BILINGUAL EDUCATION
COST ANALYSIS

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PREFACE

During the past seven years, bilingual education has experienced an extraordinarily rapid development in this country. However, in spite of a high rate of growth, bilingual education programs are not reaching all who could benefit from them.

One deterrent to the development of an adequate number of programs is the lack of data concerning program costs. Present state funding can be as low as the $25 per pupil inTexas or as high as the $351.50 in New Mexico, while federal funding levels show even greater variation.

This study undertook a cost analysis of bilingual education in Texas to determine the per pupil costs of a minimally adequate program which would correspond to the regular monolingual program funded under the state's Foundation School Program. Additionally, the study determined weighted pupil factors for bilingual education since the weighted pupil method of allocation has been recognized by school finance experts as a measure which relates programmatic costs to the needs of the target populations being served.

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Chapter 1

INTRODUCTION

In the past decade, several factors have contributed to the rapid expansion of bilingual education programs: the 1968 Bilingual Education Act; a heightened awareness of the need to provide language minority children with a meaningful education; and recent federal and state court rulings upholding the legal right of language minority children to a school curriculum meeting their language characteristics.

Despite the fact that federally funded bilingual projects have grown from a scant total of 79 in 1969 with 26,500 participants to 383 in school year 74-75 with 236,000 students, these programs today are only reaching an estimated 9 percent of a total target population or approximately 2.5 million children.[1]

Flexible federal guidelines during the last seven years have encouraged experimental and developmental bilingual projects.[2] This is reflected in federal funding of a multiplicity of bilingual programs from several sources, namely, the Emergency School Aid Act, as well as the Elementary and Secondary Education Act Title VII, Title I, Title I Migrant and Title III. Education funds are also available from the Adult Education Act, Title III; Education Professions Development Act; the Economic Opportunities Act, Title II; and Education for the Handicapped Act.

BILINGUAL EDUCATION ON THE STATE LEVEL

While federal legislation has established the need for bilingual education, set general guidelines for such programs and appropriated funds, much of the

responsibility for the development and implementation of bilingual programs has been left to individual states. A number of states have initiated bilingual education programs at state expense. Capitalizing on the expertise, experience, curriculum, materials and training provided through Title VII and other federal bilingual programs, states have provided limited amounts of funds in order to make available the benefits of bilingual education to an expanded number of eligible children within the state. At the present time, 30 of the 50 states and 3 territories have some type of legislative prescription for bilingual education. Eight of the states plus Puerto Rico have mandatory provisions which make it legally binding for the schools of the state to offer a bilingual education program to children of limited English-speaking ability. According to the 1974 Hearings on the Bilingual Education Act, the following states have appropriated funds for bilingual education: Alaska, California, Connecticut, Illinois, Louisiana, Massachusetts, Michigan, New Mexico, New York, Texas, Washington, and Colorado.[3]

BILINGUAL PROGRAM VARIATIONS

Because of the current developmental nature of bilingual education, there is wide variance not only among states but within states as well, on both the degree of program implementation and the amount of funds available.

In Texas, for example, bilingual education programs phased in over a six year period have grown from 37 to more than 180 during school year 74-75, according to Texas Education Agency figures. The degree of bilingual program implementation has been relatively discretionary to individual school districts; projects in Texas run the gamut from one district's sole offering of English as a Second Language (ESL) in first grade, all the way to multiple subjects taught bilingually in grades K through seven in another district.[4] A notable variance in federal funds to Texas

school districts also exists: ESAA funds range from under $30 to over $700 per pupil, while ESEA per pupil expenditures go from under $50 to over $1,000.[5] State funds for bilingual education also differ from state to state. Texas expends $25 in categorical aid per bilingual pupil as compared to New Mexico's $351.50 expenditure per bilingual pupil.

There is a growing body of educational finance literature that reports cost studies of various educational programs. However, bilingual education is hardly mentioned by school finance experts, although it fits into any of the three areas of finance reform mentioned by Benson, Goldfinger, Hoachlander, and Pers.[6] Those areas include (1) reduction of fiscal inequity, (2) amelioration of racial and social class segregation, and (3) expansion of educational alternatives. Johns and Morphet, in discussing different target populations come as close to discussing bilingual education as their reference to those who are "culturally disadvantaged."[7] A recent cost factor analysis prepared for the Florida Department of Education[8] made no specific study of bilingual education although the initial bilingual education programming in Florida predated the U. S. Bilingual Education Act by five years.[9]

WEIGHTED PUPIL APPROACH

In recent years many states have moved toward the financing of programs meeting needs of different types of children on the basis of a weighted pupil approach. The rationale for this method of funding a state education program is that different children have different characteristics which require differing educational programs. In order to provide adequate funds for each child, the children are categorized into program areas which are funded at various levels. This weighted pupil approach provides an index figure of 1.00. New Mexico, which utilizes this system for funding state education, rather arbitrarily assigned a weighted pupil factor of 1.50 for

bilingual education in the state. Since no effective study has been conducted on the relative cost of bilingual education, the amounts utilized in weighted pupil factors differ in the various states. In Florida, the absence of such information led the legislature to classify bilingual education as a form of compensatory education and assigned to these pupils the compensatory education weight. In Texas, a similar absence of information led to a recommendation of weights ranging from 1.15 to 1.40 for bilingual education included as part of the "parity" compensatory programs.[10]

COST ANALYSIS OF BILINGUAL EDUCATION

In order to determine the cost of providing bilingual education, it is necessary that a valid asssessment be made of the cost of such programs. Once this information is available, it will then be possible to determine the costs of bilingual education as compared to a monolingual program in a state. Results from this one-year IDRA Cost Analysis Study of Bilingual Education in Texas can provide information (1) to determine the cost of a minimally adequate bilingual education program in Texas, (2) to provide a guide for allocation of resources to bilingual programs, (3) to determine state costs and the relation of such costs to a state distribution system, and (4) for the estimating of weighted pupil factors in state school finance programs.

Because of the developmental status of bilingual education programs and the wide degree of difference in year and extent of implementation, cost studies on bilingual education have not been feasible until now. However, the experimental period eventually will be phased out as bilingual programs progress from pilot projects to service programs to institutionalization within state educational systems and individual school districts. Congressional appropriations for bilingual education

already appear to have moved beyond the pilot state: 97.7 million dollars were appropriated in 1976 as compared to the initial appropriation of 7.5 million in 1969. It is reasonable to assume that increased federal appropriations will not continue indefinitely without substantive data on bilingual education costs. State legislatures will be faced with a similar need for cost data as they move toward increased appropriations for bilingual education. One deterrent to the development of an adequate number of bilingual programs is the lack of data as to the cost of such implementation. Before realistic decisions can be made on appropriations, legislatures will need to know for example, the number of pupils to be served and the cost per pupil. The number of pupils involved must consider priorities recognized by the U. S. Office of Education, such as (1) native language acquisition, (2) English language acquisition, (3) content learning, and (4) gains in self concept by minority children. A concomitant issue is what percentage of English-speaking children should be involved in bilingual programs.

LEGAL STATUS OF BILINGUAL EDUCATION

The cost of bilingual education and state appropriations for such programs takes on added significance considering the federal mandate on bilingual education. Two federal laws have a direct bearing on bilingual education -- the Civil Rights Act of 1964 and the Equal Educational Opportunities Act of 1974.

The Civil Rights Act of 1964 has been interpreted by the Office of Civil Rights as prohibiting school systems from discriminating against children on the basis of language; therefore the failure of a school district to make provisions for children of limited English-speaking ability constitutes discrimination which, unless rectified by the school district, can lead to the loss of all federal funds.

In Portales v Serna, the Portales (New Mexico) School District was found to have failed to institute a program which would rectify language deficiencies so that children of limited English-speaking ability would receive a meaningful education. In its review of the case, the Federal 10th Circuit Court of Appeals stated "Under Title VI of the Civil Rights Act of 1964 (children of Limited English-Speaking Ability) have a right to bilingual education."

Lau v Nichols was filed in behalf of some 1800 Chinese children in the San Francisco Unified School District who were not receiving a special program in spite of being of limited English-speaking ability. In a unanimous decision, the Supreme Court ruled that providing the same program for children who were atypical constituted discriminatory treatment. The court then ruled that San Francisco must provide special treatment for children of limited English-speaking ability or face the loss of all federal funds.

On the basis of federal legislation,[11] court decisions,[12] administrative regulations[13] and state legislation where appropriate, there is no question that children of limited English-speaking ability have a legal right to a school curriculum which meets their language characteristics, and it appears definite that school districts must implement such programs.

Chapter II

HISTORY

HISTORY OF BILINGUAL EDUCATION

The history of bilingual education closely parallels the great influx of immigrants to the United States from the mid-19th century to the beginning of the 20th. Both immigrant groups and the larger society tried to "melt" the overwhelming numbers of immigrants into American society by teaching them English.

Early efforts focused on adult immigrants. Cities like New York, Chicago and Detroit set up special classes for language minority immigrants as part of night school programs. Many immigrant organizations provided assistance to members of their groups to facilitate adjustment to American society. Between 1907 and 1912, the Young Men's Christian Association was responsible for teaching English to 55,000 immigrants in 130 cities and towns. In 1907, New Jersey passed a law providing for evening instruction in English and civics for immigrants.[1]

While most language minority children who were in school received no special consideration, immigrant groups attempted to establish native language schooling for their children. In Pennsylvania, the Germans had public school instruction in German for a brief period in the 1830's. In Cincinnati, Ohio, there was an uninterrupted period between 1839 and 1917 of bilingual German-English instruction in some schools with large German concentrations. Poles and Italians formed parochial schools to preserve their religious and cultural traditions; there was some bilingual instruction in Polish schools and in some Italian schools instruction was given in English by a bilingual instructor.[2]

The advent of mandatory attendance laws for public schools, elimination of public funding for church-related schools, and the movement towards a nationalistic, isolationist policy in the U.S. led to a nationwide imposition of English-only instructional policies. Many states went so far as to pass laws which formally outlawed the use of other languages for instruction except in foreign language classes.[3] With the advent of World War I, anti-German sentiment further restricted the development of bilingual education in public schools. From the beginning of World War I and through World War II bilingual education was officially restricted almost to the point of extinction.[4]

While the height of immigration has long since passed, a large proportion of Americans still have a native language other than English. According to the 1975 census, 33.2 million Americans, or roughly 16 percent of the population, speak a language other than English as a native tongue.[5] Spanish, Italian and German speakers are the most numerous, in that order.

Although persons of Mexican origin are native to the Southwest, the number of Spanish-speaking persons in this country has grown noticeably since 1920,[6] resulting from past socially disruptive revolutions in Mexico and the agricultural development of the Southwest with its subsequent need for labor.[7] By 1975, Spanish origin persons numbered 11.2 million nationwide and constituted the second largest minority group in the U.S., roughly 5.3 percent of the total American population.[8]

Educators have known for many years that language minority children have difficulty succeeding in English monolingual schools. Although some scattered attempts were made to improve the education of Mexican American children from 1920-1940, no large scale effort was undertaken to alter the effects of education on them.[9] In 1946, the First Regional Conference on the Education of Spanish-speaking People in the Southwest was held in Austin, Texas. Recommendations

included an end to segregated schools for Spanish-speaking children, improved teacher training, and more efficiency in teaching English.[10]

That public education continued to neglect the needs of language minority students for another 20 years is evident in the fact that recommendations of the 1964 Orange County Conference on the Education of Spanish Speaking Children and Youth were almost identical to those developed 18 years before.[11]

A five year Mexican American education study conducted by the U.S. Commission on Civil Rights revealed that problems of segregation, teacher training and language difficulty are still severe for Mexican American students in the five Southwestern states. In addition, the Commission's State Advisory Committees have examined the problems of Puerto Ricans, Native Americans and Asian Americans. All of these studies document the continuing failure of public schools to provide language minority children with a meaningful education.

In the 1960's, there was a growing recognition that language minority children needed some manner of special assistance if they were to have an opportunity to succeed in school. Where efforts were made to provide such assistance, they usually took the form of supplemental English language development, or what is commonly known as the English as a Second Language (ESL) approach.[12] By 1967, when the U.S. Senate Subcommittee on Bilingual Education called for hearings on the question of a federal subsidy for bilingual education, an impressive array of educational and civic leaders were on hand to present a convincing case: bilingual schooling could improve the Spanish-speaking child's chances of success in school but federal funding was necessary for the development of pilot programs to guarantee the development of adequate materials, personnel and instructional techniques.[13]

In 1968 a new provision, Title VII, was added to the Elementary and Secondary Education Act of 1965 as the vehicle for federal participation in promoting this

"new" concept of schooling. Initially, the corresponding appropriation measure was rejected by Congress. The following session, however, Congress appropriated 7.5 million dollars and the federal role in bilingual education became a reality.[14]

HISTORY OF EDUCATIONAL COSTING

The concept of equality of educational opportunity had different meanings to different people at different times. Recently, Johns and Salmon[15] have defined the concept to mean financial equalization which is accomplished when varying student's educational needs are considered in distributing funds and where variations in local fiscal capacity are considered in generating funds for education.

State support for public elementary and secondary education has an extensive and intricate history. The method for apportioning state funds to the school districts during the 19th and 20th centuries has been inequitable and/or inadequate. State funds were commonly distributed to school districts on the basis of factors such as "total population, school census, enrollment, attendance, number of teachers employed...and many others."[16]

Since the beginning of the 20th century, a number of new distribution plans have been developed and implemented by various states. Some of these distribution plans include the Flat Grant Plan developed by Cubberley,[17] the Minimum Foundation Plan developed by Strayer and Haig,[18] the Minimum Foundation Plan with a weighted pupil concept developed by Mort,[19] the Percentage Equalizing Grant developed by Updegraph,[20] the Full State Funding Plan developed by Morrison,[21] the Power Equalizing Plan developed by Coons,[22] and the Cost Index Plan developed by the National Education Finance Project (NEFP).[23] All of these distribution plans have purported to incorporate the concept of equality of educational opportunity.

However, in a number of states, California,[24] Minnesota,[25] Texas,[26] and New Jersey,[27] court cases contesting the constitutionality of state public school finance programs have been heard. These cases were initiated and filed in the late 1960's and early 1970's and were argued on the basis that a state and local taxing and revenue distribution system, heavily dependent on the property wealth of local school districts, is unconstitutional. The recent school finance cases have adopted the concept of "fiscal neutrality" as a guideline. That is, the level of spending for a child's education may be a function only of the wealth of the state as a whole.[28]

In light of the recent court cases cited above, a number of states have enacted new funding formulas that will distribute state funds on a more equitable basis. State legislatures in Florida, Oregon, Utah, Kentucky, and New Mexico,[29] for example, have chosen to fund educational programs by utilizing a weighted pupil approach. However, the full ramifications of school finance reform have yet to be fully developed.

Chapter III

DESIGN

STUDIES ON EDUCATIONAL COSTING

A widely used procedure in previous education cost studies has been to work from the basic premise of "best practice" or "exemplary" school districts. This procedure is based on the assumption that the program to be costed exists in actuality in an exemplary form, worthy of emulation and replication by districts or states striving to attain an excellent program.

PAST PRACTICES

Using a best practice approach, a panel of experts is selected which in turn identifies exemplary districts and/or programs. It is assumed that costs in a best practice program are relevant indicators of what program costs should be. The "best practice" model has been utilized in a comprehensive series of studies on public school finance, and in the NEFP-style procedures followed by both Texas and Florida in their recent studies. However, as Tish Busselle points out in her 1973 report on the first Texas weighted pupil study:

> Quality programs, as identified and costed in both the NEFP prototype and Texas studies, were chosen on the basis of consideration of what exists rather than what ought to exist. To a large extent, what exists presently is more a function of the present system rather than a rational determination of what should exist.[1]

This criticism can be leveled even more strongly at the most recent Texas study, which arrived at its determination of "best practice" districts by consulting precisely those people who had the most vested interest in the status quo in Texas education. According to the Texas study, prepared in 1975 by the Texas Education

Agency for the Governor's Office of Educational Research and Planning (GOERP), best practice districts were selected by the following method:

> The Governor's Office of Educational Research and Planning selected the school districts...under a plan approved by the management planning group. The sampling procedure (to identify school districts offering exemplary educational programs)...consisted of a 10 week, two-round reputational survey and analysis.
>
> In the first round, 1,500 educators, including all public school superintendents, Texas Education Agency professional staff members, regional educational service center consultants, Texas State Teachers Association field representatives...were asked to participate. These individuals were asked to nominate two districts in each of the six strata and to identify the educational program for which the nominated districts were considered to be exemplary.
>
> A second round of questionnaires (asked participants)...to preferentially rank a refined list of 120 districts most frequently nominated in the first round.[2]

It is possible that actual "best practice" districts were identified in Texas by this procedure, with its built-in reliance on reputational surveys. However, it is worth noting that school districts with very good public relations directors, whose superintendents maintain a close liaison with the Texas Education Agency, the Governor's Office, and administrators of other districts may enjoy an "excellent" reputation for programs which may not always be borne out in fact. The intrusion of professional educational politics only adds to the difficulty of assessing exemplary programs for the purposes of cost analysis by this procedure.

Finally, it should be noted that Texas ranks in the bottom third nationally in per pupil expenditures. Thus it seems questionable to assume on the basis of a reputational survey that existing programs in the state represent the best possible models for emulation that can be found.

PAST STUDIES IN BILINGUAL EDUCATION

While bilingual education has yet to be addressed by school finance studies, there also has been an obvious vacuum regarding exemplary bilingual education

programs. Jose A. Cardenas points out that no school to his knowledge has yet developed a bilingual education program that meets the needs of a child who comes to school knowing little or no English. "What we must do" he continues, "is speak to the question of what needs to be and not what is."[3] Limited research in the area of bilingual schooling seems to agree with Cardenas' views.

A most recent research study, the AIR Project,[4] which set out to find exemplary bilingual educational programs, looked at 175 programs and finally had its panel approve a mere four for further analysis. Although the study defined "exemplary programs" as those programs that measured learning gains in native language, English language, and content learning in both languages, it did not speak to gains relative to the child's positive self-concept nor to his cultural heritage.[5] The study further states that it was not possible to do "extensive reanalysis of raw data" meaning that much of the program evaluation was done internally.

Bernal and Edmonston, in their efforts to develop variated bilingual schooling models, state "an exhaustive review of Title VII programs for Mexican Americans makes it apparent that truly comprehensive program models for integrated schools exist neither in theory nor in the real world."[6]

The U.S. Commission on Civil Rights' 1975 report on bilingual education underscores the lack of even the most basic data on students served by many programs.[7] It should be assumed in any bilingual education programming that language dominance should be assessed, yet that basic effort also seems to be neglected by most programs.[8]

To search for "lighthouse" or "exemplary" programs in bilingual education then seems to be a futile endeavor.

CONSTRAINTS RELATING TO BILINGUAL COSTING

Because bilingual education programs are still in developmental stages as compared to the more static monolingual educational programs, there are numerous

factors specific to bilingual education which precluded using the classical NEFP "best practice" approach for the purposes of the IDRA bilingual cost study project.

The curriculum and time spent in bilingual programs has great variation. Information obtained from the Governor's Office of Educational Research and Planning (GOERP) indicates a variation of time students spend in bilingual classes ranging from three hours a week to 35 hours a week. While the GOERP information was based on the 72-73 school year, it should be noted that a 75-76 TEA policy stated that students must spend at least 50 percent of their time in bilingual education for districts to receive state funds. As yet there is no documentation to show whether or not this has led to substantial program standardization in this area. Bilingual education curriculum also differs district to district; one school district offers English as a Second Language in the first grade as their total bilingual program while another has multiple bilingual courses in grades K to seven. To date, only a small percentage of the eligible population is currently being provided with bilingual education.[9]

Due to the evolving nature of bilingual education, a costing of "best practice" programs, if indeed any exist in this developmental period, would yield results indicating costs at a certain evolutionary state. These costs would be of little use for several reasons:

1. Granting that "what is" is a reflection of system constraints such as present Texas law (or the laws in other states) and levels of funding from local, state, and federal sources, programs now in existence probably do not represent developments which could take place under different constraints.

2. Granting that bilingual education is evolving, present "best practice" programs, while perhaps containing elements which should be emulated over a wider area, probably should not be emulated in their entirety.

3. Since bilingual programs have undergone a rapid expansion in recent years, the costing of present programs would include start-up costs at both the district and state levels which would not necessarily persist through time.

RATIONALE FOR IDRA APPROACH

Awareness of the above constraints regarding costing of existing bilingual education programs in Texas led the bilingual education cost analysis project to develop an alternative approach in this study. Rather than cost what does exist, this project instead developed a model of an adequate bilingual program to be costed, based on what minimally should exist.

The approach developed for this study involved consultation with a panel of experts to identify those cost items specifically associated with bilingual education. Panel members (see Appendix A) were chosen to represent a wide range of expertise in the field, with members from university staff, Title VII staff, state bilingual program staff, and local school district bilingual program staff.

BASIC METHODOLOGY

The basic methodology followed by the project involved 7 steps.

(1) Identification of any feature which a panel member felt was important to a bilingual education program.

(2) Reduction of this list of features to those which involved quantifiable resources and were considered to be inherently a part of the bilingual education program.

(3) Development of a program structure based on the identified features.

(4) Identification of resources and resource quantities needed to implement the program, and the effects of such variables as district and program size, year of implementation and grade level.

(5) Identification of resource costs.

(6) Development of per pupil costs.

(7) Calculation of weighted pupil factors for bilingual education.

Chapter IV

FINDINGS

PROCESS FINDINGS

Identification of Features

While the purpose of the project was not to develop an exemplary model, panelists were asked to identify an initial comprehensive list of features of a bilingual program (see Figure I, pg. 19). Panelists were provided with examples of numerous models developed by a variety of authors from which they could work, adding their own ideas.

Reduction of Features List

Once this list was developed, panelists were asked to review it in a group session, identifying those features which were either non-quantifiable or which could be considered as falling under one of two concepts critical to the study: the proxy concept and the general upgrading concept.

The Proxy Concept: It is important to note that programs such as bilingual education or compensatory education are often found in districts of below average wealth with students from groups which are or have been the subject of discriminatory practices. Thus, there can be a tendency to inflate the funding of these programs as a proxy either for the taxable wealth which the districts do not have,[1] or for the quality of education in the regular program offered to the students in question. This project has defined such an inflation of costs as proxy costs, a term usually identified with Joel Berke.

The Upgrading Concept: The general upgrading concept is more universal in its applicability and can be considered as having two facets:

FIGURE I

FEATURES INITIALLY CONSIDERED

1. In-service Training
2. Pre-service Training
3. Community Resources
4. Transportation
5. Teaching Methodologies
6. Student Home Language Literacy
7. Scale
8. Fine Arts
9. A Complete Curriculum
10. Individualization Of Instruction
11. Skills Continuum
12. Developmental Levels
13. Replacement vs. Add-on Costs
14. Language Matching
15. Total Cultural Integration
16. Staff Recruitment
17. Staff Development
18. Staff Differentiation
19. Acceptance Of Home Language
20. Parental Involvement
21. Continuity
22. Hard Money
23. An Integrated Curriculum
24. Avoidance Of Excessive Concept Duplication
25. Significant Time Devoted To Home Language
26. Full Language Arts In Both Languages
27. Evaluation
28. Serves The Maximum Number Of Students In Need
29. School Environment
30. Variety In Materials
31. Ample Materials In Both Languages
32. Bilingual Student Personnel Services
33. Unbiased Approach To Culture
34. Cultural Pluralism
35. Teacher Attitude
36. Student Attitude
37. Community Attitude
38. Administrative Attitude And Support
39. Teacher And Student Match
40. Teacher/Pupil Ratio
41. Auxiliary (Support) Staff
42. Learning/Motivation Match
43. Desegregation
44. Bilingual Teacher Certification
45. Physical Plant
46. Trigger Mechanism For Implementing Program
47. Needs Assessment/ Identification Of Pupils
48. Placement
49. Philosophy
50. Definition
51. Long And Short Range Goals And Objectives
52. Grade Sequence
53. Language Acquisition Training For Teachers
54. Learning Theory
55. English As A Second Language Training
56. Source Of Funding
57. Communication Skills
58. Human Relations Skills
59. School/Community Relations
60. Group Processes
61. Organizational Patterns
62. Classroom Management
63. Reinforcement And Success Experiences
64. Hierarchical Communication
65. Compliance With Other State/Federal Laws/ Regulations
66. Library Acquisitions

(1) Where the level of resources which can be funded through the basic state/local school finance programs is low, the addition of a new program can be seen as an opportunity to acquire resources of use to several programs.

(2) There may also be a tendency for optimal funding of a new program with a full complement of the modern technology either simply in the belief that new programs should be equipped with the latest available materials, or with the idea that, by demonstration effect, the quality of education as a whole can be upgraded.

In practical terms, what the panel was asked to do was to identify those features which were essential to bilingual education and to delete those items which were as applicable to the monolingual education program [2] as to the bilingual one. This resulted in a list of 37 items (see Figure II, pg. 21).

Program Structure

The next step involved setting the basic program structure. Panel deliberations resulted in a model for a bilingual program consisting of nine (9) subject areas carried through six grades (kindergarten through grade 5) as indicated in Figure III, pg. 22. The decision to limit the program to the fifth grade was not based on any feeling that bilingual education should necessarily cease at that point, but rather due to the fact that few programs exist in the state beyond fifth grade, and it was felt that more data are needed before program recommendations are made.

It was further determined that the program would involve the same amount of time per student as the monolingual program, since the bilingual program should be considered the regular program for those students enrolled in it.

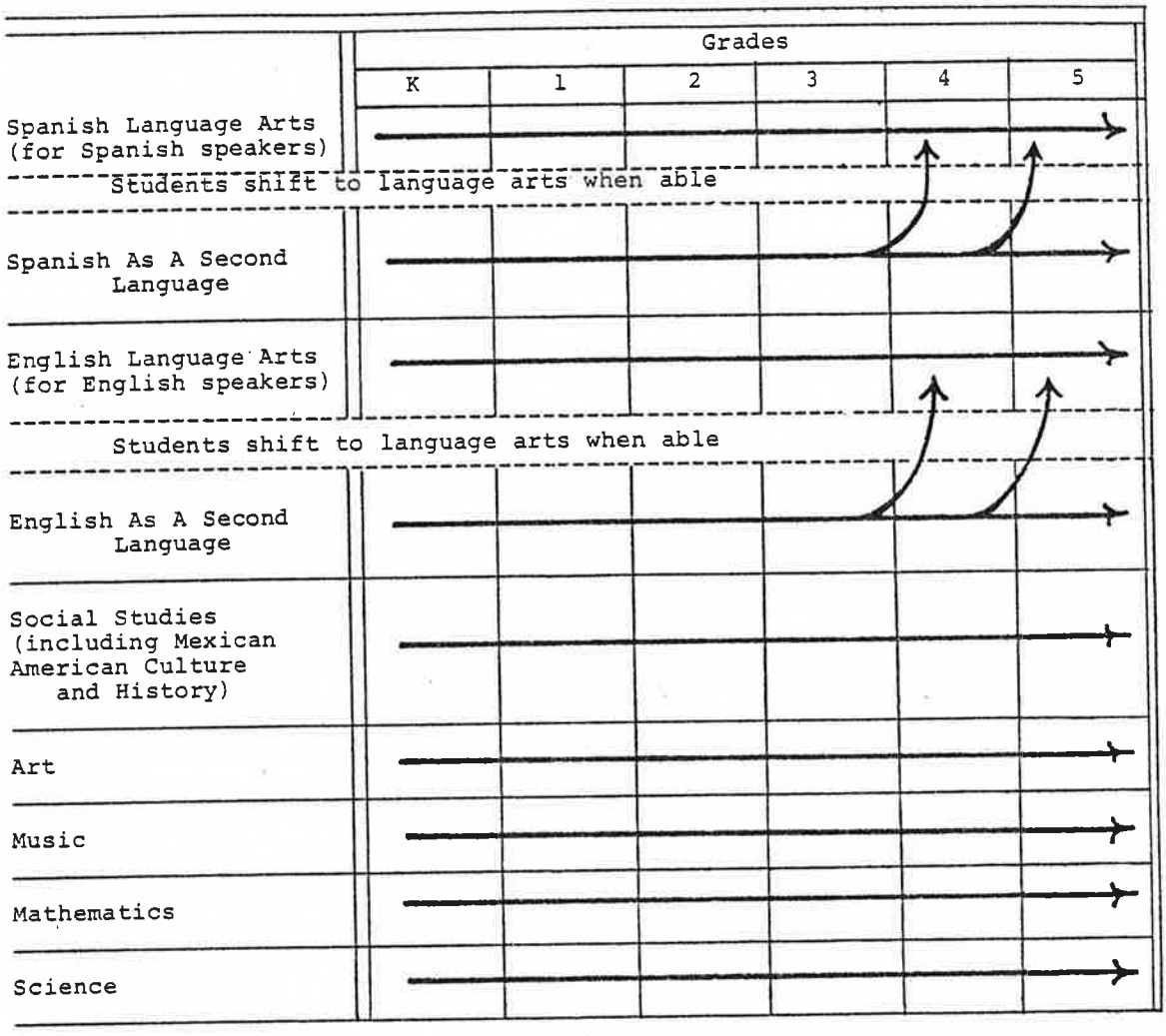
FIGURE II

REVISED FEATURES LIST

1. In-service Training
2. Pre-service Training
3. Community Resources
4. Transportation
5. Teaching Methodologies
6. Student Home Language Literacy
7. A Complete Curriculum
8. Language Matching
9. Total Cultural Integration
10. Staff Recruitment
11. Staff Development
12. Staff Differentiation
13. Acceptance Of Home Language
14. Parental Involvement
15. Avoidance Of Excessive Concept Duplication
16. Significant Time Devoted To Home Language
17. Full Language Arts In Both Languages
18. Evaluation
19. Variety In Materials
20. Ample Materials In Both Languages
21. Bilingual Student Personnel Services
22. Unbiased Approach To Culture
23. Cultural Pluralism
24. Teacher Attitude
25. Student Attitude
26. Community Attitude
27. Administrative Attitude And Support
28. Teacher/Pupil Ratio
29. Auxiliary (Support) Staff
30. Desegregation
31. Bilingual Teacher Certification
32. Definition
33. Language Acquisition Training For Teachers
34. English As A Second Language Training
35. Organizational Patterns
36. Classroom Management
37. Library Acquisitions

FIGURE III

SUBJECT AREAS BY GRADE LEVEL



Resource Quantities And Variables

The panel was then asked to identify those resources needed for each feature in such a program which meant, for example, the identification of specific needs from the feature "library acquisitions."

Resource differences which might appear between districts of different size, programs of different size, or due to year of implementation, and grade level were also investigated. Of the total number, only year of implementation and grade level resulted in specific recommendations from the panel as a whole, although individual members felt that one or more of the other variables should be used.

As resource requirements were developed, each item was reviewed by the panel in light of the proxy and general upgrading concepts; those items not specific to bilingual education were then deleted. Thus, while movie projectors and language masters were on the original resource list, movie projectors were judged to be of equal necessity for the regular program, while language masters were considered a desirable and unique resource for a bilingual education program due to particuar program needs.

Quantities of specific resources were also identified within the parameters of the two concepts and allowances for variation both between and within programs were taken into account. Where a consensus was not reached by the panel on an item, the staff further researched the area in question and proposed a determination; panelists were given an opportunity to agree or disagree and offer alternatives.

Resource Costs

Staff was responsible for costing identified resources using state agency figures, costs developed from reviews of school district financial records, and costs furnished by suppliers of the resources in question.

Analysis of Resource Areas

The process just described resulted in the identification of six major areas: staff, materials, equipment, library, testing, and in-service training. The detailed methodological approach to each of these areas is explained below:

Staff: After intense discussion, the panel determined that the area of staffing has a direct effect on the development of bilingual education programs in Texas. Two points repeatedly emerged in discussions of all areas impinging on staff:

(a) Qualitative aspects of staff capabilities are of the utmost importance and can affect staffing in quantitative terms.

(b) The instructional staff needs to have services available to it, in order to provide services to students.

For example, a bilingual program needs such services as Spanish instruction in appropriate subject areas, but also administrative and curriculum development services. When bilingual education is adopted by a school district, the degree to which (1) the prior staff of that district can provide these services to the bilingual program and (2) the willingness of the district to make changes in its staff, directly affects the staffing needs of the incoming biliungual education program.

If monolingual English teachers, or teachers with limited facility in Spanish are used, additional bilingual teachers and/or aides will have to be hired. Likewise, if the administrative staff does not have the training to administer bilingual education, or if the staff responsible for curriculum development does not have the capabililty to develop bilingual curriculum materials, new personnel will have to be hired either in replacement of or in addition to existing support staff.

Obviously, the past hiring practices of a district will affect the question of staffing. The attitude of the district policy makers toward replacing personnel who may have served adequately in the past, but who lack the needed qualifications for providing services to the new bilingual program, will also affect staffing patterns.

Panelists agreed that where existing staff has bilingual capabilities and training, no new staff is needed with the exception of limited additional instructional staff for the classroom, where, due to such aspects of bilingual instruction as the need for language modeling in two languages rather than one language, more adult/pupil contact time must be given.

If the staffing provisions for the bilingual program model were based on districts entirely staffed by monolingual English-speakers, program costs for additional staff would be astronomically high, and the high level of funding for a program under these conditions could have the effect of rewarding districts with previous discriminatory hiring practices.

If the purpose of the present study were to develop the lowest cost model theoretically possible for the delivery of specified services, only the additional classroom needs of the bilingual program would be taken into account. However, the supportive needs of the program would force districts to either change supportive personnel, re-train personnel, or come up with additional funds to hire additional staff with the requisite qualifications.

Between these two extremes lies a compromise position: take into account the considerable variation in existing school district staff capabilities, allow for assistance where district staff capabilities may be weak either in the classroom or support staff; but do not provide for a full range of new positions, duplicating for other language instruction what is provided for English language instruction.

This study has chosen the compromise position, with the dollar amount per student in average daily attendance for this staff determination calculated from Texas Education Agency figures.

Materials: Panel members considered bilingual program needs for such items as supplementary texts or systems, and other classroom supplies such as

chart tablets, puppets, cassette tapes, and record albums. No major equipment items were included in this category, and every effort was made to exclude those items which were either regularly supplied by the school or which already had equivalents in the regular program. It was decided that due to variations between programs in the kinds of supplies used, panelists would recommend a set figure per student in each grade level. Responses were averaged and rounded off to whole dollars.

Equipment: Panelists were given a list of major equipment items (see Figure IV, pg. 27) which was adapted for the use of this project from a similar list used by the RMC Research Corporation in a questionnaire evaluating compensatory reading programs[3] and were asked individually to indicate which items were needed. Panelists were then asked to review responses as a group in view of the proxy and general upgrading concepts. This meant the deletion of items judged to be equally useful in the regular program, or, in cases where an item was usually available but in insufficient quantities, the deletion of that item if additional quantities could be used as effectively in the regular program. Costs were then determined from the average price of an item.

Testing: Testing needs of bilingual education were considered for three different areas:

Initial Student Screening: This is the screening involved in ascertaining which students should undergo further language testing to determine whether or not they should be enrolled in bilingual education. Panelists agreed that such costs should not be charged to bilingual education. This should be available to all students regardless of whether the results indicate a district's or student's needs for a bilingual program. A state agency panelist further noted that screening is required by the state as part of the regular program.

FIGURE IV

MAJOR EQUIPMENT LIST

TAPE RECORDER

RECORD PLAYER

MOVIE PROJECTOR

SLIDE PROJECTOR

FILMSTRIP PROJECTOR

8mm FILM LOOP PROJECTOR

OPAQUE PROJECTOR

OVERHEAD PROJECTOR

TELEVISION

VIDEO TAPE EQUIPMENT

LANGUAGE MASTER

TACHISTOSCOPE

CONTROLLED READER

SHADOWSCOPE READING PACER

OTHER MAJOR EQUIPMENT
(SPECIFY):

(SYNCHRONIZED FILM STRIP/

CASSETTE MACHINE, ETC.)

Language Proficiency Testing: This is the testing for the language characteristics of students to determine: (1) if they should be enrolled in bilingual education, (2) what kind of program they should be enrolled in, and (3) how that program is affecting their language capabilities. Costs for this type of testing were determined to represent an add-on expense for bilingual education except where the results of such testing indicate that a student should be enrolled in the regular program rather than in the bilingual program.

Program Assessment/Student Achievement Testing: While this testing can be considered a part of any program, the question here was whether or not bilingual education required additional testing beyond that normally given, and it was felt that, due to the nature of bilingual education, further testing would be needed.

Costs for testing were determined by averaging the costs of commonly used and state recommended tests.

Library Needs: The standards of the Southern Association of Colleges and Schools was used as a guide to determine library needs since Texas Education Agency Standards were being revised while this study was in progress. The Standards recommend that a library contain 10 books per student and allocate $10 per pupil per year for new purchases in the elementary grades. Rather than specifying a certain percentage of these quantities for bilingual education, the panel determined that library needs resulting from the implementation of bilingual education should be funded through the bilingual program.

Panelists were asked to specify how many volumes per student in bilingual education should be contained in the library and how much money should be allocated for new purchases.

The average cost of library acquisitions was determined from suppliers and from catalogue material.

In-service Training: For the purpose of this study, in-service training is considered to include only that training needed by the program on an on-going basis to keep teachers up-to-date on recent developments in the field, to review new texts, etc.

Due to the rapid expansion of bilingual education throughout the state, the division between in-service and pre-service training has become less distinct. This rapid expansion has resulted in an under supply of trained bilingual teachers, and school districts are having to provide local training for bilingual education teachers when necessary.

For more normal program staffing, districts in need of staff are usually in the position of choosing among a number of qualified applicants who can step into the classroom without extensive training. The phenomenon of an under supply of staff experienced in bilingual education represents a short-term occurrence. As such, it represents a start-up cost of a different nature than other start-up costs and distinct from normal operational costs; for example, it probably would not be a necessary expense for a district initiating a bilingual program 10 years from now. The panel decided that extensive retraining needed by bilingual program teachers to perform adequately should be considered pre-service training, even if carried out by a school district.

Panelists were in consensus that 5 days of in-service training, as delimited above, were needed each year for bilingual program personnel, but that this number of days represented a rational allocation of time for program-related in-service training (regardless of the program in question) to be included under the 10 days of in-service training for each classified personnel position allotted under present state law. Therefore there would be no additional cost for bilingual education in this area.

Costs Not Included in Analysis

Since the objective of this study is to analyze those costs which correspond to the shared (state -local) funding package of the Foundation School Program, expenses borne exclusively by local districts have been excluded. This by no means minimizes the importance of such expenses to the development of bilingual education in Texas; it is merely that such expenses are outside of the scope of the present study. These excluded expenses fall in two main areas:

1. Capital Outlay: In Texas, capital outlay expenses are borne exclusively by local school districts. While there can be little question that the quality of a school's physical plant has a direct impact on the learning environment, such expenses are not treated in this study because they are not a part of the maintenance and operation funding of school programs.

2. Local Enrichment: Due to the fact that the present study costs an adequate model comparable to the monolingual program funded by the Foundation School Program, and since, under state law, there is no limit on how much additional funding for excellence may be provided at the local level, no estimate was made of local enrichment (local leeway) funds which could be utilized for bilingual education.

The same rule applies to excluding state level expenses as in the case of district expenses: if an expense is incurred outside of the scope of the state-local funded Foundation School Program, it was excluded.

Textbooks: In Texas, basal texts or systems are made available to school districts at state expense. Through a selection process, a state list is generated offering several options in each area. A school district then selects the text or system it wishes to use and

is allocated a number of copies of its selection in accord with an average daily attendance (ADA) based formula. This selection is expected to remain in use for a specified contract period. Thus basal textbooks are not a regular operation expense at the district level.

Other excluded expenses include:

1. Pre-service Training: In past school finance studies, the area of pre-service is normally excluded, since pre-service training expenses are usually borne by the prospective teachers. However, when bilingual education programs were initiated by the state, teacher training institutions were unprepared to meet the initial staffing needs of the state's programs. To meet district staffing needs, state and federal funds have been used to re-train teachers. These funds were also used to beef up the training capacity of bilingual teacher training programs in the state's colleges and unversities. Furthermore, as mentioned above, some district expenses are incurred in this area. Conceptually, pre-service costs are distinct from the costs of operating either bilingual or regular programs in a school district. Although the area of pre-service training is outside the scope of this study, it is definitely an area which merits further research, since the manner in which a state meets its staffing needs has a decided effect on the future developments of its bilingual education programs.

2. State Agency Administration: While the state does incur expenses related to bilingual education as part of the administration of education by the Texas Education Agency, such expenses are not part of the state-local flow of funds to districts for the operation

of bilingual education programs. However, while such expenses are outside of the scope of this study, research is needed in this area. Consultant and leadership needs as well as regulatory demands should be determined.

3. Transportation: Texas law provides for the reimbursement of school districts for expenses of transporting students between campuses for the purpose of receiving bilingual instruction. This cost, according to Texas Education Agency sources, has, in fact, been minimal, and is not included in the present study since it is borne wholly by the state.

4. General School Administration Costs: Past school finance studies have often prorated between different program areas expenses for such activities as general school district and campus administration involving, for example, superintendent's and principal's salaries, and services available to all students such as the salaries of health care personnel. While the present study does take into account support needs directly related to bilingual education, costs of resources generally supplied on a per district, per campus, or a per pupil basis, regardless of program area, have been excluded.

Per Pupil Costs

Costs generated for each of the areas discussed above were calculated on a per pupil in average daily attendance basis.[4] Where quantities were identified on a per classroom basis, a unit of 25 students per classroom was used. The total costs per pupil under each of the areas were then combined to produce the per pupil cost of the program.

Bilingual Program Weights

Under the standard NEFP style approach, program weights are calculated by dividing the per pupil costs of the program in question by the per pupil costs of the least expensive program in a district (normally the regular program in some elementary grades). Due to the nature of the present study, changes have been made in the items included in both the numerator and denominator of the equation.

Since one of the objectives of this study is to develop weights representing the costs of a bilingual program as compared to the monolingual program funded by the state Foundation School Program, items normally funded solely at local expense have been excluded from both the numerator and denominator. Further, the denominator (FSP regular program costs) has been determined by using the gross state law funding categories of Personnel and Current Operating Costs rather than a compilation of costs for a large number of specific resource items used in existing programs (as in the classical NEFP approach). Finally, the derived weights represent a comparison of monolingual and bilingual program costs at each grade level rather than the comparison of all costs with a single value: that of the weight of 1.0.

Given the approach just described, it is necessary to convert the bilingual program costs per ADA to costs per Full Time Equivalent (FTE).[5] Since the bilingual program was defined as one in which students spend the same amount of time as other students spend in the regular program, the ratio between ADA and FTE is assumed to be the same for the bilingual program as for the monolingual program. Texas Education Agency figures for the regular program were used to determine this ratio.

The following steps were used to determine the monolingual program costs at each grade level:

1. Regular program figures for the number of students in average daily attendance by grade level in the 75-76 school year were converted to full time equivalent figures.[6]

2. Weights from the most recent Texas weighted pupil study[7] indicating differential costs in the regular program between grades were then multiplied by the FTE figures described above to produce a total figure for weighted FTE.

3. The weighted FTE figure was then divided into the total Foundation School Program (FSP) expenditures in the two categories: Personnel and Current Operation Allotment. The resulting figure represents the costs of the monolingual program in grades 1-5, while multiplying this figure by 1.29 yields the cost of the kindergarten program.

To determine the bilingual program weight for a given grade in a given year, the relevant bilingual program add-on cost per FTE is added to the monolingual program cost per FTE for that grade, and the resulting figure is divided by the same monolingual program cost figure. For example, if the monolingual program cost for a given grade was determined to be $500, while the bilingual program add-on cost was determined to be $250, the resulting weight $\frac{\$500 + \$250}{\$500}$ = 1.5 would signify that at that grade and year, the bilingual program would cost 1.5 times as much as the monolingual program.

FINDINGS: RESOURCE NEEDS

Resource needs were analyzed according to the five areas where add-on costs were determined to result from the implementation of bilingual education: staff, materials, equipment, library, and testing. Resulting costs are indicated in Figure V, pg. 35.

Staff

The compromise position selected for costing by the study was the allocation to each district of an additional personnel unit value of 0.30 for each 19 students in bilingual program average daily attendance in kindergarten, first, second, and third grades; and for each 21 students in grades four and five.[8] This system allows

FIGURE V

PER PUPIL COSTS

	Grade K				Grade 1				Grade 2			
YEAR OF IMPLEMENTATION	1	2	3	4	1	2	3	4	1	2	3	4
RESOURCE AREAS												
Staff	160.75	160.75	160.75	160.75	160.75	160.75	160.75	160.75	160.75	160.75	160.75	160.75
Materials	35.00	24.00	22.00	20.00	31.00	23.00	21.00	19.00	29.00	22.00	19.00	19.00
Equipment	20.54	6.85	6.85	6.84	20.54	6.85	6.85	6.84	20.54	6.85	6.85	6.84
Testing	2.48	1.32	1.32	1.32	2.67	1.51	1.51	1.51	2.78	1.62	1.62	1.62
Library	25.00	9.00	9.00	9.00	25.00	9.00	9.00	9.00	25.00	9.00	9.00	9.00
TOTAL PER PUPIL COST	243.77	201.92	199.92	197.91	239.96	201.11	199.11	197.10	238.07	200.22	197.22	197.21

	Grade 3				Grade 4				Grade 5			
	1	2	3	4	1	2	3	4	1	2	3	4
Staff	160.75	160.75	160.75	160.75	145.59	145.59	145.59	145.59	145.59	145.59	145.59	145.59
Materials	28.00	20.00	19.00	18.00	22.00	14.00	13.00	11.00	22.00	14.00	13.00	11.00
Equipment	20.54	6.85	6.85	6.84	10.27	3.43	3.42	3.42	10.27	3.43	3.42	3.42
Testing	2.79	1.63	1.63	1.63	2.83	1.67	1.67	1.67	2.91	1.75	1.75	1.75
Library	25.00	9.00	9.00	9.00	25.00	9.00	9.00	9.00	25.00	9.00	9.00	9.00
TOTAL PER PUPIL COST	237.08	198.23	197.23	196.22	205.69	173.69	172.68	170.68	205.77	173.77	172.76	170.76

districts to utilize their personnel unit allocation for the kinds of personnel which would best provide for the needs of their bilingual programs.[9]

Materials

The average recommended allocation for additional classroom materials necessary for the bilingual education program by grade and year of implementation is shown in Figure V, pg. 35.

Equipment

While a large number of equipment categories were considered by the panel, a consensus was reached that only language masters were a necessary addition due solely to the needs of bilingual education. Panelists determined that language masters should be available to the bilingual program in quantities of 2 per classroom in grades K-3 and 1 per classroom in grades 4-5. Average cost from manufacturers was broken down on the basis of 25 students per classroom. The reasonable useful life of this equipment was calculated as 3 years.

Testing

Language Proficiency Testing: It was determined that costs should be charged to bilingual education for one test at the beginning of the school year and one test at the end of the year.

Program Assessment/Student Achievement Testing: It was felt that costs for one additional achievement test should be calculated as an add-on expense chargeable to the bilingual program.

Library Needs

An average of panel responses resulted in a recommendation that libraries contain 7 volumes per student in bilingual education (in addition to the 10 volumes per child normally specified) and that an additonal $9.00 per student per year should be allocated for new purchases. The specified 7 volumes are considered a start-up cost for the first year of program implementation.

Per Pupil Costs and Variables

As mentioned above, only the variables of year of implementation and grade level resulted in specific recommendations from the panel. Per pupil program costs as modified by the variables appear in the bottom line of Figure V, pg. 35.

Bilingual Program Weights

A value of $567.39 was determined as the regular program cost per FTE in grades 1-5, while kindergarten costs were calculated at $731.93. Using these figures and the bilingual program cost figures converted to FTE costs, program weights were calculated and are listed in Figure VI, pg. 38.

FIGURE VI

BILINGUAL PROGRAM WEIGHTS
(In multiples of monolingual program costs for each grade)

YEAR OF IMPLEMENTATION	GRADE LEVEL K	1	2	3	4	5
1	1.31	1.42	1.41	1.41	1.36	1.36
2	1.25	1.35	1.35	1.35	1.30	1.30
3	1.25	1.35	1.34	1.34	1.30	1.30
4 and beyond	1.25	1.34	1.34	1.34	1.30	1.30

Chapter V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The purpose of this study was to assess bilingual education costs and the development of weighted pupil-factors for bilingual education in Texas. The methodology utilized in the study identified the essential costs of a bilingual education model and produced weighted pupil-factors, an alternative formula for distributing school funds. This methodology to determine cost data and program variations found in Texas can be readily adapted to develop cost factors for other states.

Since bilingual education is an evolving program area, the classical approach of the National Educational Finance Project style weighted pupil studies was found to be inadequate for our purposes. Given the limitations of an approach calling for the identification of "exemplary" programs discussed in an earlier chapter, and given the great amount of variation between programs as they exist in Texas school districts in terms of funding levels, breadth of subject area offerings, depth of coverage, number of grades included, and student time spent in the program, a different approach had to be developed for determining per pupil costs and weighted pupil factors for bilingual education. While the use of a panel of experts to determine key resource quantities is not without its limitations, the project had the choice of objectively determining precise quantities from school district data and manipulating this data with a variety of statistical techniques or relying on the judgement of a group of people representing a broad spectrum of involvement in bilingual education in the state. The project chose the latter course, since no matter how many figures were generated from however large a sample, and no matter how statistically

elegant the techniques applied to those figures, the results (which could only have been obtained by a project with a much longer duration and a much higher level of funding) would have been meaningless for purposes of determining recommendations for funding levels. They would have given an indication of "what is" in a situation where "bilingual education program" can mean anything from ESL in the first grade to a full range of subjects over six or more grades; where district bilingual program staff may consist of partially retrained teachers with little sympathy or understanding of the program or a fully trained, dedicated staff; where students may spend a few hours per week in the program or where they spend almost all their classroom time; and where additional funds allocated to the program may range from $25.00 per student to over $1,000. Clearly, a variety of programs with little similarity are lumped under the heading "bilingual education" and the precise figures for expenditures by these programs would have yielded little information about "what should be" provided in an adequate program.

CONCLUSIONS

Two conclusions from this study deserve prime attention. The first has to do with the high correlation among quality, quantity, and cost and the second has to do with the realization that numerous aspects or items of the bilingual program, which at first consideration seem to necessitate add-on costs, in fact, do not.

1. The clearest example of the high correlation among quality, quantity, and cost is the case of program staffing. Virtually every time different staff positions were discussed by the panel, the consensus was that the more poorly trained in bilingual education the staff of both the bilingual program

and the regular school administration staff, the more additional positions were needed, thereby increasing costs.

2. It was found that many activities in bilingual education do not require additional funding. The clearest example here is the case of in-service training days: while the panel determined that five training days were needed, it was decided by the panel that this quantity could rationally be subsumed under the ten days alloted by state law for in-service training purposes.

Other conclusions are enumerated as follows:

3. Rigorous application of the proxy and general upgrading concepts (see Chapter IV) during the course of this study indicated that a great many resource items (most of which would be included in an "ideal" program model) are not needed solely due to the nature of bilingual education but are equally useful to the monolingual program.

4. Findings of this study indicate that while amounts of items used to calculate per pupil costs might vary by grade and year of implementation (a) total per pupil costs sort into three grade groups (K, 1-3, and 4-5) and (b) where year of implementation is concerned little difference exists in the costs for years 2-4, resulting in almost no difference between program weights. Figure VII (see pg. 42) indicates the add-on costs and weights that result from the groupings suggested above.

FIGURE VII

ADD-ON COSTS

	Grades		
	K	1-3	4-5
Year 1	243.77	238.37	205.73
Year 2 & Beyond	199.92	198.18	172.39

WEIGHTS

	Grades		
	K	1-3	4-5
Year 1	1.31	1.42	1.36
Year 2 & Beyond	1.25	1.35	1.30

5. The results of this study indicate that bilingual program funding under present Texas law ($25 per pupil) is inadequate to meet program needs.

RECOMMENDATIONS FOR FURTHER STUDY

1. Bilingual education costs in states with large target populations should be studied to determine whether the cost data and program variations are comparable to those found in Texas or whether there are significant differences which would inhibit comparability and the drawing of more generalized conclusions on a nationwide basis.
2. While the area of pre-service training was outside of the scope of the present study, research in this area is urgently needed, since the answers to the questions of who is trained, how many are trained, and how well they are trained will affect bilingual education for years to come.
3. Useful research could also focus on the effects of declining school district enrollment on bilingual program staffing needs.
4. Further study is needed to determine the monitoring needs of bilingual education. Such research should focus on how best to assure that:
    a. Students in need of the program are identified and enrolled.
    b. Programs offered at the local level provide an adequate variety of subject areas.

c. The most fruitful teaching methodologies are used.

d. Adequately developed curriculum is used.

e. Adequate organization is present.

GENERAL RECOMMENDATIONS

1. Although this study determined that pre-service should not be included in the IDRA bilingual cost analysis, capacity building, including teacher training, should continue to increase, paralleling efforts to meet the educational needs of the entire target population. This necessitates large scale support though the quantity should lessen in future years.

2. Although this study represents an analysis of cost rather than a cost/effectiveness approach, a great degree of emphasis should be given to the accountability factor. Funds should be distributed so as to reach the areas of greatest need, with assurances of efficient and effective utilization.

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5. For most bilingual education programs, three major goals are identified: (1) Content learning, (2) Proficiency in native and English language, (3) Development of positive self-concepts. For further elaboration see p. 123, A Better Chance to Learn.

6. Ernest M. Bernal, Jr. and Leon P. Edmonston, "Design for a Planned Variation Study of Bilingual-Multicultural Education" (Austin, Texas: Southwest Education Development Laboratory, 1974). p. 50.

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2. As used in this study, the term monolingual program refers to what is often designated as the regular program: i.e. the standard non-bilingual, non-vocational, and non-special education program offered by school districts. The term monolingual was chosen since the bilingual program costed by this study designates bilingual education as the regular program for its students.

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4. As used herein, unless otherwise noted, the term average daily attendance refers to the refined average daily attendance of the monolingual program or the equivalent for the bilingual program (the gross ADA count for the program, minus ineligible students, but including those students who also spend time in vocational or special education).

5. A "full-time equivalent" student (FTE) is defined, as in the 1975 TEA study, as the statistical equivalent of a student who spends all of his or her time in a program.

6. The sum of the FTE's in all programs at each grade level is defined as the ADM (average daily membership) count of that grade. To calculate the monolingual program FTE's for the purpose of this study, FTE's for special education and vocational education were subtracted from the ADM count for each grade. No FTE counts were available for bilingual education, but, by this study's defining the time students spend in the program as equal to the time spent by other students in the standard monolingual program, no student in the program costed by this study would be enrolled in both the monolingual and bilingual programs. So, even if FTE counts for bilingual education has been available for existing bilingual programs, they would not have been used.

Since 1975-76 ADA figures were available from the Texas Education Agency only in aggregate form (K-3, 4-6, 7-9, & 10-12) and since no ADM figures were available, two principal assumptions had to be made in order to convert the available ADA figures to ADM and then to FTE figures which corresponded to the different grade groupings found in the weighted pupil study (K, 1-6, 7-9, & 10-12):

1. It had to be assumed that the ratio of students in Kindergarten to students in grades K-3 remained the same between 1974-75 and 1975-76, in order to arrive at an ADA count for Kindergarten for the 1975-76 year, and

2. It had to be assumed that the ratio of gross ADA to ADM remained constant between 1974-75 and 1975-76, in order to arrive at ADM figures which could then be converted to monolingual program FTE figures.

7. Weights used are the set recommended in the 1975 TEA study, constructed by the unweighted district mean method:

K = 1.29

1-6 = 1.00

7-9 = 1.04

10-12 = 1.15

8. The staff allocations suggested here are based on the Texas school finance law (H.B. 1126) which allocates staff to school districts on the basis of a variable personnel formula. Under this method of allocation, staff positions are designated by a personnel unit value roughly corresponding to the relationships between the base salaries of each position. Thus, a B.A. teacher has a value of 1.0, an Aide II (an aide who can assist the teacher in drills and general reinforcement of classroom instruction) has a value of 0.6, and an Instructional Officer IV (a key specialist for a major instructional program in a medium size district) has a value of 1.4.

Districts are allocated a quantity of personnel units based on the number of students in regular (monolingual) program average daily attendance (refined ADA minus vocational and special education FTEs) in different grade level groups. Thus, a district is allocated 1 personnel unit (corresponding to the value of 1 B.A. or M.A. teacher) for every 19 students in grades K-3; every 21 students in grades 4-6; every 20 students in grades 7-9; and every 18 students in grades 10-12. This results in a total of personnel units which the district can use for funding staff positions under the minimum foundation program whose values total the districts' personnel unit total.

The present study is recommending an additional .3 personnel units (corresponding to 1/2 the value of an Aide II) for students in bilingual program average daily attendance (refined ADA for the program, minus vocational and special education FTEs) based on the same basic formula (19 students in ADA in grades K-3, 21 students in ADA in grades 4-5).

9. To illustrate how the staff allocations could be used, two examples are given:

A. A district with 25 students in bilingual program ADA in each grade (K-5) would have an additional personnel unit allocation of 3.0 (assuming a rounding off of units to whole numbers for each grade grouping; K-3, 4-5). This could be used to fund:
   (1) a program director, a secretary, and a librarian, or
   (2) three extra teachers, or
   (3) one extra aide II for grades K-4, or
   (4) numerous other combinations.

B. A district with 100 students per grade in grades K-5 would merit an additional personnel unit allocation of 9.0. This could be used to fund:
   (1) a program director, a librarian, a secretary, and 6 extra teachers (enough to lower a 1/25 teacher/pupil ratio to a 1/20 ratio), or
   (2) a program director, 3 curriculum developers, a librarian, and 3 resource teachers, or
   (3) a program director, a secretary, and 1 aide II for every 25 students in grades K-2, or
   (4) numerous other combinations.

APPENDIX A

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APPENDIX B

The present study uses the term weights to express bilingual program costs as multiples of the monolingual program costs for each grade. Several other studies in the past have used the term to signify multiples of the cost of a single figure (the value of the lowest cost program, usually the monolingual program in some of the elementary grades). Figure VIII presents the relationship between bilingual program costs and the cost of the monolingual program in grades 1-6, the lowest cost program for the most recent Texas weighted pupil study (see footnote 7, Chapter IV). A comparison with Figure VI will show that this procedure changes only the values for kindergarten, the increase in these values being a reflection of the difference in the cost between the monolingual program in kindergarten and other elementary grades ($731.93 vs. $567.39).

FIGURE VIII

BILINGUAL PROGRAM WEIGHTS

(In multiples of the monolingual program cost for grades 1-6)

YEAR OF IMPLEMENTATION	GRADE LEVEL K	1	2	3	4	5
1	1.69	1.42	1.41	1.41	1.36	1.36
2	1.62	1.35	1.35	1.35	1.30	1.30
3	1.61	1.35	1.34	1.34	1.30	1.30
4	1.61	1.34	1.34	1.34	1.30	1.30

FIGURE I

FEATURES INITIALLY CONSIDERED

1. In-service Training
2. Pre-service Training
3. Community Resources
4. Transportation
5. Teaching Methodologies
6. Student Home Language Literacy
7. Scale
8. Fine Arts
9. A Complete Curriculum
10. Individualization Of Instruction
11. Skills Continuum
12. Developmental Levels
13. Replacement vs. Add-on Costs
14. Language Matching
15. Total Cultural Integration
16. Staff Recruitment
17. Staff Development
18. Staff Differentiation
19. Acceptance Of Home Language
20. Parental Involvement
21. Continuity
22. Hard Money
23. An Integrated Curriculum
24. Avoidance Of Excessive Concept Duplication
25. Significant Time Devoted To Home Language
26. Full Language Arts In Both Languages
27. Evaluation
28. Serves The Maximum Number Of Students In Need
29. School Environment
30. Variety In Materials
31. Ample Materials In Both Languages
32. Bilingual Student Personnel Services
33. Unbiased Approach To Culture
34. Cultural Pluralism
35. Teacher Attitude
36. Student Attitude
37. Community Attitude
38. Administrative Attitude And Support
39. Teacher And Student Match
40. Teacher/Pupil Ratio
41. Auxiliary (Support) Staff
42. Learning/Motivation Match
43. Desegregation
44. Bilingual Teacher Certification
45. Physical Plant
46. Trigger Mechanism For Implementing Program
47. Needs Assessment/ Identification Of Pupils
48. Placement
49. Philosophy
50. Definition
51. Long And Short Range Goals And Objectives
52. Grade Sequence
53. Language Acquisition Training For Teachers
54. Learning Theory
55. English As A Second Language Training
56. Source Of Funding
57. Communication Skills
58. Human Relations Skills
59. School/Community Relations
60. Group Processes
61. Organizational Patterns
62. Classroom Management
63. Reinforcement And Success Experiences
64. Hierarchical Communication
65. Compliance With Other State/Federal Laws/ Regulations
66. Library Acquisitions

(1) Where the level of resources which can be funded through the basic state/local school finance programs is low, the addition of a new program can be seen as an opportunity to acquire resources of use to several programs.

(2) There may also be a tendency for optimal funding of a new program with a full complement of the modern technology either simply in the belief that new programs should be equipped with the latest available materials, or with the idea that, by demonstration effect, the quality of education as a whole can be upgraded.

In practical terms, what the panel was asked to do was to identify those features which were essential to bilingual education and to delete those items which were as applicable to the monolingual education program [2] as to the bilingual one. This resulted in a list of 37 items (see Figure II, pg. 21).

Program Structure

The next step involved setting the basic program structure. Panel deliberations resulted in a model for a bilingual program consisting of nine (9) subject areas carried through six grades (kindergarten through grade 5) as indicated in Figure III, pg. 22. The decision to limit the program to the fifth grade was not based on any feeling that bilingual education should necessarily cease at that point, but rather due to the fact that few programs exist in the state beyond fifth grade, and it was felt that more data are needed before program recommendations are made.

It was further determined that the program would involve the same amount of time per student as the monolingual program, since the bilingual program should be considered the regular program for those students enrolled in it.

FIGURE II

REVISED FEATURES LIST

1. In-service Training
2. Pre-service Training
3. Community Resources
4. Transportation
5. Teaching Methodologies
6. Student Home Language Literacy
7. A Complete Curriculum
8. Language Matching
9. Total Cultural Integration
10. Staff Recruitment
11. Staff Development
12. Staff Differentiation
13. Acceptance Of Home Language
14. Parental Involvement
15. Avoidance Of Excessive Concept Duplication
16. Significant Time Devoted To Home Language
17. Full Language Arts In Both Languages
18. Evaluation
19. Variety In Materials
20. Ample Materials In Both Languages
21. Bilingual Student Personnel Services
22. Unbiased Approach To Culture
23. Cultural Pluralism
24. Teacher Attitude
25. Student Attitude
26. Community Attitude
27. Administrative Attitude And Support
28. Teacher/Pupil Ratio
29. Auxiliary (Support) Staff
30. Desegregation
31. Bilingual Teacher Certification
32. Definition
33. Language Acquisition Training For Teachers
34. English As A Second Language Training
35. Organizational Patterns
36. Classroom Management
37. Library Acquisitions

FIGURE III

SUBJECT AREAS BY GRADE LEVEL

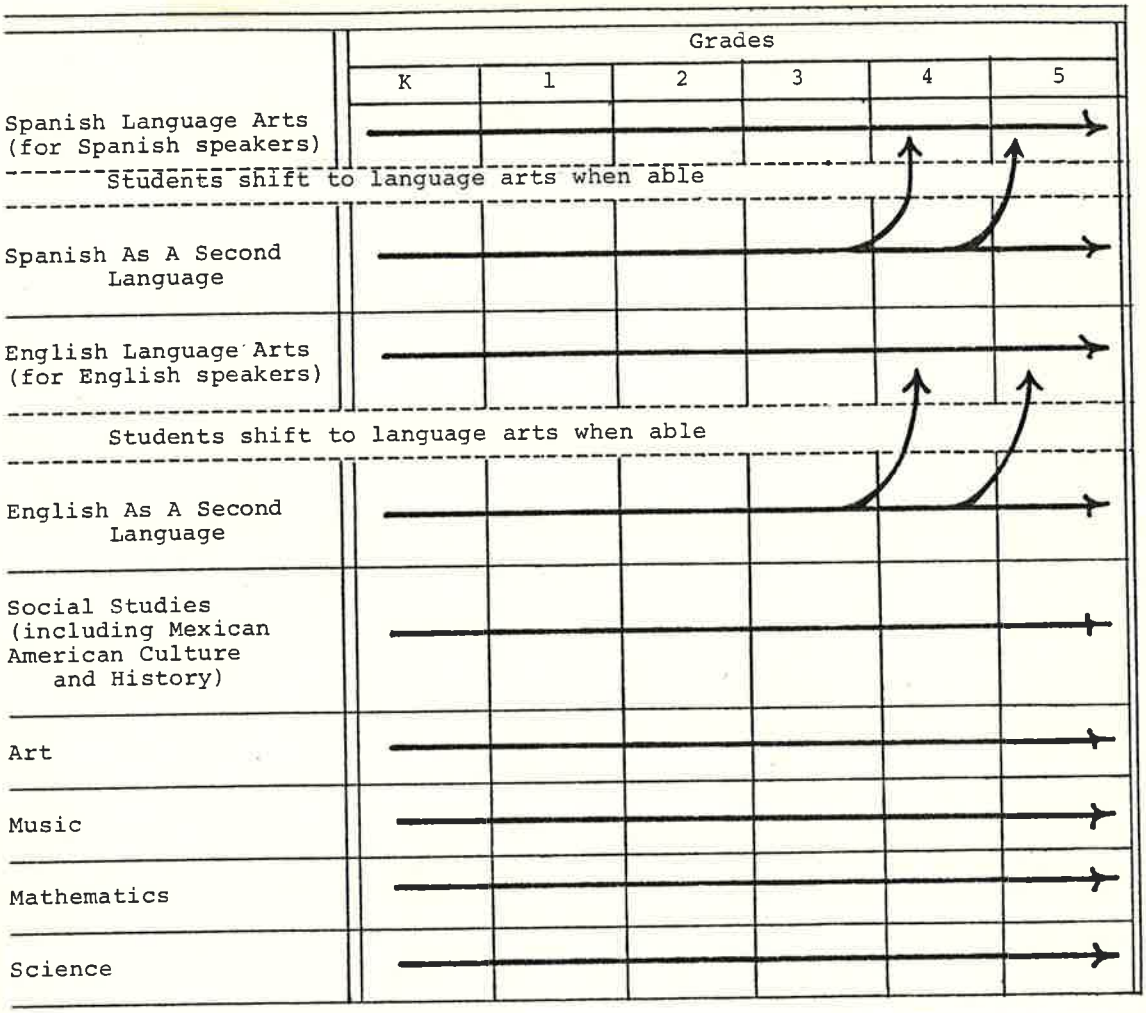

FIGURE IV

MAJOR EQUIPMENT LIST

TAPE RECORDER

RECORD PLAYER

MOVIE PROJECTOR

SLIDE PROJECTOR

FILMSTRIP PROJECTOR

8mm FILM LOOP PROJECTOR

OPAQUE PROJECTOR

OVERHEAD PROJECTOR

TELEVISION

VIDEO TAPE EQUIPMENT

LANGUAGE MASTER

TACHISTOSCOPE

CONTROLLED READER

SHADOWSCOPE READING PACER

OTHER MAJOR EQUIPMENT
(SPECIFY):

(SYNCHRONIZED FILM STRIP/

CASSETTE MACHINE, ETC.)

FIGURE V

PER PUPIL COSTS

	Grade K				Grade 1				Grade 2			
YEAR OF IMPLEMENTATION	1	2	3	4	1	2	3	4	1	2	3	4
RESOURCE AREAS												
Staff	160.75	160.75	160.75	160.75	160.75	160.75	160.75	160.75	160.75	160.75	160.75	160.75
Materials	35.00	24.00	22.00	20.00	31.00	23.00	21.00	19.00	29.00	22.00	19.00	19.00
Equipment	20.54	6.85	6.85	6.84	20.54	6.85	6.85	6.84	20.54	6.85	6.85	6.84
Testing	2.48	1.32	1.32	1.32	2.67	1.51	1.51	1.51	2.78	1.62	1.62	1.62
Library	25.00	9.00	9.00	9.00	25.00	9.00	9.00	9.00	25.00	9.00	9.00	9.00
TOTAL PER PUPIL COST	243.77	201.92	199.92	197.91	239.96	201.11	199.11	197.10	238.07	200.22	197.22	197.21

	Grade 3				Grade 4				Grade 5			
	1	2	3	4	1	2	3	4	1	2	3	4
Staff	160.75	160.75	160.75	160.75	145.59	145.59	145.59	145.59	145.59	145.59	145.59	145.59
Materials	28.00	20.00	19.00	18.00	22.00	14.00	13.00	11.00	22.00	14.00	13.00	11.00
Equipment	20.54	6.85	6.85	6.84	10.27	3.43	3.42	3.42	10.27	3.43	3.42	3.42
Testing	2.79	1.63	1.63	1.63	2.83	1.67	1.67	1.67	2.91	1.75	1.75	1.75
Library	25.00	9.00	9.00	9.00	25.00	9.00	9.00	9.00	25.00	9.00	9.00	9.00
TOTAL PER PUPIL COST	237.08	198.23	197.23	196.22	205.69	173.69	172.68	170.68	205.77	173.77	172.76	170.76

FIGURE VI

BILINGUAL PROGRAM WEIGHTS
(In multiples of monolingual program costs for each grade)

YEAR OF IMPLEMENTATION	GRADE LEVEL K	1	2	3	4	5
1	1.31	1.42	1.41	1.41	1.36	1.36
2	1.25	1.35	1.35	1.35	1.30	1.30
3	1.25	1.35	1.34	1.34	1.30	1.30
4 and beyond	1.25	1.34	1.34	1.34	1.30	1.30

FIGURE VII

ADD-ON COSTS

Grades			
K	1-3	4-5	
243.77	238.37	205.73	Year 1
199.92	198.18	172.39	Year 2 & Beyond

WEIGHTS

Grades			
K	1-3	4-5	
1.31	1.42	1.36	Year 1
1.25	1.35	1.30	Year 2 & Beyond

FOOTNOTES AND REFERENCES

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FIGURE VIII

BILINGUAL PROGRAM WEIGHTS

(In multiples of the monolingual program cost for grades 1-6)

GRADE LEVEL

YEAR OF IMPLEMENTATION	K	1	2	3	4	5
1	1.69	1.42	1.41	1.41	1.36	1.36
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4	1.61	1.34	1.34	1.34	1.30	1.30

A list of IDRA publications is available upon request.

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