ABSTRACT

An evaluation was done of New York City Public Schools' Project Aprendizaje, which served disadvantaged, immigrant, Spanish-speaking high school students at Seward Park High School in Manhattan. The Project enrolled 290 students in grades 9 through 12, 93.1 percent of whom were eligible for the Free Lunch Program. The Project provided students of limited English proficiency with instruction in English as a Second Language (ESL), native language arts (NLA), and content area subjects taught bilingually or in English with an ESL methodology. The project arranged activities for staff development and parental involvement and provided tutoring and informal counseling in the project office. Staff reported that the Project was integrated with activities at the school. Evaluation of the program was based on demographic data, citywide student test scores, and interviews with and surveys of the program director. Project Aprendizaje met its objectives for career education, attendance, suspension rate, dropout prevention, support services, staff development, and content area subjects. The Project met the ESL objective in the fall, but missed it in the spring by a narrow margin. It met one of two NLA objectives, and partially met its newsletter objective. Two appendices summarize the data collection and analysis methods and list instructional materials for the content areas. (JB)
OREA Report

Project Aprendizaje
Grant Number: T003A80043
1990-91

FINAL EVALUATION PROFILE

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Office of Educational Research and Improvement
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Project Aprendizaje
Grant Number: T003A80043
1990-91

FINAL EVALUATION PROFILE
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ACKNOWLEDGMENTS

This report has been prepared by the Bilingual, Multicultural, and Early Childhood Evaluation Unit of the Office of Research, Evaluation, and Assessment.

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
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 the Appendix following the text.
PROJECT DIRECTOR: Marisa Carbonara  
FUNDING CYCLE: Year 3 of 5

SITE

<table>
<thead>
<tr>
<th>School</th>
<th>Borough</th>
<th>Grade Levels</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seward Park High School</td>
<td>Manhattan</td>
<td>9-12</td>
<td>197</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>138</td>
</tr>
</tbody>
</table>

*The project enrolled 290 students (27 more than in the previous year).

STUDENT BACKGROUND

<table>
<thead>
<tr>
<th>Native Language</th>
<th>Number of Students</th>
<th>Countries of Origin</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>290</td>
<td>Colombia</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dominican Republic</td>
<td>205</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ecuador</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>El Salvador</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Honduras</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Panama</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>Puerto Rico</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Venezuela</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other countries</td>
<td>19</td>
</tr>
</tbody>
</table>

Mean Years of Education in Native Country: 7.87; in the United States: 2.30

Percentage of Students Eligible for Free Lunch Program: 93.1

Most project students came from impoverished rural areas in the Dominican Republic. Many had not finished elementary school. Once in New York, many of them helped support their families by working after school and so had little time for homework.

ADMISSION CRITERIA

The project admitted Spanish-speaking students who scored at or below the 40th percentile on the English Language Assessment Battery (LAB). Project staff tested students' English skills in greater detail for placement within the program.
PROGRAMMING

Features

Project Aprendizaje provided Spanish-speaking high school students of limited English proficiency (LEP) with instruction in English as a Second Language (E.S.L.), Native Language Arts (N.L.A.), and content area subjects taught bilingually or in English with an E.S.L. methodology. The project arranged activities for staff development and parental involvement and provided tutoring and informal counseling in the project office.

Strengths and Limitations

Project staff reported that Project Aprendizaje was effectively integrated with activities at Seward Park High School. The project's bilingual business preparation courses took advantage of the school's ample computer resources. Project staff assisted the school with translation and interpretation and coordinated extracurricular activities with the mainstream program. They reported that the school librarian consulted with them regularly in order to meet the needs of project students.

Twenty students passed the Advanced Placement examination in Spanish; a Project Aprendizaje student won the citywide Spanish spelling contest held at the offices of the New York City Public Schools; 35 out of 36 project students in the senior class graduated.

Because of an unexpected reduction in available funds, the project did not publish a second newsletter as proposed or replace textbooks as planned.

CONCLUSIONS AND RECOMMENDATIONS

Project Aprendizaje met its objectives for career education, attendance, suspension rate, dropout prevention, support services, staff development, and content area subjects. The project met the E.S.L. objective in the fall but missed it in the spring by a narrow margin. It met one of two N.L.A. objectives and partially met its newsletter objective.

The project social worker contacted parents via telephone, mail, newsletters, or home visits, thus meeting this parental involvement objective. The project did not provide data to evaluate parents' attendance at the Bilingual Parent Advisory Council or parent-teacher conferences. Data were also unavailable for OREA to assess project students' participation in extracurricular activities as compared to mainstream students.

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

- Provide OREA with all data necessary to evaluate objectives.
- Seek ways of documenting parental involvement activities.
- Revise the objective for extracurricular activities so that it can be evaluated.
- Explore more ways in which to meet the objectives for E.S.L. and N.L.A.
PROGRAM ASSESSMENT

STAFFING

Title VII Staff (Total 5)

<table>
<thead>
<tr>
<th>Title</th>
<th>Degree</th>
<th>Language Competencies</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum Resource Specialist</td>
<td>B.A.</td>
<td>Spanish</td>
<td>Part time</td>
</tr>
<tr>
<td>Educational Assistant</td>
<td>High School+</td>
<td>Spanish</td>
<td>Full time</td>
</tr>
<tr>
<td>Educational Assistant</td>
<td>High School+</td>
<td>Spanish</td>
<td>Full time</td>
</tr>
<tr>
<td>Educational Assistant</td>
<td>A.A.</td>
<td>Spanish</td>
<td>Full time</td>
</tr>
<tr>
<td>Educational Assistant</td>
<td>High School+</td>
<td>Spanish</td>
<td>Full time</td>
</tr>
</tbody>
</table>

Project Staff Not Funded by Title VII (Total 2)

<table>
<thead>
<tr>
<th>Position</th>
<th>Degree</th>
<th>Language Competencies</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Director</td>
<td>M.A.</td>
<td>Spanish</td>
<td>Tax levy</td>
</tr>
<tr>
<td>Resource Specialist</td>
<td>M.A.+</td>
<td>Spanish</td>
<td>Tax levy</td>
</tr>
</tbody>
</table>

Other Staff Working with Project Students (Total 50)

<table>
<thead>
<tr>
<th>Titles</th>
<th>Degrees</th>
<th>Certifications</th>
<th>Teaching/Communicative Proficiencies (TP/CP)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist. Principal</td>
<td>Ph.D. 1</td>
<td>E.S.L.</td>
<td>Spanish TP 19, CP 6</td>
</tr>
<tr>
<td>Dean</td>
<td>M.A. 2</td>
<td>Spanish</td>
<td>5</td>
</tr>
<tr>
<td>Teacher</td>
<td>B.A. 2</td>
<td>History</td>
<td>4</td>
</tr>
<tr>
<td>Social Worker</td>
<td></td>
<td>Mathematics</td>
<td>5</td>
</tr>
<tr>
<td>Guid. Counselor</td>
<td></td>
<td>Science</td>
<td>3</td>
</tr>
<tr>
<td>Paraprofessional</td>
<td>6</td>
<td>Bus./Career Ed.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Counseling</td>
<td>1</td>
</tr>
</tbody>
</table>

Degrees are listed for administrative and support staff only. Project estimated that 80 percent of the teachers of participating students held master's degrees.

All but one of the teachers held certification in the areas they were teaching.

IMPLEMENTATION AND OUTCOMES (Objectives prefaced by ♦)

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

<table>
<thead>
<tr>
<th>Level</th>
<th>Periods Weekly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning</td>
<td>10</td>
</tr>
<tr>
<td>Intermediate</td>
<td>5</td>
</tr>
<tr>
<td>Advanced</td>
<td>5</td>
</tr>
<tr>
<td>Transitional</td>
<td>5</td>
</tr>
</tbody>
</table>

E.S.L. instructors reported using a wide variety of strategies. In addition to audiolingual drill and grammatical analysis, teachers used role-playing, debates, and games such as Carolyn Graham's Jazz Chants.

*T: Teaching Proficiency (TP): Competent to teach in this language.  
C: Communicative Proficiency (CP): Conversational capability only.
They also cited James Asher's *Total Physical Response*, Caleb Gattegno's *Silent Way*, and Tracy Terrell's *Natural Approach*. Students used the following texts and workbooks:

- **Passage to E.S.L. Literacy**
- **English for a Changing World (I-V)**
- **Turning Points**
- **Skill Sharpeners**
- **Write From the Start**
- **Composition Practice (2nd ed.)**

Diane Longfield  
Caroline Banks  
Iantorno, Papa  
J. DeFilippo, C. Skidmore  
D. Davidson, D. Blot  
Linda L. Blanton

- As a result of participating in the program, 70 percent of E.S.L. students at all levels will achieve a passing grade of 65 or more on teacher-made final examinations.

Of the 172 students who enrolled in E.S.L. in the fall semester, 75.6 percent received passing grades. Of the 111 who enrolled in the spring, 68.5 percent received passing grades.

**Project met objective in the fall but not in the spring.**

**Native Language Arts (N.L.A.)**

<table>
<thead>
<tr>
<th>Level</th>
<th>Periods Weekly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning</td>
<td>5</td>
</tr>
<tr>
<td>Intermediate</td>
<td>5</td>
</tr>
<tr>
<td>Advanced</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Placement</td>
<td>5</td>
</tr>
</tbody>
</table>

Students used the following texts:

- **Español 5**
- **Legendas Hispanoamericanas**
- **Español para el Bilingue**
- **Galería Hispanica**
- **Caleidoscopio**

J. L. Igartera  
Barlow & Genovese  
Barker, M.  
Lado  
Martin *et al.*

Tabernera  
National Textbook  
National Textbook  
McGraw-Hill  
Ginn

- As a result of participating in the program, students will show statistically significant gains as measured by pre- and post-assessments with the appropriate level of La Prueba de Lectura.

The project received permission from the Office of Bilingual Education and Minority Language Affairs (OBELMA) to substitute the Language Assessment Battery (LAB) to evaluate this objective.

**Evaluation Instrument: Language Assessment Battery, Spanish version***


Number of students for whom pre- and posttest data were reported: 14

*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.*
Mean gain: 1.9 N.C.E.s (s.d. = 23.6)

Mean gain is not statistically significant (t = 0.31, p > .05)

Project did not meet objective.

- Seventy-five percent of the students in the Advanced Placement Spanish class will achieve a passing grade of at least 75 on a teacher-made final examination and on the Advanced Placement examinations in May for college credit.

Of the 26 students in the class, 20 took the Advanced Placement examination. Nineteen achieved a score of 4 or 5 out of a possible 5.

Project met objective.

Content Area Subjects

All content area courses provided five periods of instruction a week.

Computer literacy, sequential mathematics I, biology, global history, and American government were taught in Spanish. Other content area courses, as well as business typing and business job skills, were taught bilingually or with an E.S.L. methodology.

There were not enough bilingual teachers at Seward Park High School to meet the needs of all the LEP students, so the school assigned the available bilingual staff to ninth and tenth grade courses. In the eleventh and twelfth grades, most project students took at least some content area courses in the mainstream. Those for whom this arrangement posed special difficulties received tutoring on a regular basis from paraprofessionals at the project office.

Project students made frequent use of PLATO, a computer-assisted instruction program that provides curricular materials for mathematics, history, science, and English.

Science instruction emphasized hands-on activities within a thematic framework. Social studies courses exposed students to a variety of periodical and audiovisual materials, elicited written responses, and used semantic mapping to draw upon the students' prior knowledge. Mathematics classes made frequent use of the computer lab. Project students had particular difficulty in mathematics and science courses. Project staff felt that this was the result of students' poor educational background and their inability to devote sufficient time to homework.

Instructional materials are listed in Appendix B.

- As a result of participating in the program, 70 percent of the students will achieve a passing grade of at least 65 in mathematics (Sequential Mathematics) on teacher-made final examinations.

- As a result of participating in the program, 70 percent of the students will achieve a passing grade of 65 or higher in teacher-made or schoolwide examinations in science (biology).

- As a result of participating in the program, 70 percent of the LEP students will achieve a passing grade of at least 70 percent in social studies (Global History I and II, and American Government) on teacher- and school-made final examinations.
### Passing Grades in Content Area Courses

<table>
<thead>
<tr>
<th></th>
<th>Fall Enrollment</th>
<th>Percent Passing</th>
<th>Spring Enrollment</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>178</td>
<td>77.0</td>
<td>108</td>
<td>76.9</td>
</tr>
<tr>
<td>Science</td>
<td>71</td>
<td>83.1</td>
<td>31</td>
<td>100.0</td>
</tr>
<tr>
<td>Social studies</td>
<td>167</td>
<td>90.4</td>
<td>123</td>
<td>74.8</td>
</tr>
</tbody>
</table>

Project met all three objectives.

### Career Education

- As a result of participating in the program, 70 percent of the students will achieve a passing grade of 70 or higher on teacher-made or schoolwide examinations in Keyboarding I, II.

- As a result of participating in the program, 70 percent of the students will achieve a passing grade of 70 or higher in Bilingual Occupatio nal Education I, II.

- As a result of participating in the program, 70 percent of the students will achieve a passing grade of 70 or higher in Computer & Business Technology on teacher-made final examinations.

The data which OREA received did not differentiate among the career education courses for which project students received grades. Of the 66 students enrolled in all courses in the fall, 90.9 percent passed. Of the 48 students enrolled in the spring, 93.7 percent passed.

Project met objectives.

- As a result of participating in this program, 75 percent of the students will achieve a passing grade of 75 in jewelry on teacher-made final examinations.

Five students took a course in which they designed and made jewelry. All received grades higher than 90.

Project met objective.

### Participation in Extracurricular Activities

Project Aprendizaje students participated in an International Food Festival, a Sports Night, and a Latin American Festival. Project staff moderated the Latin American Club, whose more than 70 members were drawn predominantly from among project students.

- By June 30, 1991, students in the program will have a rate of participation in extracurricular activities at least equal to that of the mainstream students.

The project did not provide data on mainstream students' rate of participation in the school's many extracurricular activities.

OREA could not evaluate objective.
Attendance

- By June 30, 1991, students in the program will have a rate of attendance at least equal to that of the mainstream students.

Project students had an attendance rate of 92.19 percent, whereas the schoolwide attendance rate was 81.39 percent. The difference between the proportions was statistically significant (p<.05).

Project met objective.

Suspension Rate

- By June 30, 1991, students in the program will have a suspension rate no greater than that of the mainstream students.

The project reported there had been 40 suspensions out of 2,095 non-project students (1.9 percent). Two project students out of 290 were suspended during the same period (0.7 percent).

Project met objective.

Dropout Prevention

The bilingual guidance counselor kept an open door for project students. Those with apparent family or social problems were called in for counseling and referred, if necessary, to outside agencies.

- Program students will have a dropout rate no greater than non-program students.

The dropout rate for program students was 4.1 percent (N=290) and for mainstream students 8.1 percent (N=3,320).

Project met objective.

Staff Development

- By January 30, 1991, 100 percent of Project Aprendizaje personnel will have participated in staff development activities, in-service training workshops, and departmental meetings.

The project submitted the minutes from its monthly departmental meetings, at which a variety of professional topics were discussed. All project staff attended most of these meetings.

Project met objective.

- By June 30, 1991, all the educational assistants will have completed a minimum of six credits toward a bachelor's degree or training in a field relating to bilingual education.

All the Title VII educational assistants completed at least six credits toward an undergraduate degree.

Project met objective.
• By January 30, 1991, 100 percent of the professional staff will have attended a regional or national conference, meetings, seminars, colloquiums and workshops in the field of bilingual education.

All professional staff attended workshops organized by the Office of Bilingual Education and by the New York Multifunctional Resource Center at Hunter College.

Project met objective.

Newsletter

• By the end of the year, two newsletters will be published describing the aims, goals, and implementation procedures of the program.

The project published one issue of "La Voz Latina," a twelve-page newsletter that included poetry and prose by participating students. Budgetary difficulties prevented the publication of a second issue.

Project partially met objective.

Parental Involvement

• The Bilingual Parent Advisory Council (BPAC) will have at least four meetings during the school year with an attendance of at least 50 percent of the BPAC members.

The project held four parent meetings but did not report the membership of the council or record their attendance separately from that of the parent-teacher conferences.

OREA could not evaluate objective.

• Students' parents will be contacted by telephone, mail, newsletters, or home visits by the family assistant to inform them of their children's program activities.

The project published a newsletter. The social worker fulfilled the function of a family assistant, making home visits and telephone calls to families when necessary.

Project met objective.

• By the end of the school year, there will be an increase in the number of parents attending parent-teacher day/night conferences.

The project did not keep records for all conferences.

OREA could not evaluate objective.

Support Services

• Students with special needs (e.g. academic, linguistic, psychological, economic) will meet the guidance counselor at least once monthly.

The project reported that the bilingual guidance counselor met at least once monthly with those students who had academic or psychological needs. The project did not report how it identified the students who had special needs.

Project met objective.
All graduating students will meet with the career counselor for advisement at least four times during the school year or as many times as necessary to help the student.

All graduating students met at least four times with the college advisor, who also gave presentations to the Latin American Club.

Project met objective.

**STUDENTS WITH SPECIAL ACADEMIC NEEDS**

<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referred to special education:</td>
<td>0</td>
</tr>
<tr>
<td>Referred to remedial programs:</td>
<td>0</td>
</tr>
<tr>
<td>Referred to gifted and talented programs:</td>
<td>0</td>
</tr>
<tr>
<td>Retained in grade:</td>
<td>26</td>
</tr>
</tbody>
</table>

A School-Based Support Team (S.B.S.T.), comprised of an educational evaluator, a school psychologist, and a social worker who was bilingual in Spanish evaluated students referred for special education. Students who needed special services received one daily period of instruction in a bilingual resource room operated by the special education staff.

The project had no formal programs for gifted and talented students; students had an opportunity to apply for fellowships to study ballet with the Annabella Gonzalez Theatre and Dance Group.

**MAINSTREAMING**

Nineteen students (6.6 percent of the participants) were mainstreamed at their parents’ request after scoring above the 40th percentile on the LAB.

Academic Achievement of Former Project Students in Mainstream

Data were not available on the 33 program participants who had been mainstreamed in the previous year.

**CASE HISTORY**

Pedro immigrated from the Dominican Republic in 1988 and entered the ninth grade at Seward Park High School that fall. Since he knew some English, he was placed in the second stage of the beginning level of E.S.L. He excelled in his other subjects. He spent most of his free periods in the project office and tutored his classmates there—first in the content area subjects and, as his own grasp of English improved, in E.S.L. The courses he took in computer literacy and business education led him to decide to pursue computer science as a career field. Attending summer school and night school enabled him to graduate early, in June 1991, and he went on to City College.
APPENDIX A
DATA COLLECTION AND ANALYSIS

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.

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. (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 determine 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. The level of significance is set at .05 for all tests.
APPENDIX B

INSTRUCTIONAL MATERIALS FOR THE CONTENT AREAS

Social Studies

**Nueva Historia de los EE.UU.**
Baker, Linden, et al.
Editorial Minerva

**Historia Antigua y Media**
Selzer, Serran-Pagan

**Historia Universal**
Marban

**Europa, Africa, Asia, y Australia**
Martinez, Bartoli

**Comprende tu Mundo**
K. Cooper

**Bilingual Glossary of Social Studies**
Killoran, Zimmer

**Africa**
N.Y.C. Public Schools

**El Medio Oriente**
Barron’s Educational Series (Pamphlets)

**China**
Barron’s Educational Series (Pamphlets)

**Japón**
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**Biology** (1986)
Schaerer & Stoltze

**Biología** (1968)
Smallwood & Green

Addison-Wesley

Allyn & Bacon