

DOCUMENT RESUME

ED 357 124

UD 029 204

AUTHOR Clark, Andrew
 TITLE Alternative Learning Methodologies through Academics (Project ALMA). 1991-92 Final Evaluation Profile. OREA Report.
 INSTITUTION New York City Board of Education, Brooklyn, NY. Office of Research, Evaluation, and Assessment.
 PUB DATE 7 Jul 92
 CONTRACT T003A00209
 NOTE 19p.; For the 1990-91 report, see ED 347 234.
 AVAILABLE FROM Office of Research, Evaluation, and Assessment, New York City Public Schools, 110 Livingston Street, Room 732, Brooklyn, NY 11201.
 PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
 DESCRIPTORS Academic Achievement; *Bilingual Education Programs; Computer Literacy; *English (Second Language); High Schools; *High School Students; Hispanic Americans; Limited English Speaking; Mathematics Skills; Native Language Instruction; *Nontraditional Education; *Parent Participation; Science Education; Social Studies; Spanish Speaking; Urban Schools
 IDENTIFIERS Hispanic American Students; Language Minorities; Latinos; New York City Board of Education; *Project ALMA NY; Subject Content Knowledge; *Transitional Bilingual Education Programs

ABSTRACT

Under Title VII of the Elementary and Secondary Education Act, Project Alternative Learning Methodologies through Academics (Project ALMA) in New York City was evaluated. It was designed to emphasize acquisition of English language and mathematics and computer skills. High school students were to take English as a Second Language (ESL) and mathematics, science, and social studies courses in Spanish. The project planned to offer native language arts (NLA) instruction through advanced placement levels. Project design included bilingual counseling and support services, with ESL and high school equivalency programs for the parents and adult siblings of project participants. In 1991-92, the second year of a 3-year plan, the project enrolled 196 male and 234 female Latino students of limited English proficiency. Project ALMA carried out most of its planned activities, with the exception of producing a newsletter and translating curriculum materials. Enrollment in computer classes was limited by lack of computer literate staff. Recommendations are made for project improvement at both project schools. Appendix A presents information on data collection and analysis, and Appendix B describes instructional materials. (SLD)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

ED357124



OREA Report

Alternative Learning Methodologies through Academics
(Project ALMA)
Transitional Bilingual Education Grant T003A00209
1991-92

FINAL EVALUATION PROFILE

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- This document has been reproduced as received from the person or organization originating it.
- Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

R. Tobias
NYC Public Schools

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Alternative Learning Methodologies through Academics
(Project ALMA)
Transitional Bilingual Education Grant T003A00209
1991-92

FINAL EVALUATION PROFILE



NEW YORK CITY BOARD OF EDUCATION

H. Carl McCall
President

Irene H. Impellizzeri
Vice President

Carol A. Gresser
Westina L. Matthews
Michael J. Petrides
Luis O. Reyes
Ninfa Segarra
Members

Keysha Z. McNeil
Student Advisory Member

Joseph A. Fernandez
Chancellor

DIVISION OF STRATEGIC PLANNING/RESEARCH & DEVELOPMENT

Robin Willner
Executive Director

It is the policy of the New York City Board of Education not to discriminate on the basis of race, color, creed, religion, national origin, age, handicapping condition, mental status, sexual orientation, or sex in its educational programs, activities, and employment policies, and to maintain an environment free of sexual harassment, as required by law. Inquiries regarding compliance with appropriate laws may be directed to Mercedes A. Newfield, Director, Office of Equal Opportunity, 110 Livingston Street, Room 601, Brooklyn, New York 11201, Telephone: (718) 935-3320.

7/7/92

ACKNOWLEDGMENTS

This report has been prepared by the Bilingual, Multicultural, and Early Childhood Evaluation Unit of the Office of Research, Evaluation, and Assessment. Thanks are due to Andrew Clark for collecting the data and writing the report.

Additional copies of this report are available from:

Dr. Tomi Deutsch Berney
Office of Research, Evaluation, and Assessment
New York City Public Schools
110 Livingston Street, Room 732
Brooklyn, NY 11201
(718) 935-3790 FAX (718) 935-5490

FOREWORD

The body of this report is preceded by an Extract which presents an overview of salient points of the project: funding cycle; enrollment figures; background of students served; admission criteria; and programming features, strengths, and limitations, including the outcome of all objectives. The extract also presents the conclusions drawn by the Office of Research, Evaluation, and Assessment (OREA) about the program and its recommendations for program improvement.

The extract is followed by the body of the report, titled Program Assessment. This includes such information as staffing, program implementation, and outcome and implementation objectives. Instructional objectives are presented first, followed by noninstructional objectives. The report then addresses those aspects of programming mandated by Title VII regulations that do not have specifically stated objectives. This may be information on attendance and dropout rate, grade retention, mainstreaming, referrals out of the program to meet special needs of the students, and withdrawals. A case history concludes the report.

Data for this profile were collected and analyzed using a variety of procedures, which are described in Appendix A following the text.

E.S.E.A. Title VII Evaluation Profile
**Alternative Learning Methodologies through Academics
(Project ALMA)**

Transitional Bilingual Education Grant T003A00209
1991-92

EXTRACT

PROJECT DIRECTORS: Ms. Eileen May (Sept.-Jan.)
Ms. Yanick Morin (Jan.-Aug.)

FUNDING CYCLE: Year 2 of 3

SITES

<u>School</u>	<u>Borough</u>	<u>Grade Levels</u>	<u>Enrollment*</u>	
			<i>Fall</i>	<i>Spring</i>
John Bowne High School	Queens	9-12	225	174
John F. Kennedy High School	Bronx	9-12	196	190

*The project enrolled 430 students (23 more than in the previous year), 358 of whom participated both semesters. Male students numbered 196, female 234. Students served totaled 421 in the fall and 364 in the spring.

STUDENT BACKGROUND

<u>Native Language</u>	<u>Number of Students</u>	<u>Countries of Origin</u>	<u>Number of Students</u>
Spanish	430	Dominican Republic	273
		Colombia	43
		Peru	22
		Ecuador	18
		United States	13
		El Salvador	9
		Honduras	8
		Mexico	8
		Puerto Rico	8
		Guatemala	6
		Nicaragua	5
Other	17		

Median Years of Education in Native Country: 7.0; in the United States: 3.0

Percentage of Students Eligible for Free Lunch Program: 97.4

ADMISSION CRITERIA

Project ALMA admitted Latino students of limited English proficiency (LEP)--those who had scored at or below the 40th percentile on the Language Assessment Battery (LAB)--who, in the judgment of school staff, needed assistance with mathematics and computer skills or were capable of tutoring other students in those areas. In selecting students, the project also took into account academic transcripts from their native countries.

PROGRAMMING

Design Features

Project ALMA was designed to stress the acquisition of English-language, and mathematics/computer skills. Students were to take English as a Second Language (E.S.L.), mathematics, science, and social studies courses in Spanish, and the project planned to provide Native Language Arts (N.L.A.) instruction up to and including the Advanced Placement level. The design included bilingual counseling and support services, E.S.L., and high school equivalency classes for the parents and adult siblings of project participants.

The project proposed to disseminate a newsletter on its activities. The New York City Public Schools curriculum guides on computer literacy and computer science were to be translated into Spanish and disseminated. The project planned to pay for student transportation on field trips and to purchase computer hardware and software.

Staff development was to include workshops for both Title VII and non-Title VII staff, and the project proposed to facilitate the staff's graduate training, particularly in bilingual methodology.

Capacity building. The project director reported that at the end of the project's third year (September 1993), the two high schools would take over responsibility for retaining staff and most activities with tax-levy monies. Chapter 1/Pupils with Compensatory Educational Needs (P.C.E.N.) funding is expected to help cover the cost of bilingual textbooks and other instructional materials.

Strengths and Limitations

Project ALMA carried out most of the activities it had proposed in the design. The project did not, however, publish the proposed newsletter or translate curriculum materials, nor were there any plans to do so. The project had completed its purchasing of hardware in the previous year but continued to buy software and other computer supplies. Lack of computer literate staff, however, limited enrollment in computer courses.

CONCLUSIONS AND RECOMMENDATIONS

As in the previous year, the project failed to meet its objectives for E.S.L., N.L.A., and referral to gifted and talented programs, but met its objectives for career advisement, dropout prevention, and referral to remedial programs. It met its attendance objective partially, as in the previous year. OREA was unable to evaluate the objectives for computer science and enrollment in post-secondary institutions. It partially met objectives for parental involvement and grade retention, which OREA had been unable to evaluate the previous year. The project director will seek remediation of unmet or partially met objectives.

The conclusions, based on the findings of this evaluation, lead to the following recommendations:

- Identify ways to improve students' academic performance and mobilize all available resources to address this priority.
- Explore feasibility of offering more bilingual computer science courses or modify content area subject objective.
- Take steps to enhance attendance and monitor their effectiveness.
- Identify ways to reduce grade retention at John F. Kennedy High School.
- Seek additional ways to promote parental involvement.

PROGRAM ASSESSMENT

STAFFING

Title VII Project Staff (Total 5)

<u>Title</u>	<u>Degree</u>	<u>Language Competencies</u>	<u>Title VII Funding</u>	<u>Other Funding</u>
Project Director	M.S.	Spanish	Part-time	Tax-levy (60 percent)
Resource Specialist	M.S.	Spanish	Part-time	Tax-levy (40 percent)
Resource Specialist	M.S.	Spanish	Part-time	Tax-levy (20 percent)
Paraprofessional	High School+	Spanish	Full time	
Paraprofessional	A.S.	Spanish	Full time	

Other Staff Working With Project Students (Total 89)

<u>Title</u>	<u>Degree</u>	<u>Certification</u>	<u>Language Competencies and Teaching/Communicative Proficiencies (TP/CP)*</u>
Teacher	83 Ph.D.	6 E.S.L.	22 Spanish 48 <i>(Project did not provide data)</i>
Paraprofessional	6 M.A./M.S.	60 English	
	Prof. Diploma 1	Mathematics	3
	B.A./B.S. 16	Bil. Mathematics	5
	High School 6	Social Studies	4
		Bil. Soc. Studies	5
		Spanish	15
		Business	1
		Bil. Guidance	5
		Supervision	8
		Health	1
		Science	1
		Bil. Science	4
		Agriculture	3
		Industrial Arts	1

All staff had certification in areas they served, except for one teacher certified in mathematics who taught E.S.L. classes.

*Teaching Proficiency (TP): Competent to teach in this language.
 Communicative Proficiency (CP): Conversational capability only.

IMPLEMENTATION AND OUTCOMES (Objectives prefaced by ●)

English as a Second Language (E.S.L.)

E.S.L. CLASSES

<u>Sites</u>	<u>Level</u>	<u>Periods Weekly</u>	<u>Students Enrolled</u>
John Bowne High School	Literacy	15	8
	Beginning	15	32
	Intermediate	15	64
	Advanced	10	39
	Transitional	10	32
John F. Kennedy High School	Literacy	15	6
	Beginning	15	27
	Intermediate	15	67
	Advanced	10	88
	Transitional	10	8

The project stressed computer-assisted instruction for E.S.L. in the computer lab. In individualized teaching of study skills, the resource teachers helped each student find the best way to study successfully. The three paraprofessionals who worked with project students at John Bowne High School were all assigned to assist in E.S.L. classes.

For a list of instructional materials, see Appendix B.

- Seventy percent of the target students will demonstrate an appropriate increase in English language proficiency.

Evaluation Instrument: Language Assessment Battery (LAB)*

Pretest: May 1991; posttest: May 1992.

Number of students for whom pre- and posttest data were reported: 348

Percent of students with pretest/posttest gains. 62.9

Mean gain: 6.7 N.C.E.s (s.d.=10.3)

Mean gain is statistically significant ($t=12.14, p<.05$).

While students showed a substantial and statistically significant gain in English language proficiency, less than the proposed 70 demonstrated a gain.

Project did not meet E.S.L. objective. The project director stated that the 70 percent target was probably unrealistic in light of the influx of students whose prior education had been extremely limited. The project intended to continue providing workshops for school staff, sensitizing them to the needs of these students and

*OREA used a gap reduction design to evaluate the effect of supplementary instruction on project students' performance on the LAB. Since all LEP students in New York City are entitled to such instruction, no valid comparison group exists among these students, and OREA used instead the group on which the LAB was normed. Test scores are reported in Normal Curve Equivalents (N.C.E.s), which are normalized standard scores with a mean of 50 and a standard deviation of 21.06. It is assumed that the norm group has a zero gain in N.C.E.s in the absence of supplementary instruction and that participating students' gains are attributable to project services.

offering staff development in such techniques as the integration of computer-assisted instruction (C.A.I.) into E.S.L. The project planned to encourage participation in spelling bee competitions and to organize more frequent poetry readings, talent shows, dramas, and other activities to promote the acquisition of English proficiency.

Native Language Arts (N.L.A.)

Students lacking native language literacy skills (estimated, and in the absence of figures for 1991-92, reported for 1990-91):

John Bowne High School, 8-20 percent.
 John F. Kennedy High School, 30-35 percent.

N.L.A. CLASSES

<u>High School</u>	<u>Level</u>	<u>Periods Weekly</u>	<u>Students Enrolled</u>
John Bowne	Beginning	5	6
	Intermediate	5	105
	Advanced	5	38
	Advanced Placement	5	26
John F. Kennedy	Literacy 1	5	6
	Literacy 2	5	21
	Elementary	5	72
	Intermediate	5	58
	Advanced	5	41

N.L.A. classes emphasized cooperative learning. At John Bowne High School, students were assigned to groups of four, and each student had a particular role and responsibility in the completion of assignments. Both schools also arranged for peer tutoring during the lunch hour. At John Bowne High School, about 60 students received such tutoring on an average of two periods per week, but no data were available for John F. Kennedy High School.

For a list of instructional materials, see Appendix B.

- Seventy-five percent of the Spanish-dominant participants will demonstrate a significant increase in Spanish language achievement.

Evaluation Instruments: Pretest, Reading Subtest of Spanish LAB, May 1991; posttest, El Examen de Lectura en Español (ELE), May 1992.*

Number of students for whom pre- and posttest data were reported: 105

Percentage of students with pretest/posttest gains: 33.3

Mean gain: 0.6 N.C.E.s (s.d.=14.8)

Project did not meet N.L.A. objective. The project director stated that the 75 percent target was probably unrealistic in view of the influx of students whose prior education had been extremely limited. The project planned to encourage participation in Spanish spelling bee competitions and to organize more frequent poetry readings, essay contests, and other activities to facilitate students' growth in Spanish proficiency.

* Details for the evaluation design using the spring 1991 Spanish LAB administration as a pretest and the spring 1992 ELE administration as a posttest will be forthcoming.

Content Area Subjects

Project students were taught most content area courses bilingually. At John Bowne High School, some science courses and the keyboarding course were taught with a sheltered English methodology; at John F. Kennedy High School, some social studies and some science courses were taught with a sheltered English methodology. All mathematics, science, and social studies courses were offered five periods per week.

A Bilingual Enrichment Computer Center, which had only one computer, was available for the use of project students at lunchtime four days a week in the project office. This supplemented the schools' computer labs, where project staff regularly reserved time for students. Very few project students had enrolled in computer science courses because of a shortage of qualified staff at the two sites.

For a list of instructional materials, see Appendix B.

In the content areas, the project proposed an objective for computer science only.

- As a result of participating in the program, 75 percent of program students will show a significant gain in computer science (BASIC language or COBOL) and achieve a passing grade of 65 percent or better.

The program did not report results for computer science courses.

OREA could not evaluate computer science objective. The project director who was appointed for the year following the year under review said that while he would endeavor to report grades for this course more fully, few project students received instruction in computer science because of a shortage of qualified computer science teachers. He said he would either explore with the site principals the possibility of offering more bilingual computer science courses or seek permission to change this objective.

Career Advisement

- All project students will meet on an individual basis with the bilingual specialist for advisement at least two times during the school year for career orientation and planning.

Staff reported that in each semester all project students met once with the Title VII resource teacher and twice with their school's bilingual grade advisor in order to discuss their academic progress and their career options.

Project met career advisement objective.

Other Activities

Project students went on field trips which had a cultural or vocational orientation. Groups of students from both sites made trips to the Pocono Environmental Education Center and to two performances of Spanish dramas; in addition, students at John F. Kennedy High School visited three museums and the corporate offices of NYNEX.

Attendance

As an incentive, project staff made good attendance a prerequisite for participation in some field trips. Students were interviewed regularly regarding their behavior and attendance; project staff contacted parents when a student seemed to have a problem.

- As a result of participation in the program, the attendance rate of students will be 10 percent greater than that of mainstream students.

ATTENDANCE RATES

<u>High School</u>	<u>Project Students</u>	<u>Mainstream Students</u>	<u>Difference</u>
John Bowne	92.4	88.0	5.0
John F. Kennedy	90.8	81.3	11.7

* $p < .05$

The attendance rate at John Bowne High School was 3.3 percent higher than in the previous year. At John F. Kennedy High School, project students' attendance was down 1.7 percent from the previous year, but was still significantly higher than the mainstream rate.

Project met attendance objective at John F. Kennedy High School only. The project director said that the project planned more intensive parent contacts at John Bowne High School in the hope of enlisting parental aid in improving their children's attendance.

Dropout Prevention

Field trips, cultural activities, and the personal interest of project staff were aimed at encouraging students to stay in school.

- As a result of participation in the program, the dropout or absenteeism rate of the students will be less than that of mainstream students.

DROPOUT RATES

<u>High School</u>	<u>Project Students</u>	<u>Mainstream Students</u>
John Bowne	0.0	3.6
John F. Kennedy	0.0	7.0

Project met the dropout prevention objective. As in the previous year, no project students were reported to have dropped out of school.

Grade Retention

- As a result of participation in the program, the rate of grade retention will be 10 percent less than for mainstream students.

At John Bowne High School, no project students were retained in grade. (In the previous year, one student had been retained in grade.) At John F. Kennedy High School, the grade retention rate was 21.8 percent for project students, 4.5 percent higher than for mainstream students and 4.3 percent higher than the previous year.

Project met grade retention objective at John Bowne High School only.

Enrollment in Post-Secondary Institutions

- As a result of participation in the program, enrollment in post-secondary education institutions will be five percent greater than for mainstream students.

The project did not provide data on its students' enrollment in post-secondary education institutions.

OREA could not evaluate the objective for enrollment in post-secondary institutions.

Students With Special Academic Needs

Referral to special education. Teachers referred students whose ability to function in the program was in doubt to a School-based Support Team (S.B.S.T.) of clinicians. At John Bowne High School, bilingual staff were called in to translate for the S.B.S.T. when necessary. At John F. Kennedy High School, the S.B.S.T. included a social worker who was bilingual.

- As a result of participation in the program, referral to or placement in special education classes rate will be 10 percent less than for mainstream students.

The project did not refer any students to special education. Mainstream students at John Bowne High School were referred to special education at the rate of 0.16 percent. Project staff did not report the mainstream rate of referral at John F. Kennedy High School, but believed it to be above zero.

Project met objective for referrals to special education.

Remedial programs.

- As a result of participation in the program, the rate of referral to special programs, e.g., remedial programs, will be 10 percent less than for mainstream students.

The project did not refer any students to remedial programs.

Project met objective for referrals to remedial programs.

Gifted and talented programs. At the end of each semester, project staff reviewed report cards to identify students who might benefit from honors courses. Students recognized as academically gifted were invited to serve as peer tutors or service aides.

- As a result of participation in the program, placement in programs for the gifted and talented will be five percent greater than for mainstream students.

No project students were referred to gifted and talented programs. At John F. Kennedy High School, approximately 200 mainstream students (4.9 percent) were in the school's gifted and talented program.

Project did not meet objective for placement in gifted and talented programs.

Mainstreaming

Project ALMA mainstreamed 12 students (2.8 percent of participants), an increase of ten students over the previous year.

Academic achievement of former project students in mainstream. The project did not provide data on the academic achievement of the two students who had been mainstreamed the previous year.

Staff Development

Although the project set no specific objectives in this area, the proposal stated that in-service and graduate training would be available to staff members. Staff at each site had one professional development day each semester in addition to the updating that took place at monthly faculty conferences and departmental meetings. Training opportunities were available off-site: six teachers of project students at John Bowne High School attended a workshop on pre-literacy instruction in E.S.L. and N.L.A. and a second workshop on implementing Writing Process; two teachers attended a workshop on the use of multicultural songs in the classroom; two attended a workshop on dual-language literacy; and individual teachers attended a variety of other workshops. Six teachers of project students at John F. Kennedy High School took courses at local colleges during the fall semester.

Parental Involvement

At each site, at least seven parents of project students served on a parents' advisory committee (PAC). The committee met four times a year, primarily to receive information about the program. Project staff encouraged the parents and adult siblings of participating students to attend classes offered at sites. At John Bowne High School, ten project parents attended an evening course in E.S.L.

- As a result of the program, parents of project students will demonstrate 10 percent more parental involvement than parents of mainstream students.

The project reported parental attendance only for Open School Day/Evening, which was as follows:

<u>High School</u>	<u>Fall</u>		<u>Spring</u>	
	<u>Mainstream Parents</u>	<u>Project Parents</u>	<u>Mainstream Parents</u>	<u>Project Parents</u>
John Bowne	18.7	29.7	65.0	N/A
John F. Kennedy	17.9	29.0	14.0	7.0

Project met parental involvement objective in fall only.

CASE HISTORY

A. entered John F. Kennedy High School as a recent immigrant. When Project ALMA started, she was selected for the program because teachers described her as not only of limited English proficiency but also withdrawn and unable to participate in class discussions. Her mathematics skills were particularly weak, and she knew nothing about computers.

During her two years in the project, A. received tutoring from other students and improved her mathematics skills enough to pass the Regents Competency Test in that subject. Staff said that she related to other students more successfully, participating in class discussions and joining field trips with enthusiasm.

APPENDIX A
DATA COLLECTION AND ANALYSIS

COLLECTION

OREA evaluation consultants visit sites and interview key personnel. The project director gathers data and, with the consultant, completes forms (as shown below) as necessary.

Student Data Form

This one-page form is filled out by staff for each participating and mainstreamed student. OREA gathers data from this form on backgrounds, demographics, academic outcomes, attendance, referrals, and exit from the program.

Project Director's Questionnaire

The Project Director's Questionnaire includes questions on staff qualifications, program implementation, periods of instruction, and instructional materials and techniques.

Project Director's Interview

The interview gathers information on program and student or staff characteristics not supplied by the Project Director's Questionnaire. The interview also allows project staff to offer qualitative data or amplify responses to the questionnaire.

Citywide Test Scores

OREA retrieves scores centrally from the Language Assessment Battery (LAB) and other citywide tests. For evaluation purposes, these test scores are reported in Normal Curve Equivalents (N.C.E.s). N.C.E.s are normalized standard scores with a mean of 50 and a standard deviation (s.d.) of 21.06. They constitute an equal-interval scale in which the distance is the same between any two adjacent scores. A gain of 5 N.C.E.s is the same whether it is at the lower or the higher end of the scale. N.C.E.s can be used in arithmetic computations to indicate group progress. (Percentile scales, although more familiar to many, are unsuitable for such computations since they are not equal-interval.)

Likert-Type Surveys

Likert-type surveys, in which respondents mark their opinions on a scale from one to five, are used in a variety of ways. They examine student attitudes (i.e., toward school and career, native language use, and native and mainstream cultures). They also assess staff and parent attitude and reactions to workshops and other activities.

ANALYSIS

Gap Reduction Evaluation Design

OREA uses a gap reduction design for measuring changes in standardized tests. Since no appropriate non-project comparison group is available in New York City, where all students of limited English proficiency (LEP) are entitled to receive supplementary services, OREA compares the progress of participating students with that of the group on which the test was normed. It is assumed that the norm group would show a zero gain in the absence of instruction, and gains made by project students could be

attributed to project services. Scores are reported in Normal Curve Equivalents (N.C.E.s), which are normalized standard scores with a mean of 50 and a standard deviation of 21.06. (See "Citywide Test Scores" above.)

To test whether pre/posttest gains are greater than could be expected by chance alone, OREA uses a *t*-test. To test whether a difference between two proportions (e.g., program and mainstream attendance rates) is greater than could be expected by chance, OREA uses a *z*-test and reports the differences between the two proportions. The level of significance is set at .05 for all tests.

Techniques For Minimizing Error

The evaluation procedures minimize error by providing for proper administration of evaluation instruments through a combination of testing at 12-month intervals, appropriate analysis procedures and reporting.

Instruments of measurement include the LAB (see above), the Degrees of Reading Power (D.R.P.) test, the Metropolitan Achievement Test--Mathematics (MAT-Math), El Examen de Lectura en Español (ELE), Likert-type scales (see above), and project-developed tests. Except for Likert scales and project-developed tests, these instruments are scored on a citywide basis at the Scan Center of the New York City Public Schools.

APPENDIX B

INSTRUCTIONAL MATERIALS

E.S.L.

<i>Picture Stories</i>	S. Heyer	Prentice Hall	1989
<i>Side by Side</i>	Molinsky & Bliss	Prentice Hall	1983
<i>Line by Line</i>	Molinsky & Bliss	Prentice Hall	1983
<i>Everyday English II, III</i>	Krulik & Zaffran	National Textbook	1991
<i>Turning Points, books 1-4</i>	Iantorno & Papa	Addison-Wesley	1987
<i>Writing Power</i>	Graham & Young	Globe	1980
<i>Great American Stories I, II</i>	C. Draper	Prentice Hall	1985
<i>Pizza Tastes Great</i>	William Pickett	Prentice Hall	1988
<i>Silas Marner</i> [adapted]	G. Eliot	Globe	1942
<i>Jane Eyre</i> [adapted]	C. Brontë	Globe	1986

N.L.A.

<i>El Español y su estructura</i>	Burunat & Starcevic	Holt, Rinehart	1983
<i>Lenguaje</i>	J. Chow	Holt, Rinehart	1984
<i>Spanish Conversation</i>	Sedwich	Van Nostrand, Reihart	1987
<i>Antología comunicativa 4, 5, 7</i>	G. Arevalo	Editorial Norma	1987
<i>El cuento</i>	J. Javaloy	Holt, Rinehart	1984
<i>Rana viajera</i>	J. Camba	D. C. Heath	1928
<i>Aventuras de Don Quijote</i>	J. Greenberg	Houghton Mifflin	1935
<i>An Omnibus of Modern Spanish Prose</i>	L. Wilkins	Odyssey Press	1936
<i>Crónica de una muerte anunciada</i>	G. G. Márquez		1982
<i>La barca sin pescador</i>	A. Pasona	Oxford	1972
<i>La dama del alba</i>	A. Pasona	Holt, Rinehart	1981

Mathematics

<i>Achieving Competence in Math</i>	Mandery & Schneider	Amsco	1987
<i>Fundamentos de matemáticas</i>		NYC Board of Ed.	1989
<i>Consumer Mathematics</i>	Mason, Lange, & Rousos	Houghton, Mifflin	1988
<i>Using Computers</i>	Elgaren & Pasamentier	Addison Wesley	1984
<i>Matemática progresiva I, II</i>		Attanasio & Associates	
<i>Repaso matemático</i>	E. Stein	Allyn & Bacon	1971
<i>Integrated Mathematics</i>	Dressler & Keenan	Amsco	1980
<i>Invitación a las matemáticas</i>		Scott, Foresman	1986
<i>Éxitos en las matemáticas</i>	Vogelli & Le Blanc	Silver Burdett	1983

Science

<i>Concepts in Modern Biology</i>	D. Kraus	Globe	1984
<i>La materia y la energía</i>	Heimler & Price	Charles E. Merrill	1985
<i>Exploring Matter and Energy</i>	D. Kiefer	Globe	1991
<i>Biología humana</i>	Dihigo & Llanos	Artes Graficas Coimoff	1988
<i>Biology and Human Progress</i>	Tanzer & Schwartz	Prentice Hall	1986
<i>Physical Science</i>	Hurd & Silva	Prentice Hall	1988

Social Studies

<i>United States: People and Leaders</i>	Abramowitz & Abramowitz	Globe	1988
<i>Historia de la humanidad</i>	D. Roselle	Ginn & Co.	1973
<i>Nueva historia de los EE.UU.</i>	Gines & Serran-Pagan	Minerva	1986
<i>Government in America</i>	R. Hardy	Houghton, Mifflin	1990
<i>Comprende su mundo</i>	Killoran & Zimmer	Jarrett	1991
<i>Historia del antiguo continente</i>	Gonzalez & Augusto	Editorial Norma	1977
<i>Japón--Tierra del origen del sol</i>	Rosenfeld & Geller	Barron's	1974
<i>China--el reino medio</i>	Rosenfeld & Geller	Barron's	1974
<i>El Medio Oriente y Africa del Norte</i>	Rosenfeld & Geller	Barron's	1976