases (4.3 PCT) were missing.

TABLE 18

PRUEBA DE LECTURA

SPEED OF COMPREHENSION SUBTEST

(LEVEL 2)

Time of Administration	Grade		Years in Program		
			0	1	3
Spring 1974	3	$\bar{X}$	8.82	9.69	
		SD	5.92	6.25	
		N	(17)	(13)	
	4	$\bar{X}$	8.33	10.33	
		SD	3.23	4.62	
		N	(12)	(3)	
B-3 & B-0 Groups Winter 1976	3	$\bar{X}$	8.44		9.36
		SD	5.71		4.09
		N	(66)		(108)
	4	$\bar{X}$	10.81		10.55
		SD	7.45		4.39
		N	(48)		(107)

TABLE 19

ANALYSIS OF VARIANCE

I-A LECTURA: SPEED OF COMPREHENSION
BY GRADE AND YEARS IN THE PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	240.618	2	120.309	4.561	.011
Grade	224.803	1	224.803	8.523	.004
Years in Program	8.638	1	8.638	.327	.999
2-WAY INTERACTIONS					
Grade Years in Program	21.645	1	21.645	.821	.999
RESIDUAL	8625.385	327	26.377		
TOTAL	8887.649	330	26.932		

346 Cases were processed.
15 Cases (4.3 PCT) were missing.

TABLE 20

PRUEBA DE LECTURA

VOCABULARY SUBTEST

(LEVEL 2)

Time of Administration	Grade		Years in Program		
			0	1	3
Spring 1974	3	$\bar{X}$	17.76	15.04	
		SD	9.30	7.11	
		N	(21)	(28)	
	4	$\bar{X}$	16.36	22.33	
		SD	7.81	11.85	
		N	(14)	(3)	
B-3 & B-0 Groups Winter 1976	3	$\bar{X}$	19.68		17.76
		SD	9.19		7.61
		N	(66)		(108)
	4	$\bar{X}$	26.38		20.17
		SD	11.95		8.11
		N	(48)		(107)

TABLE 21

ANALYSIS OF VARIANCE

I-A LECTURA: VOCABULARY
BY GRADE AND YEARS IN THE PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	2219.452	2	1109.726	14.290	.001
Grade	1255.070	1	1255.070	16.161	.001
Years in Program	1116.331	1	1116.331	14.375	.001
2-WAY INTERACTIONS					
Grade Years in Program	325.183	1	325.163	4.187	.039
RESIDUAL	25394.381	327	77.659		
TOTAL	27939.017	330	84.664		

346 Cases were processed.
15 Cases (4.3 PCT) were missing.

SHORT TEST OF LINGUISTIC SKILLS

GROUP

B-0 B-3

Years in Program				0		3	
Grade				3	4	3	4
SUBTESTS	ENGLISH	Listening	$\bar{X}$	10.05	11.86	15.16	16.53
			SD	4.80	5.14	7.52	3.60
			N	(64)	(49)	(107)	(104)
		Reading	$\bar{X}$	8.05	10.55	10.78	13.47
			SD	4.27	4.48	4.29	3.68
			N	(64)	(49)	(107)	(104)
		Writing	$\bar{X}$	6.38	8.63	10.30	12.80
			SD	5.22	5.87	7.45	4.61
			N	(64)	(49)	(107)	(104)
		Speaking	$\bar{X}$	9.75	10.31	15.98	16.01
			SD	6.62	6.18	6.87	3.91
			N	(63)	(49)	(107)	(104)
		Total	$\bar{X}$	34.56	40.69	50.05	58.86
			SD	18.85	20.30	13.79	13.19
			N	(63)	(49)	(107)	(104)
	SPANISH	Listening	$\bar{X}$	10.64	12.78	10.69	11.58
			SD	5.31	4.16	3.88	4.59
			N	(64)	(49)	(107)	(105)
		Reading	$\bar{X}$	6.88	9.20	6.68	6.78
			SD	3.93	4.46	3.34	3.81
			N	(64)	(49)	(107)	(105)
		Writing	$\bar{X}$	5.16	7.18	4.74	5.58
			SD	4.44	4.65	4.02	5.24
			N	(64)	(49)	(107)	(103)
		Speaking	$\bar{X}$	10.56	12.20	9.48	9.25
			SD	5.74	4.97	5.17	5.61
			N	(63)	(49)	(106)	(103)
		Total	$\bar{X}$	33.10	41.37	31.52	32.69
			SD	16.55	15.45	12.95	15.77
			N	(63)	(49)	(107)	(104)

TABLE 23

ANALYSIS OF VARIANCE

STLS: ENGLISH READING
BY GRADE AND YEARS IN THE PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	1180.767	2	590.383	34.607	.001
Grade	571.546	1	571.546	33.503	.001
Years in the Program	554.821	1	554.821	32.523	.001
2-WAY INTERACTIONS					
Grade Years in Program	2.418	1	2.418	.142	.999
RESIDUAL	5459.032	320	17.059		
TOTAL	6642.216	323	20.564		

346 Cases were processed.
22 Cases (6.4PCT) were missing.

TABLE 24

ILLINOIS INVENTORY OF EDUCATIONAL PROGRESS — MEAN SCORES & ONE-WAY ANALYSIS OF VARIANCE

SUBTEST	GROUP	GRADE	N	MEAN	SD	MS BETWEEN GROUPS	MS WITHIN GROUPS	D.F.	F
READING	B-0	4	34	7.03	4.45	78.98	17.24	1/96	4.58 *
	B-3	4	63	8.92	3.99				
MATH	B-0	4	34	21.26	8.48	103.40	62.82	1/96	1.64
	B-3	4	63	23.43	7.62				

*$p < .05$

TABLE 25

ANALYSIS OF VARIANCE

STLS: SPANISH READING
BY GRADE AND YEARS IN THE PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	165.760	2	82.880	5.721	.004
Grade	67.755	1	67.755	4.677	.029
Years in the Program	105.433	1	105.433	7.278	.007
2-WAY INTERACTIONS					
Grade Years in Program	79.970	1	79.970	5.521	.019
RESIDUAL	4606.502	318	14.486		
TOTAL	4852.232	321	15.116		

346 Cases were processed.
24 Cases (6.9 PCT) were missing.

SEQUENTIAL TEST OF EDUCATIONAL PROGRESS (STEP) —

MEAN SCORES BY YEARS IN BILINGUAL PROGRAM

Grade	Level of Test		Listening					Writing				
		Years in Program:	0	1	2	3	4	0	1	2	3	4
4	4	$\bar{X}$	32.47	34.71	30.47	37.50	31.43	22.67	25.14	25.62	23.75	21.28
		SD	8.52	8.56	8.48	15.42	5.86	5.31	4.56	13.11	8.02	15.18
		N	(15)	(7)	(15)	(4)	(7)	(12)	(7)	(13)	(4)	(7)
5	4	$\bar{X}$	—	39.71	33.43	38.50	42.83	—	28.43	26.08	33.87	29.67
		SD		14.01	11.74	11.25	13.47		19.58	14.23	11.60	4.37
		N		(7)	(14)	(16)	(6)		(7)	(12)	(15)	(6)
7	3	$\bar{X}$	11.00	11.76	12.56	—	—	—	25.94	28.39	25.00	—
		SD	2.64	7.65	9.19				11.81	7.88	7.75	
		N	(3)	(17)	(18)				(16)	(18)	(4)	
8	3	$\bar{X}$	—	16.44	18.83	18.67	—	—	23.12	29.00	26.33	—
		SD		6.02	6.25	7.50			7.72	5.79	8.74	
		N		(9)	(12)	(3)			(8)	(10)	(3)	
9	3	$\bar{X}$	—	18.91	17.17	—	—	—	—	—	—	—
		SD		4.91	6.70							
		N		(11)	(6)							

TABLE 27

ANALYSIS OF VARIANCE

STLS: ENGLISH LISTENING
BY GRADE AND YEARS IN THE PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	1984.193	2	992.096	31.652	.001
Grade	180.991	1	180.991	5.774	.016
Years in the Program	1747.168	1	1747.168	55.741	.001
2-WAY INTERACTIONS					
Grade Years in Program	2.234	1	2.234	.071	.999
RESIDUAL	10030.120	320	31.344		
TOTAL	12016.547	323	37.203		

346 Cases were processed.
22 Cases (6.4 PCT) were missing.

TABLE 28

ANALYSIS OF VARIANCE

STLS: ENGLISH SPEAKING
BY GRADE AND YEARS IN THE PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	2655.688	2	1327.844	38.038	.001
Grade	5.452	1	5.452	.156	.999
Years in the Program	2633.556	1	2633.556	75.441	.001
2-WAY INTERACTIONS					
Grade Years in Program	3.769	1	3.769	.108	.999
RESIDUAL	11170.757	320	34.909		
TOTAL	13830.214	323	42.818		

346 Cases were processed.
22 Cases (6,4 PCT) were missing.

TABLE 2S

ANALYSIS OF VARIANCE

STLS: ENGLISH WRITING
BY GRADE AND YEARS IN THE PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	1744.271	2	872.135	24.408	.001
Grade	476.639	1	476.639	13.339	.001
Years in the Program	1194.397	1	1194.397	33.426	.001
2-WAY INTERACTIONS					
Grade Years in the Program	2.196	1	2.196	.061	.999
RESIDUAL	11434.300	320	35.732		
TOTAL	13180.766	323	40.807		

346 Cases were processed,
22 Cases (6.4 PCT) were missing.

TABLE 30

ANALYSIS OF VARIANCE

STLS: SPANISH LISTENING
BY GRADE AND YEARS IN THE PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	181.175	2	90.588	4.523	.012
Grade	170.174	1	170.174	8.497	.004
Years in the Program	15.317	1	15.317	.765	.999
2-WAY INTERACTIONS					
Grade Years in Program	23.385	1	23.385	1.168	.280
RESIDUAL	6368.717	318	20.027		
TOTAL	6573.276	321	20.477		

346 Cases were processed.
24 Cases (6.9 PCT) were missing.

TABLE 31

ANALYSIS OF VARIANCE

STLS: SPANISH SPEAKING
BY GRADE AND YEARS IN THE PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	300.701	2	150.350	5.118	.007
Grade	19.380	1	19.380	.660	.999
Years in the Program	287.554	1	287.554	9.788	.002
2-WAY INTERACTIONS					
Grade Years in Program	56.224	1	56.224	1.914	.164
RESIDUAL	9342.065	318	29.378		
TOTAL	9698.989	321	30.215		

346 Cases were processed.
24 Cases (6.9 PCT) were missing.

TABLE 32

ANALYSIS OF VARIANCE

STLS: SPANISH WRITING
BY GRADE AND YEARS IN THE PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	200.869	2	100.445	4.713	.010
Grade	144.279	1	144.279	6.770	.009
Years in the Program	65.105	1	65.105	3.055	.078
2-WAY INTERACTIONS					
Grade Years in Program	23.377	1	23.377	1.097	.296
RESIDUAL	6776.858	318	21.311		
TOTAL	7001.124	321	21.810		

346 Cases were processed.
24 Cases (6.9 PCT) were missing.

TABLE 33

BOEHM SUBTEST SPANISH, PART 1

Time of Administration	Grade		Years in Program		
			0	1	2
Fall 1972	1	$\bar{X}$ SD N	14.30 3.89 (326)	—	—
Winter 1973	1	$\bar{X}$ SD N	—	—	—
Spring 1973	1	$\bar{X}$ SD N	18.66 4.24 (316)	—	—
Fall 1973	K	$\bar{X}$ SD N	14.98 4.69 (82)	17.75 4.34 (71)	—
	1	$\bar{X}$ SD N	17.28 4.33 (40)	18.28 4.58 (60)	20.50 2.75 (12)
	2	$\bar{X}$ SD N	15.96 6.70 (26)	16.60 2.30 (5)	—
Spring 1974	K	$\bar{X}$ SD N	16.80 4.31 (103)	19.58 3.89 (81)	—
	1	$\bar{X}$ SD N	18.12 4.19 (49)	19.69 3.48 (64)	22.08 2.39 (12)
	2	$\bar{X}$ SD N	16.69 5.34 (36)	21.14 2.34 (7)	—
Fall 1974	1	$\bar{X}$ SD N	—	20.94 2.82 (17)	18.00 2.45 (4)

TABLE 34

BOEHM SUBTEST SPANISH, PART 2

Time of Administration	Grade		Years in Program		
			0	1	2
Fall 1972	1	$\bar{X}$ SD N	13.08 4.54 (317)	—	—
Winter 1973	1	$\bar{X}$ SD N	11.75 3.04 (4)	—	—
Spring 1973	1	$\bar{X}$ SD N	12.62 4.58 (316)	—	—
Fall 1973	K	$\bar{X}$ SD N	9.10 4.27 (77)	12.10 4.64 (74)	—
	1	$\bar{X}$ SD N	10.15 4.86 (41)	14.67 4.57 (69)	17.36 4.09 (14)
	2	$\bar{X}$ SD N	13.48 5.49 (25)	18.61 3.44 (36)	—
Spring 1974	K	$\bar{X}$ SD N	10.91 4.07 (100)	15.34 4.56 (80)	—
	1	$\bar{X}$ SD N	14.10 5.07 (48)	16.23 4.38 (64)	19.67 2.87 (12)
	2	$\bar{X}$ SD N	14.89 5.06 (35)	18.67 3.14 (6)	—
Fall 1974	1	$\bar{X}$ SD N	—	12.31 4.89 (13)	9.33 6.81 (3)

TABLE 35

BOEHM SUBTEST ENGLISH, PART 1

Time of Administration	Grade		Years in Program 0	1	2
Fall 1972	1	$\bar{X}$ SD N	14.21 4.09 (118)	—	—
Winter 1973	1	$\bar{X}$ SD N	—	—	—
Spring 1973	1	$\bar{X}$ SD N	20.03 3.92 (310)	—	—
Fall 1973	K	$\bar{X}$ SD N	15.69 5.84 (98)	19.92 3.60 (74)	—
	1	$\bar{X}$ SD N	19.61 4.23 (46)	21.62 3.86 (65)	22.23 2.13 (13)
	2	$\bar{X}$ SD N	20.95 4.71 (40)	19.50 3.73 (6)	—
Spring 1974	K	$\bar{X}$ SD N	18.16 4.02 (89)	21.82 2.40 (78)	—
	1	$\bar{X}$ SD N	21.62 3.06 (52)	22.36 3.35 (64)	24.00 1.10 (11)
	2	$\bar{X}$ SD N	21.98 3.40 (42)	22.71 1.89 (7)	—
Fall 1974	1	$\bar{X}$ SD N	—	17.04 4.96 (46)	19.12 4.37 (92)

TABLE 36

BOEHM SUBTEST ENGLISH, PART 2

Time of Administration	Grade		Years in Program 0	1	2
Fall 1972	1	$\bar{X}$ SD N	—	—	—
Winter 1973	1	$\bar{X}$ SD N	16.61 4.01 (316)	—	—
Spring 1973	1	$\bar{X}$ SD N	15.99 3.79 (315)	—	—
Fall 1973	K	$\bar{X}$ SD N	10.17 3.87 (94)	15.18 3.58 (74)	18.17 2.82 (12)
	1	$\bar{X}$ SD N	14.30 3.77 (43)	17.41 3.16 (64)	—
	2	$\bar{X}$ SD N	16.79 3.64 (39)	15.20 4.82 (6)	—
Spring 1974	K	$\bar{X}$ SD N	13.29 3.73 (53)	16.91 3.05 (78)	19.45 0.82 (11)
	1	$\bar{X}$ SD N	16.21 3.67 (53)	18.47 2.84 (66)	—
	2	$\bar{X}$ SD N	18.02 3.49 (44)	17.83 2.93 (6)	
Fall 1974	1	$\bar{X}$ SD N	—	13.78 5.36 (50)	15.86 4.08 (96)

TABLE 37

ANALYSIS OF VARIANCE

SPRING 1974 BOEHM SPANISH, PART 1
BY GRADE IN 1973-74 AND YEARS IN BILINGUAL
PROGRAM AS OF 1973-74 WITH FALL 1973 BOEHM SPANISH, PART 1

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
COVARIATES					
Fall 1973 Boehm Spanish, Part 1	1680.915	1	1680.915	222.375	.001
MAIN EFFECTS	39.366	4	9.842	1.302	.269
Grade	21.809	2	10.904	1.443	.237
Years in Bilingual Program	27.663	2	13.831	1.830	.160
2-WAY INTERACTIONS					
Grade Years in Bilingual Program	49.391	3	16.464	2.178	.089
RESIDUAL	2108.936	279	7.559		
TOTAL	3878.608	287	13.514		

COVARIATE	BETA
FALL 1973 Boehm Al	.502

TABLE 38

MULTIPLE CLASSIFICATION ANALYSIS

SPRING 1974 BOEHM SPANISH, PART 2
BY GRADE IN 1973-74 AND YEARS IN BILINGUAL
PROGRAM AS OF 1973-74 WITH FALL 1973 BOEHM 'SPANISH, PART 1

GRAND MEAN = 19.07

VARIABLE + CATEGORY	N	UNADJUSTED DEVIN	ETA	ADJUSTED FOR INDEPENDENTS DEVIN	BETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEVIN	BETA
GRADE							
0	147	-.31				.09	
1	111	.38				-.30	
2	30	.13				.66	
			.09				.08
YEARS IN PROGRAM							
1	140	-.69				-.22	
2	135	.46				.10	
3	13	2.70				1.35	
			.22				.09

MULTIPLE R SQUARED .444
MULTIPLE R .666

TABLE 39

ANALYSIS OF VARIANCE

SPRING 1974 BOEHM, SPANISH, PART 2
BY GRADE IN 1973-74 AND YEARS IN BILINGUAL
PROGRAM AS OF 1973-74 WITH FALL 1973 BOEHM, SPANISH, PART 2

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
COVARIATES					
Fall 1973 Boehm Spanish, Part 2	2294.660	1	2294.660	176.304	.001
MAIN EFFECTS	182.518	4	45.630	3.506	.008
Grade	97.518	2	48.759	3.746	.024
Years in Bilingual Program	108.109	2	54.055	4.153	.016
2-WAY INTERACTIONS					
Grade Years in Bilingual Program	97.797	3	32.599	2.505	.058
RESIDUAL	3501.139	269	13.015		
TOTAL	6076.113	277	21.935		

COVARIATE	BETA
FALL 1973 Boehm A2	.567

TABLE 40

MULTIPLE CLASSIFICATION ANALYSIS

SPRING 1974 BOEHM SPANISH, PART 2
BY GRADE IN 1973-74 AND YEARS IN BILINGUAL
PROGRAM AS OF 1973-74 WITH FALL 1973 BOEHM SPANISH, PART 2

GRAND MEAN = 14.80

VARIABLE + CATEGORY	N	UNADJUSTED DEVIN	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS DEVIN	ADJUSTED FOR INDEPENDENTS BETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEVIN	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
GRADE							
0	139	-1.21				-.47	
1	111	1.08				.19	
2	28	1.70				1.58	
			.26				.13
YEARS IN PROGRAM							
1	132	-1.48				-.70	
2	133	1.05				.55	
3	13	4.27				1.55	
			.33				.15
MULTIPLE R SQUARED							.408
MULTIPLE R							.639

TABLE 41

ANALYSIS OF VARIANCE

SPRING 1974 BOEHM ENGLISH, PART 1
BY GRADE IN 1973-74 AND YEARS IN BILINGUAL
PROGRAM AS OF 1973-74 WITH FALL 1973 BOEHM ENGLISH, PART 1

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
COVARIATES					
Fall 1973 Boehm English, Part 1	2256.998	1	2256.998	410.399	.001
MAIN EFFECTS	58.550	4	14.637	2.662	.032
Grade	32.067	2	16.034	2.915	.054
Years in Bilingual Program	33.982	2	16.991	3.090	.046
2-WAY INTERACTIONS					
Grade Years in Bilingual Program	63.020	3	21.007	3.820	.011
RESIDUAL	1583.861	288	5.500		
TOTAL	3962.428	296	13.387		

COVARIATE	BETA
FALL 1973 Boehm B1	.556

TABLE 42

MULTIPLE CLASSIFICATION ANALYSIS

SPRING 1974 BOEHM ENGLISH, PART 1
BY GRADE IN 1973-74 AND YEARS IN BILINGUAL
PROGRAM AS OF 1973-74 WITH FALL 1973 BOEHM ENGLISH, PART 1

GRAND MEAN = 21.23

VARIABLE + CATEGORY	N	UNADJUSTED DEVIN	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS DEVIN	ADJUSTED FOR INDEPENDENTS BETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEVIN	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
GRADE							
0	147	-1.27				-.32	
1	111	1.19				.17	
2	39	1.41				.72	
			.34				.10
YEARS IN PROGRAM							
1	150	-1.02				-.35	
2	135	.93				.30	
3	12	2.35				.94	
			.29				.10
MULTIPLE R SQUARED							.584
MULTIPLE R							.764

TABLE 43

ANALYSIS OF VARIANCE

SPRING 1974 BOEHM ENGLISH, PART 2
BY GRADE IN 1973-74 AND YEARS IN BILINGUAL
PROGRAM AS OF 1973-74 WITH FALL 1973 BOEHM ENGLISH, PART 2

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
COVARIATES					
Fall 1973 Boehm English, Part 2	1983.401	1	1983.401	290.968	.001
MAIN EFFECTS	43.834	4	10.958	1.608	.171
Grade	34.471	2	17.236	2.529	.080
Years in Bilingual Program	12.955	2	6.477	.950	.999
2-WAY INTERACTIONS					
Grade Years in Bilingual Program	1.147	3	.382	.056	.999
RESIDUAL	1935.902	284	6.817		
TOTAL	3964.284	292	13.576		

COVARIATE	BETA
FALL 1973 Boehm B2	.581

TABLE 44

MULTIPLE CLASSIFICATION ANALYSIS

SPRING 1974 BOEHM ENGLISH, PART 2
BY GRADE IN 1973-74 AND YEARS IN BILINGUAL
PROGRAM AS OF 1973-74 WITH FALL 1973 BOEHM ENGLISH, PART 2

GRAND MEAN = 16.74

VARIABLE + CATEGORY	N	UNADJUSTED DEVIN	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS DEVIN	ADJUSTED FOR INDEPENDENTS BETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEVIN	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
GRADE							
0	145	-1.43				-.34	
1	109	1.25				.15	
2	39	1.82				.84	
			.39				.11
YEARS IN PROGRAM							
1	146	-1.06				-.19	
2	135	.93				.12	
3	12	2.43				.89	
			.30				.06
MULTIPLE R SQUARED							.511
MULTIPLE R							.715

TABLE 45

GENERAL ABILITIES: SENTENCE COMPLETION SUBTEST

Level	Grade		Years in Program			
			1	2	3	4
Level 1	1	$\bar{X}$ SD N	15.09 4.83 (130)	15.82 3.75 (140)	18.39 3.15 (18)	-
Level 2	2	$\bar{X}$ SD N	16.73 4.12 (64)	15.93 4.52 (81)	17.77 4.18 (68)	17.42 4.23 (12)
	3	$\bar{X}$ SD N	17.35 5.51 (55)	17.94 4.91 (48)	18.47 4.23 (59)	18.58 2.54 (12)
Level 3	4	$\bar{X}$ SD N	7.98 5.33 (45)	6.60 4.88 (45)	6.46 4.14 (30)	9.04 5.54 (26)
	5	$\bar{X}$ SD N	8.22 5.36 (9)	7.00 5.32 (15)	11.07 3.69 (15)	9.17 2.32 (6)
Level 4	7	$\bar{X}$ SD N	13.25 5.85 (16)	12.71 5.37 (17)	13.00 4.32 (4)	-

TABLE 46

GENERAL ABILITIES:
CLASSIFICATION SUBTEST

Level	Grade		Years in Program			
			1	2	3	4
Level 1	1	$\bar{X}$ SD N	10.52 4.59 (130)	11.40 4.24 (140)	12.00 5.17 (18)	-
Level 2	2	$\bar{X}$ SD N	10.47 3.72 (64)	10.99 3.57 (81)	10.40 3.78 (68)	11.25 3.25 (12)
	3	$\bar{X}$ SD N	11.67 3.67 (55)	12.96 4.77 (48)	12.70 3.63 (59)	14.08 2.94 (12)
Level 3	4	$\bar{X}$ SD N	4.29 4.17 (45)	5.40 3.37 (45)	5.43 3.13 (30)	6.85 4.41 (26)
	5	$\bar{X}$ SD N	6.56 5.90 (9)	7.60 4.39 (15)	10.20 4.81 (15)	7.33 6.22 (6)
Level 4	7	$\bar{X}$ SD N	9.13 5.95 (16)	9.53 4.85 (17)	8.25 2.75 (4)	-

TABLE 47

GENERAL ABILITIES:
ANALOGIES SUBTEST

Level	Grade		Years in Program			
			1	2	3	4
Level 1	1	$\bar{X}$ SD N	14.29 3.98 (130)	14.35 3.90 (140)	16.50 3.29 (18)	-
Level 2	2	$\bar{X}$ SD N	12.03 3.51 (64)	11.93 3.45 (81)	12.22 2.88 (68)	11.33 3.77 (12)
	3	$\bar{X}$ SD N	13.26 3.97 (55)	13.71 3.98 (48)	13.58 3.20 (59)	14.58 3.14 (12)
Level 3	4	$\bar{X}$ SD N	9.69 7.22 (45)	9.67 5.53 (45)	8.90 5.94 (30)	12.04 6.19 (26)
	5	$\bar{X}$ SD N	9.56 7.09 (9)	10.00 6.34 (15)	14.20 5.12 (15)	8.17 6.46 (6)
Level 4	7	$\bar{X}$ SD N	14.44 6.32 (16)	12.53 6.89 (17)	17.00 1.16 (4)	-

TABLE 48

GENERAL ABILITIES: NUMBER SERIES SUBTEST

Level	Grade		Years in Program			
			1	2	3	4
Level 1	1	$\bar{X}$ SD N	6.35 2.81 (130)	6.94 2.43 (140)	7.78 2.44 (18)	-
Level 2	2	$\bar{X}$ SD N	10.28 6.11 (64)	11.47 4.32 (81)	11.12 4.17 (68)	10.17 3.46 (12)
	3	$\bar{X}$ SD N	14.93 6.53 (55)	17.60 6.11 (48)	16.70 4.62 (59)	17.67 2.77 (12)
Level 3	4	$\bar{X}$ SD N	8.02 7.12 (45)	6.78 5.31 (45)	6.67 4.41 (30)	9.12 6.11 (26)
	5	$\bar{X}$ SD N	8.00 7.92 (9)	9.13 5.11 (15)	15.47 6.05 (15)	9.83 7.89 (6)
Level 4	7	$\bar{X}$ SD N	6.88 6.93 (16)	6.71 6.48 (17)	9.75 6.60 (4)	-

TABLE 49

GENERAL ABILITIES: WORD RELATIONS SUBTEST

Level	Grade		Year In Program			
			1	2	3	4
Level 3	4	$\bar{X}$	12.73	11.56	10.27	14.39
		SD	7.72	7.02	7.15	7.38
		N	(45)	(45)	(30)	(26)
	5	$\bar{X}$	12.78	13.33	17.00	14.50
		SD	9.04	6.72	8.03	8.12
		N	(9)	(15)	(15)	(6)
Level 4	7	$\bar{X}$	12.81	14.35	14.25	
		SD	7.96	6.38	6.80	-
		N	(16)	(17)	(4)	

TABLE 50

GENERAL ABILITIES: COMPUTATION SUBTEST

Level	Grade		Year In Program			
			1	2	3	4
Level 3	4	$\bar{X}$	11.76	11.84	11.80	13.65
		SD	6.47	6.06	5.48	5.28
		N	(45)	(45)	(30)	(26)
	5	$\bar{X}$	10.44	12.20	15.00	9.83
		SD	7.70	6.28	5.70	7.78
		N	(9)	(15)	(15)	(6)
Level 4	7	$\bar{X}$	15.44	15.94	18.00	-
		SD	5.43	5.76	3.37	
		N	(16)	(17)	(4)	

TABLE 51

MEAN AND STANDARD DEVIATION OF TOBE RAW TEST SCORES

Part of Test	Grade		Fall	Winter	Spring
English Language Items (odd numbers)	K	X SD N	5.45 2.68 (262)	7.00 2.77 (289)	9.16 2.98 (255)
	1	X SD N	8.54 2.72 (326)	10.73 2.31 (380)	8.48 2.60 (327)
Spanish Language Items (even numbers)	K	X SD N	6.31 2.41 (261)	7.60 2.80 (290)	9.04 2.56 (255)
	1	X SD N	8.65 2.47 (326)	7.80 2.93 (369)	6.03 2.47 (320)
English Math Items (odd numbers)	K	X SD N	—	7.02 2.49 (288)	8.83 2.80 (265)
	1	X SD N	7.53 2.54 (258)	7.02 2.60 (278)	9.77 2.23 (318)
Spanish Math Items (even numbers)	K	X SD N	—	7.29 2.49 (290)	8.06 2.54 (265)
	1	X SD N	5.37 2.17 (253)	7.77 2.42 (249)	7.25 2.51 (317)

TABLE 52

BTB MATH SUBTEST

Time of Administration	Grade		Years In Program			
			0	1	2	3
Fall 1973	2	$\bar{X}$ SD N	-	8.70 2.69 (30)	-	-
	3	$\bar{X}$ SD N	8.10 3.01 (20)	9.72 * 1.77 (25)	-	-
	4	$\bar{X}$ SD N	9.67 3.28 (12)	-	-	-
Fall 1974	3	$\bar{X}$ SD N	-	14.33 3.77 (9)	14.00 3.68 (10)	-
B-3 & B-0 Groups Winter 1976	3	$\bar{X}$ SD N	10.29 4.31 (65)	-	-	12.52 4.08 (109)
	4	$\bar{X}$ SD N	14.04 3.79 (47)	-	-	15.21 2.96 (104)

* $t = 2.198$, $p < .05$

TABLE 53

ANALYSIS OF VARIANCE

1976 MATH SUBTEST OF BTB
GRADE AND YEARS IN BILINGUAL PROGRAM
GROUP 1

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	1001.552	2	500.776	35.348	.001
Grade	716.118	1	716.118	50.549	.001
Years in Program	233.952	1	233.962	16.514	.001
2-WAY INTERACTIONS					
Grade Years in Program	24.007	1	24.007	1.695	.191
RESIDUAL	4533.408	320	14.167		
TOTAL	5558.967	323	17.210		

346 Cases were processed,
22 Cases (6.4 PCT) were missing.

TABLE 54

BTB SCIENCE SUBTEST

Time of Administration	Grade		Years In Program			
			0	1	2	3
Fall 1973	2	$\bar{X}$ SD N	-	5.14 1.87 (29)	-	-
	3	$\bar{X}$ SD N	5.10 1.64 (21)	5.60 1.94 (25)	-	-
	4	$\bar{X}$ SD N	5.36 2.42 (11)	-	-	-
Fall 1974	3	$\bar{X}$ SD N	-	13.89 4.81 (9)	12.00 4.97 (10)	-
Winter 1976	3	$\bar{X}$ SD N	9.35 4.76 (65)	-	-	10.38 4.57 (109)
	4	$\bar{X}$ SD N	11.68 4.26 (47)	-	-	12.43 4.73 (104)

TABLE 55

ANALYSIS OF VARIANCE
1976
SCIENCE SUBTEST OF BTB BY
GRADE AND YEARS IN BILINGUAL PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	919.586	2	459.793	23.042	.001
Grade	594.982	1	594.982	29.816	.001
Years in Program	274.051	1	274.051	13.734	.001
2-WAY INTERACTIONS					
Grade Years in Program	69.384	1	69.384	3.477	.060
RESIDUAL	6385.576	320	19.955		
TOTAL	7374.547	323	22.831		

346 Cases were processed.
22 Cases (6.4 PCT) were missing.

TABLE 56

BTB SOCIAL STUDIES SUBTEST

Time of Administration	Grade		Years In Program			
			0	1	2	3
Fall 1973	2	$\bar{X}$ SD N	-	3.93 1.16 (29)	-	-
	3	$\bar{X}$ SD N	4.38 1.88 (21)	4.08 1.53 (25)	-	-
	4	$\bar{X}$ SD N	3.64 1.36 (11)	-	-	-
Fall 1974	3	$\bar{X}$ SD N	-	15.56 3.43 (9)	12.30 4.08 (10)	-
Winter 1976	3	$\bar{X}$ SD N	8.66 4.62 (65)	-	-	11.82 4.51 (109)
	4	$\bar{X}$ SD N	12.19 4.73 (47)	-	-	13.83 4.60 (104)

TABLE 57

ANALYSIS OF VARIANCE
1976
SOCIAL STUDIES SUBTEST OF BTB BY
GRADE AND YEARS IN BILINGUAL PROGRAM

URCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
IN EFFECTS	998.253	2	499.126	23.601	.001
Grade	507.311	1	507.311	23.988	.001
Years in Program	432.533	1	432.533	20.452	.001
WAY INTERACTIONS					
Grade Years in Program	42.576	1	42.576	2.013	.153
SIDUAL	6767.495	320	21.148		
TAL	7808.324	323	24.174		

346 Cases were processed,
22 Cases (6.4 PCT) were missing.

TABLE 58

SOS SELF ACCEPTANCE SUBTEST

Level of Test	Grade		Years In Program 1	2	3	4
Level 1	1	$\bar{X}$ SD N	46.08 7.72 (104)	45.95 6.44 (115)	42.19 8.22 (16)	-
	2	$\bar{X}$ SD N	46.57 6.66 (44)	46.50 6.37 (54)	44.86 7.42 (55)	46.48 8.00 (5)
	3	$\bar{X}$ SD N	46.41* 5.65 (59)	43.98 6.13 (65)	42.98 5.35 (80)	41.31 7.50 (17)
	4	$\bar{X}$ SD N	45.17 6.33 (49)	46.55 5.26 (47)	43.87 5.24 (39)	43.22 5.90 (33)
Level 2	5	$\bar{X}$ SD N	49.58 5.90 (8)	39.50 13.14 (11)	48.23 13.47 (13)	42.05 9.78 (6)
	7	$\bar{X}$ SD N	45.69 7.91 (14)	46.04 7.13 (16)	-	-
	8	$\bar{X}$ SD N	41.19 8.43 (8)	47.62 4.95 (11)		

* $p < .05$

TABLE 59

SOS SOCIAL MATURITY SUBTEST

Level of Test	Grade		Years In Program			
			1	2	3	4
Level 1	1	$\bar{X}$ SD N	41.02 6.40 (104)	39.19 7.82 (115)	38.96 5.81 (16)	-
	2	$\bar{X}$ SD N	40.65 9.42 (44)	42.42 8.67 (54)	40.59 8.62 (55)	39.76 6.81 (5)
	3	$\bar{X}$ SD N	43.81 * 7.02 (59)	41.02 7.74 (65)	39.27 7.21 (80)	40.15 7.10 (17)
	4	$\bar{X}$ SD N	42.95 7.62 (49)	42.19 6.90 (47)	40.03 7.10 (39)	40.06 7.89 (33)
Level 2	5	$\bar{X}$ SD N	42.40 10.40 (8)	33.48 16.16 (11)	40.57 17.86 (13)	40.10 9.60 (6)
	7	$\bar{X}$ SD N	38.63 12.85 (14)	39.33 12.87 (16)	-	-
	8	$\bar{X}$ SD N	25.91 17.31 (8)	35.09 10.60 (11)	-	-

* $p < .05$

TABLE 60

SOS SCHOOL AFFILIATION SUBTEST

Level of Test	Grade		Years In Program			
			1	2	3	4
Level 1	1	$\bar{X}$ SD N	36.04 8.17 (104)	35.14 7.36 (115)	32.00 6.10 (16)	-
	2	$\bar{X}$ SD N	36.36 7.69 (44)	37.12 7.94 (54)	36.17 8.61 (55)	31.48 13.33 (5)
	3	$\bar{X}$ SD N	37.17* 6.49 (59)	34.43 6.47 (65)	33.49 6.12 (80)	33.75 9.13 (17)
	4	$\bar{X}$ SD N	36.02 6.76 (49)	36.28 6.56 (47)	35.54 7.00 (39)	34.68 5.98 (33)
Level 2	5	$\bar{X}$ SD N	52.31 14.52 (8)	52.35 9.32 (11)	57.38 9.66 (13)	54.48 7.83 (6)
	7	$\bar{X}$ SD N	53.74 9.14 (14)	52.08 15.04 (16)	-	-
	8	$\bar{X}$ SD N	60.03 5.45 (8)	58.98 8.51 (11)		

* $p < .05$

TABLE 61

SOS ACHIEVEMENT MOTIVATION SUBTEST.

Level of Test	Grade		Years In Program			
			1	2	3	4
Level 1	1	$\bar{X}$ SD N	48.39 9.14 (104)	50.75 8.89 (115)	47.31 8.13 (16)	-
	2	$\bar{X}$ SD N	51.02 11.12 (44)	51.45 9.00 (54)	52.38 9.00 (55)	49.10 8.91 (5)
	3	$\bar{X}$ SD N	50.14 8.17 (59)	48.56 8.54 (65)	48.24 10.43 (80)	47.18 7.61 (17)
	4	$\bar{X}$ SD N	49.04 8.43 (49)	52.15 9.11 (47)	48.27 9.39 (39)	47.55 6.81 (33)
Level 2	5	$\bar{X}$ SD N	41.69 12.49 (8)	47.55 10.25 (11)	47.22 9.90 (13)	50.12 9.49 (6)
	7	$\bar{X}$ SD N	47.32 12.89 (14)	54.94 10.49 (16)	-	-
	8	$\bar{X}$ SD N	55.73 16.27 (8)	53.50 14.19 (11)	-	-

TABLE 62

SOS SELF SECURITY SUBTEST

Level of Test	Grade		Years In Program 1	2	3	4
Level 1	1	$\bar{X}$	46.33	46.28	49.75	-
		SD	8.90	8.65	5.09	
		N	(104)	(115)	(16)	
	2	$\bar{X}$	49.47	49.01	49.01	51.64
		SD	8.63	6.58	6.78	8.12
		N	(44)	(54)	(55)	(5)
	3	$\bar{X}$	49.47	49.01	49.01	51.64
		SD	8.63	6.58	6.78	8.12
		N	(44)	(54)	(55)	(5)
	4	$\bar{X}$	49.89	52.43 *	48.45	49.79
		SD	5.90	6.24	6.50	6.61
		N	(49)	(47)	(39)	(3[illegible]
Level 2	5	$\bar{X}$	55.94	47.57	45.68	49.07
		SD	8.27	11.06	10.72	4.83
		N	(8)	(11)	(13)	(6)
	7	$\bar{X}$	42.51	45.90		
		SD	8.98	7.86	-	-
		N	(14)	(16)		
	8	$\bar{X}$	45.28	42.57		
		SD	8.79	5.67	-	-
		N	(5)	(11)		

* $p < .05$

TABLE 63

SOS TEACHER AFFILIATION SUBTEST

Level of Test	Grade		Years in Program			
			1	2	3	4
Level 2	5	$\bar{X}$	46.86	40.94	48.98	45.58
		SD	10.01	12.73	11.65	7.99
		N	(8)	(11)	(13)	(6)
	7	$\bar{X}$	44.67	44.07	—	—
		SD	7.01	8.60		
		N	(14)	(16)		
	8	$\bar{X}$	40.28	48.98	—	—
		SD	9.58	6.15		
		N	(8)	(11)		

TABLE 64

SOS SOCIAL CONFIDENCE SUBTEST

Level of Test	Grade		Years in Program			
			1	2	3	4
Level 2	5	$\bar{X}$	38.51	43.40	45.62	48.40
		SD	6.07	6.93	12.15	10.18
		N	(8)	(11)	(13)	(6)
	7	$\bar{X}$	43.81	45.86	—	—
		SD	9.31	6.49		
		N	(14)	(16)		
	8	$\bar{X}$	43.48	45.42	—	—
		SD	6.54	7.92		
		N	(8)	(11)		

TABLE 65

SOS PEER AFFILIATION SUBTEST

Level of Test	Grade		Years in Program			
			1	2	3	4
Level 2	5	$\bar{X}$	47.56	43.77	45.07	44.02
		SD	7.18	10.42	12.63	7.28
		N	(8)	(11)	(13)	(6)
	7	$\bar{X}$	41.61	44.68	—	—
		SD	8.58	10.35		
		N	(14)	(16)		
	8	$\bar{X}$	38.84	42.86	—	—
		SD	6.27	7 08		
		N	(8)	(11)		

Table 66

BTB ATTITUDE SUBTEST

Time of Administration	Grade		Years in Program		
			0	1	3
Fall 1973	2	$\bar{X}$	—	37.87	—
		SD		12.51	
		N		(30)	
	3	$\bar{X}$	32.42	39.97 *	—
		SD	10.20	12.28	
		N	(19)	(25)	
	4	$\bar{X}$	42.70	—	—
		SD	9.06		
		N	(10)		
B-3 & B-0 Groups Winter 1976	3	$\bar{X}$	48.94	—	50.69
		SD	9.69		6.48
		N	(65)		(108)
	4	$\bar{X}$	50.91	—	51.12
		SD	5.17		5.24
		N	(47)		(120)

* $t = 2.121$, $p < .05$

TABLE 67

ANALYSIS OF VARIANCE
1976
ATTITUDE SUBTEST OF BTB
GRADE AND YEARS IN BILINGUAL PROGRAM

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	167.069	2	83.534	1.840	.158
Grade	77.622	1	77.622	1.709	.189
Years in Program	79.644	1	79.644	1.754	.183
2-WAY INTERACTIONS					
Grade Years in Program	40.729	1	40.729	.897	.999
RESIDUAL	14531.161	320	45.410		
TOTAL	14738.958	323	45.631		

346 Cases were processed,
22 Cases (6.4 PCT) were missing.

TABLE 68

ANALYSIS OF VARIANCE

SPRING 1973 TOBE ENGLISH LANGUAGE SUBTEST
LANGUAGE LISTENED TO ON RADIO AND
LANGUAGE LISTENED TO ON TV
WITH FALL 1972 TOBE ENGLISH LANGUAGE SUBTEST

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
COVARIATES					
Fall English TOBE	6.685	1	6.685	.845	.999
MAIN EFFECTS	51.305	4	12.826	1.717	.149
Language Listened to on Radio	15.947	2	7.974	1.067	.348
Language Listened to on T.V.	19.563	2	9.781	1.309	.273
2-WAY INTERACTIONS					
Radio and T.V.	4.749	3	1.583	.212	.999
RESIDUAL	941.364	126	7.471		
TOTAL	1004.103	134	7.493		

COVARIATE	BETA
FALL TOBE	-.068

TABLE 69

MULTIPLE CLASSIFICATION ANALYSIS

SPRING 1973 TOBE ENGLISH LANGUAGE SUBTEST
LANGUAGE LISTENED TO ON RADIO AND
LANGUAGE LISTENED TO ON TV
WITH FALL 1972 TOBE ENGLISH LANGUAGE SUBTEST

GRAND MEAN = 8.88

VARIABLE + CATEGORY	N	UNADJUSTED DEVIN	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEVIN	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
RADIO					
1 English	52	.29		.13	
2 Spanish	29	.57		.61	
3 Both	54	-.59		-.46	
			.18		.15
T.V.					
1 English	68	.46		.28	
2 Spanish	7	-1.17		-1.57	
3 Both	60	-.38		-.13	
			.18		.15
MULTIPLE R SQUARED					.058
MULTIPLE R					.240

TABLE 70

ANALYSIS OF VARIANCE

SPRING 1973 TOBE SPANISH LANGUAGE SUBTEST
BY LANGUAGE LISTENED TO ON THE RADIO AND
LANGUAGE LISTENED TO ON TV WITH FALL 1972 TOBE SPANISH LANGUAGE SUBTEST

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
COVARIATES					
Fall Spanish TOBE	3.523	1	3.523	.375	.999
MAIN EFFECTS	103.430	4	25.857	2.749	.031
Language Listened to on Radio	96.983	2	48.491	5.155	.007
Language Listened to on TV	12.860	2	6.430	.684	.999
2-WAY INTERACTIONS					
Radio and T.V.	11.686	3	3.895	.414	.999
RESIDUAL	1157.020	123	9.407		
TOTAL	1275.659	131	9.738		

COVARIATE	BETA
FALL TOBE	- .068

TABLE 71

MULTIPLE CLASSIFICATION ANALYSIS

SPRING 1973 TOBE SPANISH LANGUAGE SUBTEST
LANGUAGE LISTENED TO ON RADIO AND
LANGUAGE LISTENED TO ON TV
WITH FALL 1972 TOBE SPANISH LANGUAGE SUBTEST

GRAND MEAN = 7.66

VARIABLE + CATEGORY	UNADJUSTED DEVIN	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEVIN	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
RADIO				
1 English	-.58		-.82	
2 Spanish	1.51		1.58	
3 Both	-.28		-.09	
		.26		.29
T.V.				
1 English	.23		.33	
2 Spanish	.06		-1.03	
3 Both	-.27		-.25	
		.08		.12
MULTIPLE R SQUARED				.084
MULTIPLE R				.290

TABLE 72

ANALYSIS OF VARIANCE

SPRING 1973 TOBE ENGLISH LANGUAGE SUBTEST
LANGUAGE SPOKEN TO MOTHER
LANGUAGE SPOKEN TO FATHER
LANGUAGE SPOKEN TO SIBLINGS
WITH FALL 1972 TOBE ENGLISH LANGUAGE SUBTEST

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
COVARIATES					
Fall English TOBE	8.631	1	8.631	1.145	.287
MAIN EFFECTS	63.622	6	10.604	1.406	.217
Language Spoken to Mother	16.126	2	8.063	1.069	.347
Language Spoken to Father	4.308	2	2.154	.286	.999
Language Spoken to Siblings	43.187	2	21.594	2.864	.059
2-WAY INTERACTIONS	95.293	10	9.529	1.264	.257
Mother Father	46.006	4	11.501	1.525	.198
Mother Siblings	8.175	2	4.088	.542	.999
Father Siblings	16.646	4	4.161	.552	.999
3-WAY INTERACTIONS					
Father Mother Siblings	.029	1	.029	.004	.999
RESIDUAL	934.942	124	7.540		
TOTAL	1102.517	142	7.764		

COVARIATE	BETA
FALL ENGLISH TOBE	-.074

TABLE 73

MULTIPLE CLASSIFICATION ANALYSIS

SPRING 1973 TOBE ENGLISH LANGUAGE SUBTEST
LANGUAGE SPOKEN TO MOTHER
LANGUAGE SPOKEN TO FATHER
LANGUAGE SPOKEN TO SIBLINGS
WITH FALL 1972 TOBE ENGLISH LANGUAGE SUBTEST

GRAND MEAN = 8.80

VARIABLE + CATEGORY	N	UNADJUSTED DEVIN	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEVIN	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
LANGUAGE SPOKEN TO MOTHER					
1 English	15	.73		.47	
2 Spanish	98	-.20		-.27	
3 Both	30	.30		.65	
			.12		.15
LANGUAGE SPOKEN TO FATHER					
1 English	20	.70		.18	
2 Spanish	87	-.11		.06	
3 Both	36	-.11		-.25	
			.10		.05
LANGUAGE SPOKEN TO SIBLINGS					
1 English	61	.34		.19	
2 Spanish	31	.62		.77	
3 Both	51	-.78		-.70	
			.21		.20

MULTIPLE R SQUARED .066
MULTIPLE R .256

TABLE 74

ANALYSIS OF VARIANCE

SPRING 1973 TOBE SPANISH LANGUAGE SUBTEST
LANGUAGE SPOKEN TO MOTHER
LANGUAGE SPOKEN TO FATHER
LANGUAGE SPOKEN TO SIBLINGS
WITH FALL 1972 TOBE SPANISH LANGUAGE SUBTEST

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
COVARIATES					
Fall English TOBE	.377	1	.377	.042	.999
MAIN EFFECTS	149.531	6	24.922	2.749	.015
Language Spoken to Mother	60.509	2	30.255	3.337	.038
Language Spoken to Father	8.175	2	4.088	.451	.999
Language Spoken to Siblings	80.847	2	40.423	4.458	.013
2-WAY INTERACTIONS	73.750	10	7.375	.813	.999
Mother Father	44.566	4	11.141	1.229	.302
Mother Siblings	16.615	2	8.308	.916	.999
Father Siblings	17.456	4	4.364	.481	.999
3-WAY INTERACTIONS					
Father Mother Siblings	3.923	1	3.923	.433	.999
RESIDUAL	1097.104	121	9.067		
TOTAL	1324.685	139	9.530		

COVARIATES	BETA
FALL ENGLISH TOBE	-.074

TABLE 75

MULTIPLE CLASSIFICATION ANALYSIS

SPRING 1973 TOBE SPANISH LANGUAGE SUBTEST
LANGUAGE SPOKEN TO MOTHER
LANGUAGE SPOKEN TO FATHER
LANGUAGE SPOKEN TO SIBLINGS
WITH FALL 1972 TOBE SPANISH LANGUAGE SUBTEST

GRAND MEAN = 7.77

VARIABLE + CATEGORY	N	UNADJUSTED DEVIN	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEVIN	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
LANGUAGE SPOKEN TO MOTHER					
1 English	14	-1.77		-1.36	
2 Spanish	98	.36		.14	
3 Both	28	-.38		.19	
			.21		.15
LANGUAGE SPOKEN TO FATHER					
1 English	19	-.61		.52	
2 Spanish	87	.34		.00	
3 Both	34	-.54		-.30	
			.14		.08
LANGUAGE SPOKEN TO SIBLINGS					
1 English	59	-.84		-.71	
2 Spanish	31	1.65		1.52	
3 Both	50	-.03		-.10	
			.31		.28

MULTIPLE R SQUARED .113
MULTIPLE R .336

Research and Evaluation

APPENDIX A

Teacher I.D. No. ___ ___ ___ (IF YOU HAVE BEEN ASSIGNED ONE) 1-3

BILINGUAL STUDENT INFORMATION SHEET

Winter, 1975

(TO BE COMPLETED BY TEACHERS)

Sex: Male 1 - Female 2 4 Name _____ Student I.D. No. ___ ___ ___ ___ ___ ___ ___ 5-12

School Unit No. ___ ___ ___ 13-16 Years of Formal Education ___ 17-18 Age in Years (as of Dec. 1, 1975) ___ 19-20

Please check any that apply:

___ 21 Activity 17 Title I Language in Transition

___ Activity 56 Title I TESL-on-Wheels

___ Activity 57 Title I Orientation and Language Development Centers

___ State Funded Bilingual

___ Title VII Funded Bilingual

___ Board Funded Bilingual

___ 27 Not in any Bilingual Program

PROGRAM MODEL (Circle one)

1. Self contained
2. Team teaching—two teachers in same room all day
3. Team teaching—two teachers in separate rooms, exchange students
4. Integrated full day
5. Departmentalized
6. Other *(please specify)*: _____ 28

NON-ENGLISH LANGUAGE OF INSTRUCTION (Circle one)

1. Spanish	4. Arabic	7. Korean	10. Serbo-Croatian	
2. Greek	5. Chinese	8. Pilipino	11. American Indian Languages	
3. Italian	6. Japanese	9. Polish	12. Haitian-French	29-30

APPROXIMATE DAILY INSTRUCTION TIME (Circle one in each column)

	English		*Other Language of Instruction*	
Less than 40 minutes	1	31	1	32
40 - 80 minutes	2		2	
81 - 120 minutes	3		3	
121 - 160 minutes	4		4	
161 - 200 minutes	5		5	
More than 200 minutes	6		6	

Circle the number below for the one category that fits the source of income for the head of the student's household.

1. *Social Security or Public Aid*
2. *Service Worker or Private Household Worker,* such as waiter, nursing aide, airline stewardess, elevator operator, hairdresser, barber, cook, maid or domestic worker.
3. *Laborer,* such as construction laborer, garbage collector, warehouseman
4. *Operative,* such as assembly worker, clothing presser, produce grader, machine operator, sailor, textile operator, bus driver, taxicab driver, deliveryman
5. *Craftsman,* such as baker, floor layer, carpenter, foreman, machinist, mechanic and repairman, sheet metal worker, tailor 33
6. *Clerical Worker,* such as bank teller, file clerk, mail carrier, dispatcher, office machine operator, secretary
7. *Sales Worker,* such as real-estate agent, retail sales clerk, manufacturer's sales representative
8. *Manager and Administrator,* such as treasurer, buyer, office manager, government official, sales manager, restaurant manager
9. *Professional and Technical,* such as accountant, engineer, physician nurse, social worker, teacher, draftsman, actor, computer programmer
0. *Do Not Know*

Please circle one letter to indicate the student ability in each language. Use these categories:

A. Unable to comprehend or communicate
B. Comprehends and communicates in halting and limited manner
C. Comprehends and communicates with reasonable facility
D. Near-native proficiency

English language fluency	A	B	C	D	34
Home language fluency (other than English)	A	B	C	D	35

TO BE COMPLETED BY STUDENTS

(Circle one answer for each question)

1. Number of years completed in a bilingual program: 0 1 2 3 4 5 6 7 8 36

2. Number of years in the U.S.:

1. Less than 1 year	3. 3-5 years	5. 11-15 years
2. 1-2 years	4. 6-10 years	6. More than 15 years

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3. Your birth place:

1. Central America	8. China	15. Yugoslavia
2. Cuba	9. Japan	16. Other parts of Europe
3. Mexico	10. Philippines	17. Middle East (Arab World)
4. Puerto Rico	11. Other parts of Asia	18. Haiti
5. South America	12. Greece	19. Other
6. Southwest U.S.A.	13. Italy	
7. Other parts of the U.S.A.	14. Poland	

38-39

4. What language do your parents speak at home most of the time? (Circle one for each parent)

	English	Spanish	Greek	Italian	Arabic	Chinese	Japanese	Korean	Pilipino
Father	1	2	3	4	5	6	7	8	9

Polish	Serbo-Croatian	Haitian-French	Other
10	11	12	13

40-41

	English	Spanish	Greek	Italian	Arabic	Chinese	Japanese	Korean	Pilipino
Mother	1	2	3	4	5	6	7	8	9

Polish	Serbo-Croatian	Haitian-French	Other
10	11	12	13

42-43

	English	Home Language	Both
5. What language do you speak most with your father?	1	2	3

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6. What language do you speak most with your mother?	1	2	3
7. What language do you speak most with your brothers and sisters? .	1	2	3
8. What language do you speak most at school?	1	2	3

47

If you know how much schooling your parents have, please circle one number for each parent who lives with you.

Father 48		Mother 49
1	Did not complete the 8th grade	1
2	Completed the 8th grade but did not go to high school	2
3	Went to high school but did not graduate from high school	3
4	Graduated from high school	4
5	Had some non-college training after graduating from high school	5
6	Went to college but did not graduate from college	6
7	Graduated from a two-year college	7
8	Graduated from a four-year college	8
9	Has an advanced degree (Masters or Doctorate)	9
0	I don't know	0

Name _____
LAST FIRST 50-79

APPENDIX B

Parent's Questionnaire, Winter 1976
Cuestionario para los padres

I. General Information-Información general

1. Student's full name _____

   Nombre completo del estudiante _____

2. Who is answering this questionnaire:
   Quién está contestando el cuestionario:

   [1] Father (Padre)

   [2] Mother (madre)

   [3] Other (Otra persona) Specify (especifique)_____

3. Place of birth: mother _____ father _____ student _____
   Lugar de nacimiento: madre _____ padre _____ estudiante _____

4. How long have you and your family lived on the United States mainland?
   Hace cuánto tiempo viven en los Estados Unidos propios?

   Less than 6 months (menos de 6 meses) [1]

   6 months to 2 years (6 meses a 2 años) [2]

   2.1 to 5 years (2.1 a 5 años) [3]

   5.1 to 10 years (5.1 a 10 años) [4]

   10.1 to 20 years (10.1 a 20 años) [5]

   All our lives (Toda la vida) [6]

5. How long have you and your family lived in Illinois?
   Hace cuánto tiempo viven en Illinois?

   Less than 6 months (menos de 6 meses) [1]

   6 months to 2 years (6 meses a 2 años) [2]

   2.1 to 5 years (2.1 a 5 años) [3]

5.1 to 10 years
(5.1 a 10 años) [4]

10.1 to 20 years
(10.1 a 20 años) [5]

All our lives
(Toda la vida) [6]

6. Where did you live before coming to Illinois. ¿En qué lugar han residido antes de venir a Illinois?

[1] Mexico
[2] Puerto Rico
[3] Cuba
[4] Texas
[5] Florida
[6] Southwest (USA)
[7] New York
[8] Latin America
[9] Other (otro) Specify (Especifique) _____

7. What was the last year of schooling completed by:
Hasta qué año escolar ha estudiado:

A. Mother (La madre)	B. Father (El padre)
[0] None (no escuela)	[0] None (no escuela)
[1] Elementary School (Escuela elemental)	[1] Elementary School (Escuela elemental)
[2] Jr. High School los primeros dos años de educación secundaria o Jr. High School)	[2] Jr. High School los primeros dos años de educación secundaria o Jr. High School)
[3] High School (Escuela secundaria)	[3] High School (Escuela secundaria)
[4] University (Universidad)	[4] University (Universidad)

8. What is the occupation of:
Cuál es la ocupación de:

A. Mother (La madre)	B. Father (El padre)
[0] Deceased (muerta)	[0] Deceased (muerto)
[1] Housewife (Ama de casa)	[1] Laborer (Empleado en fábrica, o el campo)
[2] Laborer (Empleado en fábrica o en el campo)	[2] Maintenance (mantenimiento, limpieza)

[3] Clerical (Oficina, tienda)

[4] Maintenance (Mantenimiento, limpieza)

[5] Sales (Vendedora)

[6] Nurse (Enfermera)

[7] Teacher aid (Ayudante de maestra)

[8] Teacher (Maestra)

[9] Professional (Profesional)

[10] Other (Otro) _____

_____

[3] Clerical (Oficina, tienda)

[4] Construction (Construcción)

[5] Technician (Técnico)

[6] Sales (Vendedor)

[7] Teacher (Maestro)

[8] Professional (Profesional)

[9] Retired (Retirado)

[10] Disabled (Enfermo o incapacitado para trabajar)

[11] Unemployed (Sin empleo)

[12] Other (Otro) _____

9. How many children do you have?
Cuántos hijas e hijos hay en su familia? _____

10. How many of your children attend (or have attended) a bilingual program?
Cuántos de sus niños atienden o han atendido un programa bilingüe?

_____

_____

11. Other than the immediate family (mother, father, and children), does anyone else live in you household?
Fuera de la familia inmediata (madre, padre, hijas e hijos), viven otras personas en su hogar?

[1] Yes (Sí)

[2] No (No)

II. Spanish and English Proficiency (Conocimiento de Español e Inglés)

12. How would each of you describe your Spanish speaking ability? (Circle the appropriate number).
Como describiría cada uno de ustedes su propia habilidad para hablar el español? (Encierre el número apropiado).

mother madre		father padre	
	1. native nativa		1. native nativo
	2. good bien		2. good bien
	3. adequate adecuadamente		3. adequate adecuadamente

4.	very little más o menos	4.	very little más o menos
5.	do not speak at all no lo hablo	5.	do not speak at all no lo hablo

13. How would each of you describe your own Spanish reading ability? (circle the appropriate number).
Cómo describiría cada uno de ustedes su propia habilidad para leer el español? (Encierre el número apropiado).

mother madre		father padre	
1.	native nativa	1.	native nativo
2.	good bien	2.	good bien
3.	adequate adecuadamente	3.	adequate adecuadamente
4.	very little más o menos	4.	very little más o menos
5.	do not read it at all no lo leo	5.	do not read it at all no lo leo

14. How would each of you describe your own English speaking ability? (Circle the appropriate number).
Cómo describiría cada uno de ustedes su propia habilidad para hablar el inglés? (Encierre el número apropriado).

mother madre		father padre	
1.	native native	1.	native nativo
2.	good bien	2.	good bien
3.	adequate adecuadamente	3.	adequate adecuadamente
4.	very little más o menos	4.	very little más o menos
5.	do not speak it at all no lo hablo	5.	do not speak it at all no lo hablo

15. How would each of you describe your own English reading ability? (Circle the appropriate number).
Cómo describiría cada uno de ustedes su propia habilidad para leer el inglés? (Encierre el número apropiado).

mother madre		father padre	
	1. native nativa		1. native nativo
	2. good bien		2. good bien
	3. adequate adecuadamente		3. adequate adecuadamente
	4. very little más o menos		4. very little más o menos
	5. do not read it at all no lo leo		5. do not read it at all no lo leo

16. How would you describe the student's Spanish speaking ability? (Circle the appropriate number).
Cómo describiría la habilidad del estudiante o de la estudiante. (Encierre el número apropiado).

1. native
nativo
2. good
bien
3. adequate
adecuadamente
4. very little
más o menos
5. does not speak it at all
no lo habla

17. How would you describe the student's Spanish reading ability? (Circle the appropriate number).
Cómo describiría la habilidad de la estudiante o del estudiante para leer el español? (Encierre el número appropriado).

1. native
nativo
2. good
bien
3. adequate
adecuadamente

4. very little
   más o menos

5. does not read it at all
   no lo lee

18. How would you describe the student's English speaking ability? (circle the appropriate number).
Cómo describiría usted la habilidad de el (la) estudiante para hablar el inglés? (Encierre el número apropiado).

1. native
   nativo

2. good
   bien

3. adequate
   adecuadamente

4. very little
   más o menos

5. does not speak it at all
   no lo habla

19. How would you describe the student's English reading ability? (Circle the appropriate number).
Cómo describiría usted la habilidad de el (la) estudiante para leer el inglés? (Encierre el número apropiado).

1. native
   nativo

2. good
   bien

3. adequate
   adecuadamente

4. very little
   más o menos

5. does not speak it at all
   no lo habla

III. Language Usage (Uso de los 2 lenguajes)

20. What language do the parents use most of the time at home?
Qué idioma hablan en casa la mayor parte del tiempo?

mother madre			father padre		
	[1]	Spanish		[1]	Spanish
	[2]	English		[2]	English

21. What language do the parents use most of the time outside of the home?
¿Qué idioma hablan más los padres cuando está fuera de su hogar?

mother madre		father padre	
[1]	Spanish	[1]	Spanish
[2]	English	[2]	English
[3]	Other	[3]	Other

22. Do the parents prefer to read in English or in Spanish?
¿Prefieren los padres leer en inglés o en español?

mother madre		father padre	
[1]	Spanish	[1]	Spanish
[2]	English	[2]	English

23. Do parents prefer to watch English or Spanish programs on television?
Prefieren los padres ver programas de televisión en inglés o en español?

mother madre		father padre	
[1]	Spanish	[1]	Spanish
[2]	English	[2]	English

24. Do parents prefer to listen to radio in Spanish or in English?
Prefieren los padres escuchar la radio en inglés o en español?

mother madre		father padre	
[1]	Spanish	[1]	Spanish
[2]	English	[2]	English

25. What language does the student use most of the time at home?
¿Qué idioma habla el (la) estudiante en casa la mayor parte del tiempo?

[1] Spanish

[2] English

26. Does the student prefer to read in English or in Spanish?
El (la) estudiante prefiere leer en español o en inglés?

[1] Spanish

[2] English

27. Does the student prefer to watch English or Spanish programs on television?
¿El (la) estudiante prefiere ver programas de televisión en español o en inglés?

[1] Spanish

[2] English

28. Does the student prefer to listen to the radio in Spanish or English?
¿El (la) estudiante prefiere escuchar radio en inglés o en español?

[1] Spanish

[2] English

IV. Language Interaction Patterns - Patrones de uso del lenguaje.

29. In general, what language do you use most often to speak to each other (mother and father)?
En general, en cuál idioma se hablan uno con el otro (madre y padre)?

[1] Spanish

[2] English

[3] Other

30. In general, what language do parents use to speak to their children?
En general, en cuál idioma le habla a sus hijos?

Father	Mother
[1] Spanish	[1] Spanish
[2] English	[2] English
[3] Other	[3] Other

31. In general, what language do your children use to speak to each other?
En general, en cuál idioma se hablan sus hijos el uno con el otro?

[1] Spanish

[2] English

[3] Other

32. In general, what language do your children use to speak to:
En general, en cuál idioma le habla a usted sus hijos?

Father	Mother
[1] Spanish	[1] Spanish
[2] English	[2] English
[3] Other	[3] Other

33. Are there any regular exceptions to these patterns? (For example, does one child speak Spanish to a younger brother or sister, but mostly English to an older brother or sister)?

¿Hay excepciones regulares a estos patrones? (Por ejemplo, alguno de los niños le habla en español a uno de los hermanos menores, pero inglés en mayor parte a los hermanos mayores)?

Explain
Explique _____

_____

_____

_____

_____

_____

_____

_____

_____

V. Neighborhood and Bilingual Program (Lugar de Residencia) programa bilingüe.

34. Is the neighborhood in which you live primarily Spanish-speaking or English-speaking?
En el barrio en que ustedes y sus hijos e hijas viven, los vecinos hablan generalmente en español o en inglés?

[1] Spanish (español)

[2] English (inglés)

35. What country are most of your neighbors from?
¿De qué país son la mayoría de sus vecinos?

[0] Don't know (no sé)

[1] Mexican (Mejicano)

[2] Puerto Rican (Puertorriqueño)

[3] Cuban (Cubano)

[4] US. Anglo (EEUU blancos)

[5] U.S. Black (EEUU negros)

36. What do you think is the main purpose of the bilingual education program?
¿Cuál piensa Ud. qué es el propósito principal de el program de educación bilingüe? (Marque sólo un número)

[0] Don't understand (no entiendo)

[1] To have pride in Spanish heritage (hacer a los niños orgullosos de su cultura nativa)

[2] To learn basic skills (aprender las destrezas básicas)

[3] To teach kids in their own language (enseñar a los niños en su lenguaje nativo)

[4] To get a better education (recibir una educación mejor)

[5] To learn both languages (aprender los dos lenguajes)

[6] To learn English but maintaining native language and heritage (aprender Inglés pero manteniendo el español y la cultura nativa)

[7] Other (Specify) - Otro (especifique)_____

37. Why do you want your child to receive bilingual education?
¿Porqué quiere Ud. que su niño (a) reciba educación bilingüe?

[0] Don't understand (No entiendo)

[1] So that he knows who he is and have pride in self and culture (para que el niño conozca su origen y se sienta orgulloso de si mismo y su cultura)

[2] So that he/she learn basic skills in Spanish and English (para que pueda aprender las destrezas básicas en Español e inglés)

[3] So that he/she can learn English (para que pueda aprender inglés)

[4] So that the child doesn't have the same problems the parents had when they came to this country. (para que el niño no tenga el mismo problema que los padres tuvieron al venir a este país.)

[5] To have better opportunities in life and a better self-image (para mejorar las oportunidades del niño y guardar una imagen personal más positiva)

[6] To learn Spanish better (para aprender español mejor)

[7] Other (specify) otro (specifique) _____

38. If this is the first year your child is enrolled in a bilingual program, why was he not enrolled previously?
Si éste es el primer año que su niño(a) a sido matriculado en un programa bilingüe, porqué no fue matriculado antes?

[1] The child was too young for school (el niño no estaba en edad escolar)

[2] Never heard of the program before now (no supe del programa antes este año)

[3] Was not living in Illinois (no vivía in Illinois)

[4] Did not realize the value of the program (no me daba cuenta del valor del programa)

Teacher questionaire

1. How long has the bilingual program been in effect in your district?_____

_____

2. What type of bilingual program do you teach in? (Circle the appropriate number).

[1] 1/2 day-bilingual

[2] tutorial-pull out

[3] self contained-bilingual

[4] team teaching

3. Aside from yourself, are there any other adults participating in your classroom?_____
How many?_____. If yes, what is their function? (i.e., teacher aide, parent volunteer, etc?)

[1] Teacher aid

[2] Team teacher

[3] Teacher

[4] Parent

4. What is the ratio of students to adults in your class(es).____

_____

5. Approximately what percent of the entire school day do the pupils in the bilingual program actually spend in the bilingual classroom?_____

_____

6. When in the bilingual classroom is Spanish primarily used? (Circle the appropriate number)

[1] for Spanish language arts instruction only

[2] As a medium of instruction only (all subjects)

[3] for general classroom interaction

[4] 1 and 2 only

[5] 1, 2 and 3

7. The students who have been in the bilingual program since its inception received beginning reading instruction: (Circle the appropriate number)

[1] exclusively in English

[2] exclusively in Spanish

[3] In English and Spanish concurrently

8. For these same children, describe their reading curriculum developmentally with regard to language of instruction. At what point(s) does the instructional language change or vary?

[1] By 3rd grade

[2] When student has developed an oral based in the language he is to read

[3] When child develops 2nd grade reading level in Spanish.

[4] In second grade.

[5] Reading is taught concurrently in both languages

9. For students now entering the bilingual program, has the reading curriculum changed? If yes, how is it different?

[1] Yes

[2] No

[1] Curriculum totally in Spanish

[2] Begin reading in Spanish and English can currently

[3] First oral language, then a special reading series

[4] Child spends the whole day in a Bilingual atmosphere

[5] They are in the same reading program as the other children

[6] No change

10. What curriculum materials are used in your school for English reading and Spanish reading?

A. English

[1] Scott Foresman

[2] Harcourt Brace

[3] Harper and Row

[4] Lippincoltt and Holt

[5] McGraw Hill

[6] DISTAR

[7] Ginn Series

[8] Bank Street Series

B. Spanish

[1] Spanish Roll

[2] Laidlaw

[3] Santillan Series

[4] Método Onomatopéyico

[5] Lee y trabaja

[6] Antilla Fonética

[7] El Nuevo Sembrador (Espinos)

[8] Preparacose para leer

[9] Lyons and Carnahan

[10] Young American Basic Reading Series

[11] Houghton Mifflin

[12] MacMillan

[13] Highway Holiday Series

[14] The Economy Pog. Program

[15] R.O.L.L.

[16] Laner Blosser

[9] Laner Blosser

11. What teaching method or methods do you use in your class? (Circle the appropriate number)

[1] programmed instruction

[2] special pupil-need groupings

[3] interest groupings

[4] individual tutorial

[5] total class groups

[6] other (specify) _____

12. How many years have you participated in the bilingual program in your district? _____ Elsewhere? _____.

13. What languages do you speak?

[1] Spanish

[2] English

[3] Russian

[4] German

[5] French

[6] Portuguese

[7] Italian

[8] Other (Specify)_____

14. How would you rate your spoken Spanish ability? (Circle the appropriate number)

[1] native

[2] good

[3] adequate

[4] very little

[5] do not speak at all

15. How would you rate your spoken English ability? (Circle the appropriate number)

[1] native

[2] good

[3] adequate

[4] very little

[5] do not speak at all

16. Using the same scale, how would you rate the spoken English ability of the other adults in your class listed in question #3. (1-native, 2-good, 3-adequate, 4-very little, 5-does not speak at all).

ADULTS	LANGUAGE ABILITY
[1]	[1] [2] [3] [4] [5]
[2]	[1] [2] [3] [4] [5]
[3]	[1] [2] [3] [4] [5]
[4]	[1] [2] [3] [4] [5]

17. Using the same scale, how would you rate the spoken Spanish ability of the other adults in your class listed in question number 3. (1-native, 2-good, 3-adequate, 4-very little, 5-does not speak at all).

ADULTS	LANGUAGE ABILITY
[1]	[1] [2] [3] [4] [5]
[2]	[1] [2] [3] [4] [5]
[3]	[1] [2] [3] [4] [5]
[4]	[1] [2] [3] [4] [5]

18. Approximately what percent of the pupils in your classes fall into each of the following linguistic categories?

English dominant _____%

bilingual _____%

Spanish dominant _____%

19. What percent of pupils in your classes fall into each of the following ethnic categories?

Ethnic background	number
Mexican American	
Puerto Rican	
Cuban	
Other Spanish speaking	
Anglo	

20. In the bilingual classroom, approximately what percent of the time do you speak Spanish? (If there is more than one teacher or adult in the room, give the average) _____

21. In the bilingual classroom, approximately what percent of the time do the children use Spanish? _____

22. Do you specifically encourage all Spanish, all English or mixed language use within the bilingual classroom?

[1] Spanish

[2] English

[3] Mixed

23. Mark the classroom contexts in which you speak:

Mostly English

[1] General instructions

[2] Open discussion

[3] Art

[4] English as a second language

[5] Remedial work

[6] When speaking to English dominant students

Mostly Spanish

[1] General instructions

[2] Language arts Spanish

[3] Social studies, math

[4] Explanations to Spanish dominant children

[5] Reading and spelling

[6] Stories and culture

Mixed Languages

[1] Informal conversation

[2] Givigen directions

[3] In ESL

[4] Social Studies, Science, Math

[5] Culture

[6] Concepts that can not be explained otherwise.

24. What do you perceive to be the major goals of the bilingual program in your school, with respect to your pupils' needs. Mark as many as 3 goals.

[1] Learn about Latin countries and culture

[2] Culture Enrichment

[3] ESL

[4] Maintenance of native language

[5] Learn English

[6] Remedial instruction

[7] Help children function well in both cultures and using both languages

[8] Achievement at average rate for their age.

[9] Produce an athmosphere conducive to growth. (i.e. cognitive, self-esteem, physical, emotional, etc.)

[10] To learn to read in the 2 languages

[11] Develop pride in cultural heritage

[12] Transition toward an all English programs.

[13] Other (Specify)_____

25. Have you recognized any differences or changes in your students as a result of their participation in the bilingual program? Mark as many as 3 differences or changes.

[1] Better self-concept

[2] More desire to share knowledge with other classmates

[3] Children are more willing to speak Spanish

[4] Speak English better

[5] Do better in all subject areas

[6] Better attitudes, happier

[7] Improvement in oral and written communication

[8] Enhanced pride in culture and language

[9] Lower absenteeism rate

26. Comments _____