

## Literacy development in high school English language learners

**Anna Uhl Chamot**

*The George Washington University*

High school English language learning (ELL) students with little schooling in their native countries face severe obstacles to school achievement in the United States. The most critical of these obstacles is limited literacy in both their native language and English. In contrast, students who arrive well-prepared academically and highly literate in a language other than English possess conceptual knowledge and skills such as reading and writing that can be transferred from their native language. Adolescent students lacking an appropriate educational background must develop literacy as quickly as possible so that they can use reading and writing as learning tools to acquire the concepts and skills they have missed by not having had access to formal schooling in their native countries (Chamot 1998). Information about effective instructional practices for developing literacy with high school English language learners is lacking, yet a significant number of non-English-speaking students with limited or no native language literacy are currently enrolled in secondary schools (Chamot, Keatley, and Schiavone 1997). These students come from countries that include, but are not limited to, Spanish-speaking areas and some parts of Africa. The reasons for students' lack of prior schooling are in most cases due to war, civil unrest, cultural customs, or a combination of these factors.

The most effective and efficient approach to developing literacy in English for secondary students lacking native language reading and writing skills is an unresolved question. Much more is known about young children's second language literacy development. While research points to the desirability of developing literacy first in young children's native language so that they can transfer reading and writing skills to English (August 1998; Collier 1992; 1995; Crawford 1997; Krashen 1993; Ramírez 1992; Thomas and Collier 1999), little is known about the most effective instructional approach for adolescent students. Logic indicates that older English language learners, like their younger counterparts, would find it much easier to learn to read and write first in the language they can already speak, and that skills developed in the first language could be transferred to literacy acquisition in the second language. However, there has not yet been any research to confirm this hypothesis. It could be that secondary school English language learners' developmental and cognitive maturity facilitates literacy acquisition

directly in English. Adolescent attitudes and motivation are also developmentally different from those of young children. Since teenagers are attempting to establish both independence and a sense of their own individuality, they might be less likely to accept what they may perceive as a slower path to English literacy by developing initial literacy in their native language.

This paper reports on an ongoing study that is examining the effects of language-of-literacy instruction on the development of English literacy in low-literacy Spanish-speaking adolescent students.<sup>1</sup> The results of this study will have applications to all populations of older students with limited native language literacy.

**Background and Research Questions.** High levels of literacy are essential for meeting the nation's needs for productive citizens and workers in the new century, yet many immigrant youth are unable to complete high school because they lack the academic language and literacy skills needed for successful school achievement. Of these, the largest group comes from Spanish-speaking countries, comprising about 75% of limited English proficient students in the United States (U.S. Department of Education 1992). School-aged students with Spanish language backgrounds comprise about 12% of all students in U.S. schools (NCES 1995). The school dropout rate for students who did not speak English well was over 35% for Spanish-speaking students aged sixteen through twenty-four in 1991 (NCES 1993). For students who did not speak English at all, the dropout rate in 1992 was over 83% (NCES 1994). Only one in ten recent immigrant youth were enrolled in college in 1989, and of these, Spanish speakers were half as likely to enroll in college as other immigrants (NCES 1994).

Since published information about numbers of low-literacy immigrant students enrolled in secondary schools was not available, a telephone survey was conducted of the twenty-nine school districts in the United States with the largest numbers of English language learners (Chamot, Keatley, and Schiavone 1997). Each school district was asked the number of secondary school students enrolled in ESL and/or bilingual education programs. Then, the school district was asked what percentage of this number had been identified as having limited literacy in their native language. The responses were tallied, with the result that just over 10%, or 17,579 students out of a total of 172,128 secondary school ESL students, were identified as low literacy. This survey and the other statistics cited paint a bleak picture of the current prospects for Spanish-language background students to complete high school and continue into college. The picture is equally bleak for low-literacy students with other language backgrounds.

Educators acknowledge the need for identifying effective instructional practices for low-literacy adolescent English language learning (ELL) students. The research of Cummins (1981, 1984, 1993, 1996) and Collier (1992, 1995) has documented the length of time needed for ELL students to reach grade-level norms in school achievement. The average number of years ranges from four to seven for

students with schooling in their native language, to up to ten years for students without native language schooling. Since older students do not have an extended time period to develop academic English skills, it is important to find ways to accelerate their literacy development and, through literacy, their access to the academic curriculum.

One instructional approach is to develop literacy first in the students' native language so that they can transfer reading and writing skills to English. Extensive research supports the transfer of literacy from a first language (L1) to a second language (L2), and it may be that explicit instruction in learning strategies for reading and writing can increase students' ability to transfer comprehension and composition skills from L1 to L2.

Literacy and transfer of skills from L1 to L2 have been studied thoroughly with elementary school students. The most extensive study of K–6 students to date found that students provided with extensive native language instruction would eventually reach higher levels of achievement than students who are exited quickly into all-English instruction, and that the native language instruction did not hinder the acquisition of English literacy (Ramirez 1992). However, the gains favoring a bilingual approach only appear over the long term, as in the first few years of English acquisition, students receiving all-English instruction appear to be making faster progress (Collier 1992; Thomas and Collier 1999).

We do not know if the research findings at the elementary school level will hold equally true for secondary school students. In addition to the factors mentioned above involving differences in level of cognitive development and possible motivation issues for older students, there are practical concerns as well. Most school districts do not have the resources or licensed teachers needed to provide native language instruction at the high-school level in subjects such as mathematics, science, and social studies. Therefore, at this secondary level, it would be an easier task to provide native language support rather than a complete bilingual curriculum. This support could consist of intensive literacy development in students' native language coupled with explicit instruction on ways to transfer skills to English. On the other hand, given the short number of years that secondary students are in school before they can legally drop out, it may be more beneficial to provide them with intensive instruction in literacy exclusively in English in the hope that initial faster progress (if this holds true as for elementary students) will foster feelings of success that will motivate students to stay in school. These as yet unanswered questions are being investigated by Project Accelerated Literacy (PAL).<sup>2</sup>

In addition to the need for identifying the most effective instructional approach for low-literacy adolescent ELL students in general, effective instruction for ESL students with special needs also has to be considered (Brice and Roseberry-McKibbin 1999). Identifying special needs of native language low-literacy and non-English speaking students is especially challenging, as it is

difficult to separate difficulties due to limited literacy and those caused by other factors. Culturally and linguistically diverse students continue to be both over- and under-represented in special education classes (Baca and de Valenzuela 1998). This is of concern, because students receiving inappropriate placement are more likely than others to fail.

Low-literacy ESL students may be over-identified for special education through the use of literacy skills as the main criteria for assessing cognitive development. Similarly, under-identification of ELL students who really need special education services is equally serious. Educators have been known to misinterpret the work of Cummins (1981, 1984, 1996) and Collier (1987, 1989), citing their research as a reason for not referring ELL students to special education assessment under the mistaken idea that ELL students may somehow outgrow a real disability as they develop academic proficiency in English. For such ELL students, early intervention is needed and special education services would be beneficial.

These special education issues are an important component of Project Accelerated Literacy (PAL)<sup>3</sup> in its investigation of the impact of all-English literacy instruction (referred to as the monolingual condition) compared to English literacy instruction with native language support (referred to as the bilingual condition). No comprehensive research studies on the acquisition of English literacy have previously been conducted with adolescents with low literacy in their native language. The PAL study is documenting how Spanish-speaking adolescents with low or no literacy in their native language acquire literacy in English in each of the two conditions and the relationship of each condition to referrals for special education. The research questions for the PAL study are as follows:

1. Do low-literacy, adolescent, limited-English-proficient, Spanish-speaking students make greater gains in English literacy in one school year in a bilingual condition (instructional support in Spanish) or in a monolingual condition (instruction in English alone)?
2. Are there differences in self-efficacy between bilingual and monolingual groups?
3. Is instruction in each language perceived as effective by (a) teachers and (b) students?
4. After one year of instruction, are there differences between students in the monolingual and bilingual instruction conditions in the development of cognitive abilities/skills associated with the development of literacy, such as phonemic awareness, speed of semantic processing, complexity of elaboration while reading, and use of learning strategies?
5. In examining the relationship between the two instructional conditions (bilingual and monolingual) and students with special needs,

- a. What is the rate of referral of students for special education assessment in the monolingual and the native language support classes?
- b. How confident are teachers in each approach in identifying students with special needs?
- c. Do participating teachers refer students they suspect have special education needs for special education assessment during the year of instruction? Why or why not?
- d. Are participating teachers receiving support from special education services (such as special education, speech and language, occupational therapy, physical therapy, or counseling)?
- e. Do students' levels of phonemic awareness in Spanish have a relationship to teachers' perceptions of special education needs?

**Research Design Overview.**<sup>4</sup> The PAL study is primarily a pretest–post-test design with two experimental conditions. The independent variable is language(s) of literacy instruction, which has two levels: English monolingual instruction and English instruction with native language support. The impact of language of instruction on the dependent variables will be measured separately for each variable. The dependent variables are: (a) level of skill in reading and writing in English (RQ #1), (b) feelings of self-efficacy related to literacy in English (RQ #3), and (c) proportion of students referred for special education (RQ #5).

The study is being conducted over a three-year period (1997–2000). In the first year, participating teachers completed two graduate level courses at the George Washington University (GWU) as preparation for implementing the literacy curricula in the second year. This same process is being repeated in the second year with a new cohort of teachers, who will then implement the curricula in the third year. During the implementation years, teachers enroll in a six-credit-hour graduate practicum course at GWU in which their classes are observed and they meet for a biweekly seminar. The two cohorts of students (years 2 and 3) will be combined for data analysis purposes to increase the size of study participants. This is necessary because of the high rate of attrition of low-literacy high school ELL students.

**Context and Participants.** The PAL study is being conducted in a linguistically and ethnically diverse setting. Participants include high school ESL teachers and their beginning-level students with low native language literacy.

*Context.* Three school districts in the Washington, D.C., metropolitan area, representing both urban and suburban settings, are participating in the study. The school districts have been receiving large numbers of immigrant students for a number of years and are therefore experienced in meeting the needs of ELL students. Across the three school districts, approximately 130 different languages are

represented in the ELL population. Of these, the predominant (about 75%) language background is Spanish. In recent years, each school district has become aware of the needs of older immigrant students with limited prior education and have established “literacy” or “special needs” classes where numbers of students are sufficient to support a separate class. These classes are likely to be composed of predominantly Spanish-speaking students, though they may also include speakers of languages such as Somali or Amharic. Within each class, students are at different literacy levels in their native languages, though all are beginners in acquiring English proficiency. Students in literacy classes may arrive or leave at any time during the school year, and the number of students in a class at any given time may range from four to fifteen. These factors, among others, make both teaching and research extraordinarily challenging.

*Teacher Participants.* Teachers in the PAL study are certified in teaching English as a second language (TESL) in their respective school districts and have been recommended for project participation by their school district and/or by GWU faculty. Teachers in the native language support condition are fully bilingual in Spanish and English. All PAL teachers are completing twelve graduate credit hours during their participation in PAL. This course work is designed to acquaint teachers with issues and approaches in literacy instruction for adolescent ELL students, to reach consensus on instructional approaches, and to develop monolingual and bilingual literacy curricula. Fourteen teachers are participating in the study over the two years of implementation of instruction.

*Student Participants.* Students in the PAL study are native-Spanish speakers, aged fourteen to twenty, and enrolled in public high schools in participating school districts in the Washington, D.C., area. All student participants have been identified by their school districts as low literacy, meaning that they have experienced significant gaps in their prior education, making enrollment in the regular beginning ESL class impossible. Native countries represented by participating students are El Salvador, Bolivia, Nicaragua, Honduras, Guatemala, Mexico, and the Dominican Republic. Parental permission was obtained for all study participants younger than eighteen, and informed consent to participate in the study was given by students eighteen and older.

Twenty-nine students participated in the first year’s cohort, and forty-five were in the second year’s cohort. The attrition rate was about 25 percent and was due to factors such as returning to the native country, moving to a different location, or dropping out of school.

*Instruments.* Measurement instruments are standardized measures, instruments developed by adapting instruments used in previous studies, and instruments developed for this study. They include:

1. *The Woodcock Language Proficiency Battery—Revised: Spanish and English Forms*;
2. *The Language Assessment Scales—Reading and Writing, Spanish and English*;
3. a researcher-constructed reading test in English with oral recall and comprehension questions in Spanish;
4. a think-aloud protocol conducted in Spanish to reveal learning strategies used when reading in English;
5. a test of phonemic awareness in English and Spanish that includes segmenting, blending, and deleting initial phonemes and rimes in single syllable words;
6. an oral questionnaire-interview (administered in Spanish) designed to elicit personal history and background information;
7. the Pintrich Motivation Strategies Questionnaire (MSQ), translated and adapted;
8. a protocol for interviews with teachers to assess their perceptions of the effectiveness of instruction in the language conditions in which they have participated;
9. a protocol for interviews with teachers to assess their perceptions of the special education needs of the students in their classes; and
10. a questionnaire/interview (bilingual) to assess students' perceptions of the effectiveness of instruction in literacy in the particular language condition in which they participate.

**Procedures.** The components of the PAL study include development and implementation of a monolingual and a bilingual curriculum; professional development of teachers; pre- and post-testing of students' literacy skills to assess the impact of each curriculum; and an investigation of how each curriculum affects special education students.

*Professional Development of Teachers and Instructional Model.* In order to maintain as much consistency as possible in instruction across classrooms, a common curriculum is being implemented. This curriculum has two versions: One provides instruction exclusively in English (the monolingual curriculum), and the other provides the same curriculum with native-language support (the bilingual curriculum). It was considered important to involve teachers in the curriculum development process for two major reasons. First, the expertise of ESL teachers experienced in working with literacy students provided invaluable practical insights for meeting student needs. Second, we believed that teachers would be more likely to implement a curriculum that they had had a hand in developing. The curriculum development process took place during the first two graduate-level courses ("Foundations of Reading Development" and

“Diagnostic Teaching of Reading in the Secondary School”) completed by participating teachers.

During the first course, it became apparent that teachers from participating school districts had differing philosophical and methodological views. Some of the teachers were strong proponents of a whole-language approach to literacy development; others argued in favor of a phonics-based approach. This issue was resolved through discussion and study of relevant research, and a decision was reached to develop a balanced reading approach that would include reading authentic texts and practicing word attack skills in context. In addition, vocabulary development and explicit instruction in learning strategies for reading and writing are provided in each lesson.

The instructional model underlying the curriculum is based on a cognitive approach in which learners are viewed as active and strategic processors of information and skills. The balanced reading approach acknowledges that different individuals have unique needs and learn in different ways and at different rates. A rich variety of learning experiences is an essential component of learner-centered literacy development. The Cognitive Academic Language Learning Approach (CALLA) is used as the instructional model for developing and implementing the PAL curriculum. This model integrates appropriate content topics, development of academic language, and instruction in learning strategies (Chamot 1996; Chamot and O’Malley 1994; Chamot et al. 1999). CALLA lesson organization is in five recursive phases. In the first, *preparation*, the focus is on identifying and building students’ prior knowledge of the lesson’s content. In the second phase, *presentation*, teachers use a variety of techniques to make new information and skills accessible and comprehensible to students, such as demonstrations, modeling, and visual support. This is followed by or integrated with the third phase, *practice*, in which students use the new information and skills (including learning strategies) in various activities. The fourth phase of the CALLA instructional design sequence is *evaluation*, in which students assess their own level of understanding and proficiency with the content and skills they have been practicing. Finally, in the fifth phase, *expansion*, students engage in activities that apply what they have learned to their own lives, including other classes at school, families and community, and their cultural and linguistic background. Because these five phases are recursive, lesson planning is flexible and can be adjusted to focus on specific lesson objectives. The CALLA model has proven to be an effective organizational tool for developing the PAL literacy curriculum.

Teachers decided on the scope and sequence of content topics, which include typical beginning ESL topics (e.g., school, weather, seasons, clothing, daily activities, family, home) and some content-based topics (e.g., health, community, the senses and observation in science, geography). Teachers worked in cross-school district groups to develop thematic units for each topic. These units went through an extensive revision process as teachers and researchers worked together to

create a balanced literacy curriculum for an entire school year. The first cohort of teachers developed thematic units for approximately three quarters of the school year, and the second cohort developed units for the last quarter. Table 1 describes the types of activities included in each thematic unit.

In addition to planning the lessons for each unit, teachers and researchers also conducted a comprehensive search for appropriate instructional materials. Most important was the selection of reading materials for both class reading and classroom libraries for independent reading. The final selection included trade books in both English and Spanish and school-district developed storybooks in English and in English and Spanish. Genres included in the books selected are realistic fiction, folktales and legends, informational texts, and children's literature appropriate for older learners. Students read these materials in class and engage in a number of reading activities, such as making story maps, identifying

**Table 1.** PAL curriculum scope and sequence

---

Lessons address objectives in the following categories:

<b><i>Content</i></b>	school, feelings, weather, foods, geography, science
<b><i>Patterns</i></b>	<i>be</i> , pronouns, plurals, <i>a/an</i> , contractions, questions, negations
<b><i>Word Attack</i></b>	names and sounds of letters, word families, syllabification, blending sounds, silent "e"
<b><i>Writing</i></b>	writing letters of the alphabet, handwriting, punctuation, spelling, clear expression, journals, personal experiences, stories, poems
<b><i>Reading Comprehension</i></b>	understanding factual information, identifying elements of a story, finding main idea, identifying fiction and non-fiction, reading for pleasure
<b><i>Vocabulary</i></b>	receptive vocabulary development, meaning and spelling of core vocabulary in each content area
<b><i>Learning strategies</i></b>	decoding, identifying patterns, using imagery, cooperating with peers, using cognates, predicting, making inferences, planning, revising

---

main ideas, retelling, and writing personal reactions. In addition, the classroom libraries are used for regular periods of sustained silent reading (SSR).

Materials used for teaching vocabulary, word attack skills, language patterns, learning strategies, and writing have been developed by the teachers and researchers. Table 2 illustrates the time allotments in each daily ninety-minute period in the bilingual and monolingual classrooms.

In the bilingual condition, the portion of the lesson in Spanish is designed to teach concepts and skills needed for the English part of the lesson. In addition, during the Spanish part of the lesson, students have opportunities to enjoy literature from their own cultural background, to learn about different genres and basic

**Table 2.** Monolingual and bilingual lesson time allocations

1. Each of four weekly ninety-minute lessons is organized as follows

<b>English Monolingual</b>		<b>Spanish Support (Bilingual)</b>	
Warm-up	5 minutes	Spanish Patterns: Word Attack	15 minutes
Content/Patterns	30 minutes	Spanish Reading and Writing	15 minutes
Word Attack	15 minutes	English Warm-up	5 minutes
Additional Practice Activities	20 minutes	English Content and Patterns	30 minutes
Reading and Writing	20 minutes	English Word Attack	10 minutes
		English Reading and Writing	15 minutes

2. On the fifth day of each week, the 90-minute lesson is structured by the teacher and includes activities such as:

Writing Projects  
Sustained Silent Reading  
Review Activities  
Assessment Activities

literary analysis, and to compose their own stories and poems. Learning strategies for reading and writing are taught in the Spanish portion of the lesson and reintroduced during the English part for additional practice and to encourage transfer. Grammatical contrasts and similarities between the two languages are also addressed during the Spanish portion of the lesson. After about thirty minutes of instruction in Spanish, the bilingual teacher switches to English and teaches the same activities as in the monolingual English classes, though somewhat less time is allocated to some activities (see table 2).

In the monolingual English condition, slightly more time is allocated to word attack (five minutes) and reading in English (five minutes) than in the bilingual condition. In addition, up to twenty minutes of additional practice activities are available in the English condition. The extra thirty minutes devoted to these types of activities in the English monolingual condition provide for additional explanation, modeling, demonstration, and practice that are necessary when native-language support is not provided.

Both the monolingual and the bilingual curricula were implemented by participating teachers. Classroom observations by researchers were conducted on a regular basis, and teachers met with researchers in a biweekly seminar. This seminar served as a vehicle for identifying any difficulties encountered with the curriculum, sharing of information about student progress, and suggesting ideas to be incorporated in future weeks of the curriculum. An issue that concerned both teachers and researchers was the need for each teacher to teach the curriculum as written, rather than to make spur-of-the-moment individual adaptations. In order to make valid comparisons across classrooms, it was felt necessary to keep the instruction as parallel as possible, so teachers were asked to follow the curriculum lesson plans exactly as they and the researchers had developed them. In order to provide teachers with some flexibility and opportunities for creativity and “teachable moments,” lessons were planned for only four days in each week. Teachers used the fifth day in any way they liked—for review, sustained silent reading, writing projects, catching up, or additional practice activities. In addition, any requests by teachers for modifications, substitutions, or additions were incorporated into future lessons. We told teachers, “Please don’t change this week’s lessons. But tell us the changes you think are necessary, and we will incorporate them into next week’s lessons.”

*Data Collection.* The impact of language-of-instruction on reading and writing in English will be measured by (1) the *Woodcock Language Proficiency Battery—Revised, English and Spanish Forms*, (2) the *Language Assessment Scales (Reading and Writing), English and Spanish*, (3) an experimenter-constructed test on reading in English that measures recall and comprehension (literal, inferential, and critical) (post-test), (4) a think-aloud interview with students (in Spanish as they read in English) that is designed to reveal their learning strategies (post-test),

(5) a test of phonemic awareness in Spanish and English that includes ability to segment, blend, and delete onsets and rimes in single syllable words, and (6) writing samples in English and Spanish.

Feelings of self-efficacy are measured using (1) a translated, modified version of the Pintrich Motivation and Strategies Questionnaire (MSQ) and (2) specific direct questions about feelings of self-efficacy, motivation to study English, and students' perceptions of their parents' or guardians' attitudes about the importance of studying English, accompanied by Lickert-like scales.

Background information was collected at the beginning and end of each year on each student through individual interviews. These include information such as country of origin, age, educational history, interests, hobbies, work, family, family literacy, friends, feelings about moving to the United States, feelings about school in the United States, attitudes towards native language support in their ESL class, perception of parents' attitudes toward native language support, and plans for the future. Students are also asked about what other classes they take, whether any assistance is provided to help them understand the content of these classes, and how much they believe they have learned in these classes. This extensive structured interview is providing qualitative information to supplement the quantitative data collected through standardized measures.

Additional quantifiable qualitative information was collected at the end of each school year through student and teacher evaluations of the language-of-instruction condition in which they participated. This information was collected through structured individual interviews with all participating students and teachers.

A sample of students from the first cohort (1998–1999) was studied during the next school year (1999–2000) to determine the effects over time of the literacy instruction provided with and without native language support. These follow-up students were interviewed using some of the same instruments as those for the 1998–1999 cohort.

Structured interviews were conducted with all participating teachers to record their perceptions of the effectiveness of the language-of-instruction conditions. Teacher evaluations of effectiveness will be compared across language-of-instruction conditions (RQ #3a). A questionnaire or interview was completed by participating students to record their perceptions of the effectiveness of the language-of-instruction condition in which they participated. The student responses to the questionnaire also will be compared across language-of-instruction conditions (RQ #3b).

The impact of language-of-instruction on referrals to special education will be evaluated through (1) the proportion of students in the study actually referred by teachers in the study for special education evaluation, (2) the proportion of students in the study who were suspected by participating teachers of perhaps having

special education needs (whether they were referred or not), (3) the proportion of students in the study who were referred to special education and received evaluations as needing special education services. Case studies of students suspected of needing special education services will be conducted using the data collected on reading, writing, and phonemic awareness in English and Spanish.

The proportion of students referred either during or directly after one year of instruction will be calculated and compared across the two language-of-instruction conditions (RQ #5).

*Summary of Procedures.* Research questions 1 and 5 (the effects of language-of-literacy instruction on literacy attainment in English and on the proportion of students referred to special education), constitute the basis of the research. Research questions 2 (self-efficacy) and 4 (development of cognitive skills related to literacy) focus on testing possible explanations for differences in student performance or referral rates in the two language-of-instruction conditions. An examination of the development of these factors may reveal why one language condition may be more effective than another in teaching English literacy to ELL students. Research question 3 (teacher and student perceptions) is included as a check on the more formal assessment measures and as a source of qualitative information about literacy education in the two language-of-instruction conditions.

Pretest data for the first cohort of students were collected in September 1998, and post-test data for this group were collected in May 1999. The process was repeated in the 1999–2000 school year, and data from the two cohorts were collapsed and are being analyzed.

**Significance of the PAL Study.** This study will provide important information about instruction for low native-language literacy, beginning-level ESL students. The study is wide-ranging in the types of measures used to assess student learning and motivation, yet it is focused on only one difference in the literacy curriculum implemented: the presence or absence of native language support. The study is controlling variability of instruction across classrooms by using a set of detailed lesson plans that are followed by participating teachers. We do not expect the results of this study to be simple. Rather, a complex interaction between literacy development and instructional approach will likely be evident. A better understanding of the relationship between language of instruction and special needs students will be another outcome of this study. The findings of the PAL study will provide the groundwork for future research with low native language literacy secondary school populations. This study will also have implications for the professional development of ESL and bilingual secondary teachers and for curriculum development at this level.

## REFERENCES

- August, Diane. 1998. Attributes of effective schools and classrooms for English language learners. In María del Rosario Bastera (ed.), *Excellence and equity for language minority students: Critical issues and promising practices*. Chevy Chase, MD: Mid-Atlantic Equity Consortium. 27–42.
- Baca, Leonard, and J. S. de Valenzuela. 1998. Development of the bilingual special education interface. In Leonard M. Baca and Hermes T. Cervantes (eds.), *The bilingual special education interface*, 3rd edition. Upper Saddle River, NJ: Prentice Hall. 98–118.
- Brice, Alejandro, and Celeste Roseberry-McKibbin. 1999. Turning frustration into success for English language learners. *Educational Leadership* 56(7): 53–55.
- Chamot, Anna Uhl. 1998. Effective instruction for high school English language learners. In Russell M. Gersten and Robert T. Jiménez (eds.), *Promoting learning for culturally and linguistically diverse students: Classroom applications from contemporary research*. Belmont, CA: Wadsworth. 187–209.
- Chamot, Anna Uhl. 1996. The Cognitive Academic Language Learning Approach (CALLA): Theoretical framework and instructional applications. In James E. Alatis (ed.), *Georgetown University Round Table on Languages and Linguistics 1996*. Washington, DC: Georgetown University Press. 108–115.
- Chamot, Anna Uhl, Catharine Keatley, and Janet Page Schiavone. 1997. Literacy development in adolescent English language learners. Proposal submitted to Field-Initiated Studies Educational Research Grant Program, National Institute on the Education of At-Risk Students, U.S. Department of Education Office of Educational Research and Improvement, Washington, DC.
- Chamot, Anna Uhl, and J. Michael O'Malley. 1994. *The CALLA handbook: Implementing the cognitive academic language learning approach*. White Plains, NY: Addison Wesley Longman.
- Chamot, Anna Uhl, Sarah Barnhardt, Pamela Beard El-Dinary, and Jill Robbins. 1999. *The learning strategies handbook*. White Plains, NY: Addison Wesley Longman.
- Collier, Virginia P. 1987. Age and rate of acquisition of second language for academic purposes. *TESOL Quarterly* 21:617–641.
- Collier, Virginia P. 1989. How long? A synthesis of research on academic achievement in a second language. *TESOL Quarterly* 23:509–531.
- Collier, Virginia P. 1992. A synthesis of studies examining long-term language minority student data on academic achievement. *Bilingual Research Journal* 16 (1-2):187–212.
- Collier, Virginia P. 1995. Acquiring a second language for school. *Directions in language and education* 1:4. Washington, DC: National Clearinghouse for Bilingual Education.
- Crawford, James. 1997. *Best evidence: Research foundations of the Bilingual Education Act*. NCBE Report. Washington, DC: National Clearinghouse for Bilingual Education.
- Cummins, Jim. 1981. Age on arrival and immigrant second language learning in Canada: A reassessment. *Applied Linguistics* 2:132–149.
- Cummins, Jim. 1984. *Bilingualism and special education: Issues in assessment and pedagogy*. Clevedon, England: Multilingual Matters.
- Cummins, Jim. 1993. Bilingualism and second language learning. *Annual Review of Applied Linguistics* 13:51–70.
- Cummins, Jim. 1996. *Negotiating identities: Education for empowerment in a diverse society*. Ontario: California Association for Bilingual Education.
- Krashen, Stephen. 1993. *The power of reading*. Englewood, CO: Libraries Unlimited.
- National Center for Educational Statistics (NCES). 1993. *Digest of education statistics*. Washington, DC: U.S. Department of Education.
- National Center for Educational Statistics (NCES). 1994. *The condition of education: 1994*. Washington, DC: U.S. Department of Education.

- National Center for Educational Statistics (NCES). 1995. *The educational progress of Hispanic students*. Washington, DC: U.S. Department of Education.
- Ramírez, J. David. 1992. Executive summary. *Bilingual Research Journal* 16: 1–62.
- Thomas, Wayne P., and Virginia P. Collier. 1999. Accelerated schooling for English language learners. *Educational Leadership* 56(7): 46–49.
- U.S. Department of Education. 1992. *The condition of bilingual education in the nation*. Washington, D.C.: U.S. Department of Education.

## NOTES

1. This study was funded by the Office of Educational Research and Improvement, U.S. Department of Education, under Grant # R306F970037. The content of this document does not necessarily reflect the views of the Department of Education or of any other agency of the U.S. government.
2. The research team at the George Washington University that participated in this study includes Anna Uhl Chamot, principal investigator; Amy Mazur, co-principal investigator; Catharine W. Keatley, senior researcher; Kristina Anstrom, project director; and research associates and assistants Mary Adonis, Teresa Jardines, Ximena Márquez, and Jennifer Simons. I would like to express my appreciation to these colleagues and also to the fourteen teachers who worked on the project.
3. The special education component of the PAL study was directed by Amy Mazur.
4. Catharine W. Keatley had primary responsibility for the research design of the PAL study.