

Research-Based Academic Skills and Strategies for Newcomers

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Adolescent immigrant students with limited prior educational experiences must develop reading, writing, and other literacies as quickly as possible so that they can use these skills 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 the characteristics of these students and effective instructional practices for developing their literacy is sparse, yet school districts with large populations of English language learners report a significant number of recent immigrants in middle and high school with limited native language literacy skills (Chamot, Keatley, & Schiavone, 1997). These students arrive from countries that include Spanish-speaking areas as well as many other areas of the world. Students' limited prior schooling can be due to a variety of situations, including limited access to schools, disruptions caused by war and civil unrest, cultural customs, or a combination of these factors. These students are not only beginning English learners but beginning readers and writers as well. Secondary teachers are rarely prepared to teach initial literacy and so must rely extensively on published materials or develop their own.

The development of *Keys to Learning* grew out of a three-year, federally-funded research investigation, *Project Accelerated Literacy (PAL)* (Chamot, Keatley, Mazur, Anstrom, Marquez, & Adonis, 2000). This study was the first to investigate the English literacy development of adolescent English language learners with limited native language literacy. The goals of this scientifically-based research study were to:

- Describe the characteristics of low literacy secondary English language learners with limited education in their native language;
- Develop and implement an effective English as a second language (ESL) literacy curriculum to meet the needs of beginning level English language learners with significant gaps in their prior education;
- Identify teacher and student attitudes towards the curriculum; and
- Document student gains in literacy over one school year, using a variety of standardized and non-standardized measures.

This article reports on the characteristics and progress of the students, the development and implementation of the literacy curriculum, teacher and student attitudes, and insights gained from classroom observations.

Context and Participants in the Study

Four school districts in the Washington, DC metropolitan area, representing both urban and suburban settings, participated in the study. These school districts had been receiving large numbers of immigrant students for several years, and were therefore experienced in meeting the needs of English language learning (ELL) students. Across the four school districts, more than 120 different languages were represented in the ELL population. Of these, the major language background was Spanish (about 75%).

In recent years, each school district had become aware of the needs of older immigrant students with limited prior education, and had established "literacy" or "special needs" classes designed to provide focused instruction prior to the beginning level ESL course. These classes were composed predominantly of Spanish-speaking students, though some included speakers of languages such as Somali or Amharic. Within each class, students were at different literacy levels in their native languages, though all were beginners in acquiring English proficiency. The number of students in these literacy classes fluctuated during the school year, as new students arrived and other students were promoted to the next level, left the school district, or dropped out of school. These factors, among others, made both teaching and research extraordinarily challenging.

Two cohorts of highly experienced ESL teachers and their students were each studied for an academic year. Fourteen teachers in total participated in the study. The number of students at pretest was 98, ranging in age from 13 to 20, but by posttest there had been a 25% attrition rate.

Data collected included interviews with students and teachers, student pre- and posttest scores on standardized reading and writing tests, bi-weekly feedback and curriculum revision from teachers, classroom observations, and learning strategy think-aloud interviews with students at posttest.

Student Characteristics

Fall interviews with students revealed that they came from both urban and rural areas in their native countries, and that many of their mothers (40%) and some of their fathers (18%) had only primary grade schooling or less. Although all but one of the students had attended school in their native country, the mean grade completed by the entire group was just over sixth grade and most reported interrupted prior education or being over-age when starting school.

In addition to interviews, we also tested Spanish-speaking students at the beginning of the school year in both Spanish and English to determine their levels of literacy in each language, using standardized tests that included the *Woodcock Language Proficiency Battery-Revised: English and Spanish*.

The English pretests showed that these students were indeed at the beginning level of English development in areas such as vocabulary, word recognition, reading comprehension, and writing, testing on average at a Kindergarten or first grade equivalent score level.

RESEARCH-BASED ACADEMIC SKILLS AND STRATEGIES FOR NEWCOMERS

Results of the Spanish pretests revealed a much less uniform and more interesting picture, showing a wide range of Spanish literacy levels in the participating students.

For example, students scored well on the subtest *Letter-Word Identification* in Spanish, attaining an average score equivalent to the eleventh grade level and an average score equivalent to sixth grade level on the *Word Attack* subtest. Both of these subtests require an ability to match letters to their appropriate phonemes, that is, decode. The mean scores on these two sub-tests show that most students were skillful decoders in Spanish, as they could recognize the letters in words and the sounds they stood for.

The picture changed, however, when mean grade equivalent scores were examined for the other subtests, in which the mean scores were far below the grade level norm. On the *Picture Vocabulary* sub-test, students' mean oral Spanish vocabulary scores were equivalent to those of native Spanish-speaking fourth graders, and on the *Reading Vocabulary* subtest students had a mean grade equivalent score of 2.6. A conclusion that can be drawn from these findings is that students had not yet developed the range of vocabulary that is essential for skillful reading comprehension. This lack of vocabulary was likely the main reason for the depressed scores on the sub-test *Passage Comprehension*, in which the mean grade level equivalent was third grade. In spite of their skill at decoding in Spanish, students encountered new vocabulary words in reading that prevented them from fully comprehending the text.

The two sub-tests that measured students' writing proficiency, *Dictation* and *Writing Samples*, indicated that most students were performing at second or third grade level in Spanish at pre-test.

In summary, students' scores on the *Woodcock Language Proficiency Battery-Revised: Spanish* revealed considerable variability that was nevertheless consistent with lack of access to appropriate schooling in their native countries. It was clear that PAL students had a weak foundation in Spanish literacy (except for decoding skills) on which to build English literacy skills. This finding was important in developing an English literacy curriculum to meet their needs.

Students were posttested on the same measures after approximately 7 months of instruction using the PAL curriculum described in the next section. We looked at students' average literacy gains between pretest and posttest. These comparisons revealed that students made gains on each of the subtests of the *Woodcock Language Proficiency Battery-Revised: English* (Memory for Sentences, Picture Vocabulary, Oral Vocabulary, Listening, Verbal Analogies, Letter-word Identification, Passage Comprehension, Word Attack, Reading Vocabulary, Dictation, and Writing Sample). T-tests on each sub-test comparing pre- and posttest scores of the 74 students who still remained in the study at the end of the school year showed significant gains on each sub-test. In addition, students made substantial gains in raw scores on tests of phonological processing in English, a test of phoneme segmentation, blending, and deletion.

Curriculum Development

A major part of the PAL study was a literacy curriculum jointly developed by the teachers and researchers. This curriculum was designed to help secondary students with limited native language literacy develop English literacy as quickly as possible. This curriculum was implemented and evaluated by participating teachers and formed the basis for the development of *Keys to Learning*.

In order to maintain as much consistency as possible in instruction across classrooms, a common curriculum was developed and implemented. It was considered important to involve the PAL 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 helped develop that was attuned to the literacy needs of their students.

During the process of curriculum development, it became apparent that teachers from different school districts had differing philosophical and methodological views based on their accumulated years of teaching low-literacy English language learners. Some of the teachers were strong proponents of a whole language approach to literacy development, preferring to use authentic children's literature even when it was not developmentally appropriate for adolescent students. Other teachers were convinced that a phonics-based approach and texts written specifically for the low-literacy teenager were more effective in developing literacy. This issue was resolved through careful reading and study of relevant research and extensive discussion. Eventually a decision was reached to develop a balanced literacy approach that would include authentic reading, practice with word attack skills in context, writing mechanics, and expressive writing. (See Au, Carroll, & Scheu, 1997; Freppon & Dahl, 2002; Pressley, 1998 for discussions of balanced literacy instruction for English-speaking young beginning readers.) Vocabulary development, grammar explanations and practice, a process approach to writing, and explicit instruction in learning strategies for reading and writing were also provided in each lesson.

Teachers decided the scope and sequence of content topics, which included typical beginning ESL topics (such as school, weather, seasons, clothing, daily activities, family, home) and some content-based topics (such as health, community, the senses, geography). Teachers worked in cross-school district groups to develop thematic units for each topic. These units went through an extensive revision process as the teachers and researchers worked together in order to create a balanced literacy curriculum for an entire school year. The curriculum core components included in each lesson were:

Content: Themes and topics related to students' lives.

Patterns: Grammatical forms and structures; types of sentences.

Word Attack: Letters, sounds, word families.

Reading: Reading aloud and silently, literal and inferential comprehension, story elements, main idea, fiction/non-fiction.

RESEARCH-BASED ACADEMIC SKILLS AND STRATEGIES FOR NEWCOMERS

Writing: Writing mechanics, completing forms, personal experience and fictional stories.

Vocabulary: Derived from content topics and reading.

Learning Strategies: Sounding Out, Identifying Patterns, Cooperation, Using Cognates, Prediction, Inferences, Planning, Revising.

The instructional model underlying the PAL curriculum was based on a cognitive-social theoretical 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) was used as the instructional framework for developing and implementing the PAL curriculum. This model integrates appropriate content topics, development of academic language, and instruction in learning strategies (Chamot, in press, 1996; Chamot & O'Malley, 1994; Chamot, Barnhardt, El-Dinary & Robbins, 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 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 in the CALLA instructional design sequence is Evaluation, in which students self-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. Since the five phases are recursive, lesson planning is flexible and can be adjusted to focus on specific lesson objectives. The CALLA model proved to be an effective organizational tool for developing the PAL curriculum.

In addition to planning the lessons for each unit, teachers and researchers conducted a comprehensive search for appropriate instructional materials. Most important was the selection of reading materials accessible to beginning readers. A thorough review of available published ESL reading materials revealed none that were easy enough for the beginning reader. The final selection included ESL storybooks developed by participating school districts and children's literature deemed appropriate by some of the participating teachers. However, not all teachers or participating school districts were in agreement with the choice of children's literature because its intended audience was primary grade children. Materials used for teaching vocabulary, word attack skills, language patterns, learning strategies, and writing were developed by the teachers and the researchers.

Teachers met with researchers in a bi-weekly seminar that served as a vehicle for identifying difficulties encountered with the curriculum, sharing of information about student progress, and suggesting ideas for revising the curriculum. Teachers also completed a curriculum response journal with

RESEARCH-BASED ACADEMIC SKILLS AND STRATEGIES FOR NEWCOMERS

critiques of the lessons and suggestions for revisions. This teacher feedback was used in revising the PAL curriculum to develop *Keys to Learning*.

Teacher and Student Attitudes

Students were interviewed about their feelings and attitudes towards learning English at the beginning and at the end of the school year. Teachers were interviewed at the end of the school year and reported on their perceptions of students' self-efficacy and ability to complete high school or receive a General Education Diploma (GED).

The results of these interviews revealed a disparity between student and teacher attitudes. Teachers perceived that their students had a lower level of self-efficacy about their ability to learn English than did the students themselves. In addition, teachers' assessment of the likelihood of students obtaining a high school diploma or GED was significantly less optimistic than that of their students.

Teacher attitudes towards their students are important because they have been shown to correlate closely with actual student achievement. Student attitudes about their own ability to learn, or self-efficacy, have also been shown to be closely correlated with their achievement. A combination of high teacher expectations and high student self-efficacy leads to increased student learning. In general, teachers in the PAL study did not have as high an expectation of eventual academic success for their students as did their students themselves. These teacher attitudes were not universal, however, as we discovered in the classroom observations.

Classroom Observations

Researchers conducted classroom observations on a regular basis. For research purposes, teachers were asked to follow the curriculum lesson plans exactly as they and the researchers had developed them. Classroom observations recorded the fidelity of implementation as well as variations on the curriculum that were motivating to students and enhanced learning. The average level of implementation of the PAL curriculum was 5.2 based on a 6 point Likert-like scale. This relatively high level of fidelity of implementation made comparison across classrooms more reliable, but controlling for differences in teaching style was not feasible.

The field notes on classroom observations yielded rich descriptions of student involvement in the curriculum, including their motivation, reaction to teaching styles and instructional materials, and participation in discussions requiring higher level thinking. They also showed how different teachers implemented the curriculum and how their emphases on the different lesson components varied.

Most apparent was the high level of student motivation in every classroom observed. Students especially wanted to learn to read and write in English. This was demonstrated by their attention in class, their willingness to work with

RESEARCH-BASED ACADEMIC SKILLS AND STRATEGIES FOR NEWCOMERS

story books written for young children, and their joy at figuring out how to read words and write sentences.

Students responded well to teachers who treated them as mature and intelligent persons. They demonstrated their intelligence and level of cognitive development in a number of ways. For example, in early classes it was apparent that students were unaccustomed to responding to comprehension questions after reading. It seemed that their prior experiences in reading in their native language had consisted only of sounding out words aloud. However, once teachers asked them to remember the meaning of what they had read, they responded eagerly and were also able to make inferences about implied meanings in the text. In addition, these adolescents clearly enjoyed using their analytical skills to find grammar patterns and analyze the pronunciation and spelling of new words.

The classroom observations also analyzed the types of interaction between teachers and students during the different activities in a lesson. Coding of these interactions focused on distinguishing between the development of students' top-down reading processing skills and their bottom-up processing skills. Examples of bottom-up processing skills were discrete skills such as recall of specific facts, decoding a word, or identifying grammar or vocabulary in context. Examples of top-down processing skills were meaning-making skills such as using background knowledge to understand a text, making inferences, or offering opinions about a text. Over 80% of the interactions observed involved bottom-up processing skills except when teachers used Spanish to mediate instruction for Spanish-speaking students. In these cases, the proportion changed significantly, with 76% of interactions displaying students' top-down processing skills.

What we learned from these classroom observations was that these low-literacy students could think analytically and could relate what they were reading to their own prior knowledge, but that their low English proficiency was a barrier to displaying higher level thinking skills in English. This was confirmed by the evaluations of the PAL curriculum by teachers in which they expressed the difficulties encountered in attempting to teach learning strategies and other higher level skills in English alone. In fact, some of the most experienced teachers did not even attempt to teach these aspects of the curriculum because they were convinced that their students could not benefit from such instruction.

However, the teachers that did teach the learning strategies reported that with extensive teacher modeling, explicit instruction, and patience they were successful in communicating to students how to use the strategies. In think-aloud individual interviews at the end of the school year, students were asked to describe their thoughts as they read an unfamiliar text. We discovered that the most frequent strategies used by students independently as they tried to gain meaning from the text were: *using background knowledge*, *making inferences*, *using imagery*, and *using selective attention*. These and other learning strategies have all been included in *Keys to Learning* and explicit directions for modeling and teaching them are also provided.

RESEARCH-BASED ACADEMIC SKILLS AND STRATEGIES FOR NEWCOMERS

Conclusions

Project Accelerated Literacy (PAL) provided evidence-based information about the characteristics of secondary school ESL newcomers with limited native language literacy. We documented the academic needs of these students and sought to help them gain English literacy through a balanced literacy program designed to differentiate instruction so as to meet individual literacy needs. We used classroom observations and feedback from teachers and students to evaluate the curriculum and revise and improve it. The table below summarizes the strengths and weaknesses of the PAL curriculum:

Strengths of PAL Curriculum and Implementation	Weaknesses of PAL Curriculum and Implementation
Unit themes were interesting and relevant to students.	Unit themes were only loosely connected to readings.
Students were motivated by school district developed stories about immigrant students.	Some teachers did not like using children's literature written for young children.
Teachers who consistently modeled and explicitly taught learning strategies were successful in communicating them to students.	Some teachers did not attempt or had difficulty in teaching learning strategies to students.
With teacher guidance, students could engage in higher level thinking such as making inferences, using background knowledge, and evaluating own work and that of peers.	Some teachers relied on low-level drills and busy work (such as drawing and coloring) that did not challenge their students.
Students enjoyed problem-solving activities like finding grammar patterns, and analyzing words and word families.	
Students were successful with process writing when they had models to follow.	

In developing *Keys to Learning* we used the successful aspects of the PAL curriculum and addressed the weaknesses in a number of ways. We were also guided by the findings of the National Reading Panel (2000) that identify five major components of effective reading instruction: phonemic awareness, phonics, fluency, vocabulary development, and text comprehension that includes explicit instruction in comprehension learning strategies. These five components are integrated into each chapter of *Keys to Learning* and the *Teachers' Manual* provides detailed directions on how to teach them.

It was clear that using authentic children's literature was a problem for some teachers, though students did not seem to resent reading story books intended for a much younger audience. However, students really enjoyed the locally-developed stories about young immigrants like themselves and related to the story lines in these materials. This led us to develop a continuing story line about a group of secondary school newcomers in a typical ESL class as the basic reading material for *Keys to Learning*. In addition, we also developed some content subject readings to provide students with practice in reading expository text.

Since students enjoyed problem-solving and finding patterns, we included grammar charts and word analysis activities in *Keys to Learning*. We also

RESEARCH-BASED ACADEMIC SKILLS AND STRATEGIES FOR NEWCOMERS

provided careful directions in the *Teachers' Manual* on how to make these activities challenging for students rather than just using them as drills.

Some of the PAL teachers encountered difficulties in teaching learning strategies for reading and writing, so we developed guidelines on how to teach learning strategies explicitly and also placed learning strategy explanations and reminders in the student book of *Keys to Learning*.

In order to help teachers avoid repetitive drills and challenge their students, we have provided suggestions in the *Teacher' Manual* for helping students solve problems independently and for eliciting higher level thinking. In addition, the student book asks students to evaluate their own learning on a regular basis, both for specific activities and at the end of each chapter through a Learning Log.

Writing in English was difficult for students in the PAL study, especially because of their limited experience in writing in their native language. Even in Spanish, students were unsure how to form letters, when to use capitals, how to use punctuation, and how to segment phrases into words. To help students with these mechanical aspects of writing in English while still allowing them to use writing to communicate their own ideas, we have provided models and a tool kit to guide them through the writing process.

The authors of *Keys to Learning* (Chamot, Keatley, & Anstrom) were the three main researchers on the PAL study. We were involved in all phases of the study: working with teachers to develop a balanced literacy curriculum, interviewing and testing students, observing classrooms, interviewing teachers, and reading teachers' journals about their successes and challenges in implementing the PAL curriculum. The standardized test data derived from the study as well as the insights gained from working closely with teachers and students helped us evaluate the PAL curriculum, maintain its strengths, correct its weaknesses, and convert it from a teaching guide for a research study to materials that meet the literacy development needs of secondary English language learners and their teachers.

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