"What Works" Study for Adult ESL Literacy Students

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Final Report

Written by:

Larry Condelli, Project Director
Heide Spruck Wrigley
Kwang Yoon
Stephanie Cronen
Mary Seburn

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"What Works" Study for Adult ESL Literacy Students: Volume II: Final Report

CHAPTER 1: STUDY OVERVIEW

Most research and practice in second language learning supports the theory that literacy in one language assists literacy development in another language. The reverse hypothesis also is believed to be true—a lack of literacy skills in the native language hinders literacy development in the second language. The *"What Works" Study for Adult ESL Literacy Students* focuses on adult English-as-a-second-language (ESL) students who lack literacy skills in their native language, as well as English communication skills. These ESL *literacy students* face the challenge of developing the knowledge, skills, and strategies associated with decoding, comprehending, and producing print, while they still struggle with English.

Adult ESL literacy students are usually immigrants and refugees who come from countries where educational opportunities were limited. Consequently, they were never able to develop the basic reading and writing skills that form the foundation for acquiring English literacy and for other kinds of learning. Although relatively small compared to the overall population receiving adult basic education services, this group deserves special attention: their numbers are growing as immigrants increasingly come from poorer countries. If their literacy issues are not addressed, it will be difficult for them to access jobs that can support a family, obtain the training or skills they need for employment and make informed choices about the education of their children.

Teachers working with ESL literacy students face a dual challenge of teaching both English and reading and writing. Since learning to read in another language requires knowing something about that language, ESL students must first acquire the skills that native English speakers take for granted: putting basic English sentences together, carrying on a conversation or making small talk and learning common words and idioms. But the task does not end there: ESL literacy students must acquire a second set of skills that most people developed as part of their basic education: filling out a simple form, reading a bill or simple sales flyer, writing a note for one's children, or finding a name and address in the phone book.

Study Purpose

Since little is known about adult ESL literacy students, one of the purposes of the *What Works Study* was to present a profile of these adults, their backgrounds and characteristics, and paint a picture of their participation in state and federally funded adult ESL programs. However, the goal of this study was not merely descriptive: it also sought to identify "what works"—the instructional activities that help to develop and improve ESL literacy students' English literacy skills and their ability to communicate in English. The study's main research questions were:

- What are the characteristics of adult ESL literacy students? What are their English literacy and language abilities?
- What types of class arrangements and instructional approaches do teachers of adult ESL literacy students use?
- What classroom and instructional variables are correlated with improving adult ESL literacy students' literacy and language development?
- Does the relationship of class and instructional variables vary according to adult ESL literacy students' initial literacy level, native language, age or other characteristics?
- What student, program and instructional variables relate to class attendance and persistence of adult ESL literacy students?
- What changes in program design, resources and instruction are needed to implement the instructional approaches most highly correlated with improved English literacy and language development?

The *What Works Study* is the first of its kind: very few research studies have examined the effectiveness of different types of instruction for ESL students, and *no* national study has ever been conducted that linked "educational inputs," such as teaching strategies, with "educational outcomes" (increases in test scores) for adult ESL literacy students. In addition, the study was designed not as a traditional evaluation, but to inform improvements in instruction and program design. Since the study did find evidence about the instructional and program approaches that make a difference, it provides policy makers with information to make decisions about programs and to guide practitioners as they design and implement the education they provided to ESL literacy adults.

Overview of Study Design and Methodology

To design the study, we first collected information on the characteristics of adult ESL literacy students and the type of instruction they received through a mail survey of federally funded adult ESL providers. We limited the survey to all such providers in the states with the largest adult ESL student population: California, Florida, Illinois, New Jersey, New York, and Texas. We then visited programs in these states that had

moderate to large numbers of adult ESL literacy students or that had specific instruction for this student group. We later expanded these site visits, which included observations of classes and interviews with program staff and students, to include programs in Arizona, Florida, Minnesota and Washington. Using the information from these initial site visits, we refined the study research questions and developed the data collection approach.

We wanted the study to include a broad representation of programs and classes serving adult ESL literacy students, the type of instruction offered and types of students attending classes. Consequently, in selecting sites we considered:

- **Program provider type.** Local education agencies, community colleges and community-based organizations provide adult ESL instruction.

- **Class types.** Class arrangements that had relevance to the study for policy and practice included classes meeting during the day or at night, classes with mandatory attendance requirements and scheduled length (in hours and weeks) of the class.

- **Types of instruction.** To determine what works, we needed examples of different instructional activities and strategies for comparison.

- **Student characteristics**. We wanted to include students with a wide range of native languages, ages and education in the home country.

- **Geography.** We wanted sites in different regions of the country.

Using these criteria, we returned to candidate sites to observe classes, pilot our data collection methods and ensure the site had a sufficient number of ESL literacy students enrolled. During the visit we also recruited teachers and staff to participate in the study. Only one invited program declined to participate.

Study Sample

The final study sample, summarized in Exhibit 1.1, included 38 classes from 13 sites in seven states. These sites were local school districts, community colleges and community-based organizations that received federal and state funding to provide adult ESL instruction. Most of the final sample of 495 students was from Mexico, Central America and other Spanish-speaking countries, but the sample also included Hmong, Laotian, Vietnamese, Somali, Ethiopian and West African students. Students' ages ranged 15 to 82, with a mean age of about 40. They had from zero to six years of formal schooling in their home countries.

EXHIBIT 1.1:

Summary of Students and Sites in the Study Sample

Site	Site Summary	Number of Classes	Number of Students	Student Groups
Eastside Community Learning Center (Garfield Adult School) and Evans Adult School, Los Angeles	Large urban school district sites in Mexican-American community in East Los Angeles	4	62	Mexican and Central American, new immigrants and long-time residents
Lao Family Center, St. Paul	Community center in residential neighborhood	2	18	Hmong, welfare recipients
Minneapolis Public Schools Adult ESL, Lehmann Center	Urban school district site in the Uptown Minneapolis neighborhood	4	36	Somali, new immigrants
Fresno Adult School, Cesar Chavez Center	Large school district-run program in central California	3	51	Mexican, Southeast Asian, Chinese
Pima County Adult Education, Liberty and El Rio Centers	Community college-run program in Tucson, Arizona	8[1]	45	Mexican and Central American
Socorro Independent School District, Adult Literacy Program	Small school district located on the border of Mexico, outside El Paso, Texas	3	38	Mexican, many are long-time residents participating in workforce retraining
Harris County Adult Education, Baytown & Irvington Centers	Large urban program (Houston) sponsored by a consortium of literacy program providers and local agencies and businesses	3	79	Mexican and Central American, new immigrants and long-time residents
Women's Refugee Alliance, Seattle	Community organization in residential neighborhood	1	21	Primarily Ethiopian; also Somali, Southeast Asian; welfare recipients
South Seattle Community College, High Point Education Center	Community college-run program in South Seattle	1	24	Ethiopian and Somali
Seattle Central Community College	Community college-run program near downtown Seattle	1	22	Somali, Ethiopian, Southeast Asian and Algerian
New York City Board of Education	City Board of Education program held in a wide range of venues throughout the metropolitan NYC area	3	43	West African, Central American, Caribbean, Southeast Asian, Mexican
Triton College, Melrose Park	Community college program in a Latino neighborhood in suburban Chicago	3	43	Mexican, new immigrants and long-time residents
El Paso Community College, Literacy Center	Community college sites in public schools and community centers, located either in El Paso, or in outlying areas	2	13	Mexican, all ages, new immigrants and long-time residents

[1]The large number of classes is because teachers rotated classes about every 8 weeks at this site and we defined the class as "new" at each rotation. We followed our student cohort and added new students at each rotation.

Data Collection

The data collection for the *What Works Study* began in October 1999 and continued through July 2001. We recruited the student sample in three waves, at the beginning of data collection, in January 2000 and in September 2000, for a total of 558 students.[2] However, 41 students left class less than four weeks after recruitment, the minimum time we required for inclusion in the study and an additional 17 students left before completing any of the study's assessments, leaving 500 eligible students in the sample. Data for five students were incomplete or inaccurate, giving us a final study sample of 495.

The data collection process included collecting instructional measures by observing classes with the project-developed observation guide, assessing students' on the project assessment battery and tracking students for follow-up assessment. To perform this data collection, we hired at each site a "study liaison." Senior project staff trained liaisons on the study design and methodology at two-day training sessions in either Washington D.C. or San Mateo, California. We assigned each liaison a senior project staff member, who checked the monthly data submissions for accuracy and completion. Monitors maintained regular contact by telephone and e-mail with liaisons to resolve potential problems and to discuss data collection issues. In addition, monitors visited their sites three or four times over the data collection period to check data, observe classes and assist in conducting assessments, if necessary.

Liaisons collected instructional and class data for the project through bi-weekly class observations. Using a structured observation guide designed for the study, the liaison recorded each instructional activity and time spent on the activity. These observations were coded to provide quantitative measures of classroom instruction, based on time spent on the activity, and the type of literacy or language task that the teacher emphasized.

The liaison assessed each student at the start of instruction, three months and nine months after instruction began, regardless of whether the student continued to attend. The assessment battery included individually administered standardized tests in reading, writing, speaking and listening, a reading demonstration task and an interview on literacy practices. The liaison also obtained student background information and attendance records from the program for the study. The liaison gave instructions and conducted interviews with students in the students' native languages.[3]

Data Analysis and Project Reports

The *What Works Study* collected an extensive amount of descriptive data on adult ESL literacy student characteristics and skills, the type of classes they attended, their teachers and the nature of the instruction they received. To answer the study's main

[2] Two sites participated in the study only during the first data collection year (October 1999-July 2000). One of these sites lost its funding and closed and the other site had too few ESL literacy students enrolled in the second year to make continuation practical.
[3] All liaisons in sites where students spoke Spanish were English-Spanish bilingual. At one site with only Somali students, the liaison was also Somali. Liaisons used a translator provided by the program for all other languages.

research questions and identify the instructional, class and other variables related to literacy and language development, we employed a sophisticated statistical technique, latent growth modeling. These analyses found instructional, class and student variables related to students' growth for measures of reading basic skills, reading comprehension and oral English communication. We also used the latent growth modeling technique to identify student, class and instructional factors related to student attendance.

We report the study approach, methods, findings and data analysis results, as well as implications of the study for policy and practice, in two separate volumes.

- *Volume I: Executive Summary*, presents a brief summary of the study, focusing primarily on key findings.

- *Volume II: Final Report*, this report, explains in detail all aspects of the study approach and measures and provides extensive descriptions of adult ESL literacy students, their literacy and language abilities, instructional activities and statistical analyses. It also identifies the variables related to literacy and language development and attendance in the study sample and discusses the implications for policy and practice.

Overview and Summary of This Report

There are six additional chapters to this report, covering each major aspect of the study.

Chapter 2: Description of Adult ESL Literacy Students

Chapter 2 describes adult ESL literacy students in the study and how we identified them. The study's focus on this type of student required that we develop a definition of "low literacy" for adult second language learners. We found we could not often rely on the definitions used by adult ESL programs, since many programs place students in literacy classes according to their oral fluency in English. This way of defining literacy was inadequate for the study, since we needed to know students' overall literacy in the native language and in English, including reading and writing skills. We decided to use years of formal schooling as a proxy measure of literacy and then used a student writing sample in English or the student's native language to verify low literacy skill level.

Chapter 3: Assessing Adult ESL Literacy Students

In Chapter 3, we describe our approach toward assessing the students in the study and report students' literacy and language skills according to the assessments. We had substantial difficulty identifying appropriate methods for assessing the skills of ESL literacy students and their progress over time. The difficulty stemmed from the general lack of standardized tests and other assessment methods appropriate for adult ESL students. In addition, the difficulty was compounded by the fact that the few tests that are

available assume a level of literacy and experience with school-based tests that low-level literacy students lack by definition.

To identify appropriate assessments, we conducted a review of all standardized assessments available for adult ESL students and also reviewed reading tests normally administered to children. The review considered the sensitivity of the test to measure low-level literacy gains, the suitability for use with adult ESL literacy students, ease of administration and validity and reliability. Few tests met our criteria, but we decided to use the oral interview of the Basic English Skills Test (BEST) to measure speaking and listening skills, the writing test of the Adult Language Assessment Scales (A-LAS) to measure sentence and paragraph writing, and a form completion test of the Comprehensive Adult Student Assessment System (CASAS) to measure functional literacy. We selected reading subtests of the Woodcock-Johnson (WJR) test to measure basic reading skills (BSRC) and reading comprehension (RCC).

To supplement these standardized tests, we developed additional assessments. We measured student reading abilities through a reading demonstration task, where the student was asked to read materials of varying difficulty in English or the native language. We coded the reading performance on these materials, according to how well they were read, and reading comprehension. We also administered a literacy practices interview that identified what the student read and wrote outside the classroom; the language used for reading and writing; the situations in which the students used English, including spoken English; and whether the student received help with reading and writing. The interview also measured students' reasons for attending class and their perceptions of their own progress.

Chapter 4: Adult ESL Literacy Instruction and Teachers

Chapter 4 of the report describes how we conceptualized and measured instruction in the adult ESL literacy classroom and presents descriptive information about classes in the study. Since the study is focused primarily on identifying effective instruction for adult ESL literacy students, a major challenge was to identify the aspects of instruction believed to be effective and then to devise a way to measure these constructs quantitatively. Our solution was to categorize instructional activities according to the aspects of literacy or language development being taught. Our major categories were activities that stressed basic literacy development, second language acquisition and functional literacy development. Observers coded and timed these activities using a structured class observation guide.

The observation guide also measured student engagement in class activities, teacher instructional strategies, context and the overall purpose of the lesson. Observers also recorded classroom arrangements, class size, materials used and the use of instructional aids and volunteers. This chapter also includes a brief description of the 38 teachers in the study.

Chapter 5: Attendance in Adult ESL Literacy Classes

Prior research has shown that adult literacy and ESL students attend class for relatively short periods, although little is known about the attendance of adult ESL literacy students. In Chapter 5, we describe the attendance patterns of the *What Works Study* students using four measures: total weeks of attendance, total hours of attendance, intensity of attendance (average hours attended per week) and rate of attendance (proportion of hours attended by total class scheduled hours). We also examine the relationship of student, class, teacher and instructional variables to student attendance using a multivariate statistical technique, hierarchical linear modeling (HLM).

The analyses found differences for class types and by student characteristics and instructional variables. Students in day classes and mandatory classes attended more hours and more weeks, at least in part because these classes had more scheduled hours. The HLM analyses revealed that older students and students with lower basic reading skills on entry skills attended for more weeks and more hours. Students who entered class within the first three weeks of its start also attended more hours and weeks, as did students in classes where teachers spent more time on literacy development instruction.

The analyses found few variables related to rate and intensity of attendance. Older students and the unemployed attended at a higher rate and intensity, yet instruction and class variables did not improve attendance according to these measures. In fact, older students mandated to attend had *lower* rates and intensity of attendance than younger mandated students and students in classes with more scheduled hours attended at a lower rate and lower intensity.

Chapter 6: Growth in Literacy and Language Development: What Works

Chapter 6 describes how we brought together the study measures to answer the main study research questions of "what works." The chapter begins with a discussion of the complex nature of the *What Works Study* data and how this complexity affected the data analyses. These data issues included student attrition, unequal time periods between assessments, the variation in student growth on measures within classes and the hierarchical structure of the data.

To address this data complexity we used a complex statistical technique, latent growth modeling within an HLM framework. We briefly explain the modeling and then present the variables used in the analyses. We included measures of student characteristics, class types, instructional variables and attendance measures to identify factors that related to literacy and language development within the study sample. The most important findings from the latent growth modeling found variables related to development in basic reading skills, reading comprehension and oral communication.

We found that students in classes where teachers used activities that connected what was taught to real-life showed more development in their basic reading skills. Students who entered class with more education in their home country and better oral

English skills, also developed faster on this measure, although the effect for prior education faded over time. Among the variables affecting students' growth in reading comprehension was the teacher's use of native language as an aid to instruction. Students in classes where the teacher used the native language in such ways as to explain concepts and answer questions, showed a higher rate of growth in reading comprehension. Students with a higher rate of attendance and with better basic reading skills on entry into class also grew faster on this measure.

Several variables related to oral communication development among adult ESL literacy students. Students in classes where instruction included a varied practice and interaction strategy, emphasized oral English communication activities and used the students' native language showed more growth in oral English communication. Younger students, students who attended at a higher rate and students with higher initial reading scores at class entry also developed oral communication skills faster.

Chapter 7: Implications for Practice and Policy

The final chapter of the report summarizes study descriptive and analytic findings and discusses the implications for practice and policy. Using our descriptive findings, we suggest improved ways for programs to identify and assess adult ESL literacy students and improve teacher training. We also draw conclusions from our findings relating instructional variables to student literacy and language growth and suggest ways to translate study findings into instructional practice. We offer examples of specific activities teacher can employ in the class to implement the practices we found to be related to student outcomes.

CHAPTER 2:
DESCRIPTION OF ESL LITERACY STUDENTS

The focus of the *What Works Study* is on adult ESL *literacy* students—ESL learners believed to have the greatest difficulty in developing their language and literacy skills and making sense of print. If these learners are to succeed in an ESL class, they must acquire the basic text processing skills—decoding and encoding and meaning making—that allow them to follow along in classes where words, phrases and sentences appear on the blackboard and in textbooks. Teacher experience indicates that if these students' literacy skills are not developed, language learning in formal classrooms becomes problematic. Students become frustrated, overwhelmed and have a high drop out rate, due to their inability to catch up the missing literacy skills and keep up with the rest of the class.

As we started the study, one question kept being raised: Why focus on literacy student rather than the much larger general adult ESL student population? There are two answers to this question: First, ESL literacy students, who, by definition, did not have the opportunity for schooling that their more educated counterparts have had, face the greatest challenge within the immigrant and refugee population. Because of their lack of literacy, they have far fewer opportunities to obtain jobs that pay a living wage, access postsecondary education, or participate in job training. Although most have strong life survival skills and have been able to make their way in their communities, raising families, finding work, enrolling their children in school and otherwise navigating systems, their lack of experience with print significantly limits their potential.

A second reason to focus on ESL literacy students is that a high percentage of them are refugees who have experienced war or civil strife and now face multiple challenges as they seek to become part of U.S. society. Uprooted and forced to leave family behind, they now must negotiate a new culture; switch from a mostly rural area, dependent on agriculture, to an industrialized society; struggle with a strange language; and find their way in a country that is different almost every way than what they knew back home. For these refugees, ESL literacy classes are the entry point into U.S. civic life, a safe and comfortable place to study, and sometimes their first and only chance at education. Providing opportunities for these students to learn to read and write, to gain cultural competence, and to acquire the English they need to make their way, is part of

the challenge that ESL programs face. Studying what keeps these students in programs and what helps them succeed can have long-term benefits not just for students and teachers but also for communities seeking to integrate refugees from countries where literacy rates are low and education was not an option for the poor.

In this chapter, we discuss how we defined "adult ESL literacy students" in the study, given there is no single definition in the field. We describe how we used our definitions to identify and screen students to recruit into the study. We then present descriptive data for the study students, enhanced with brief narrative profiles of featured students' backgrounds and learning experiences.

THE PROBLEM OF ESL LITERACY

The term "ESL literacy" first came about in the late 1970s when resettlement agencies and schools noticed that new groups of immigrants and refugees were entering the country who did not share the same characteristics as students for whom ESL classes were designed, namely those who merely needed to acquire English but for whom literacy was not an issue. Many of these new arrivals did not have the strong educational skills upon which literacy is built. Some had to leave school early to help support their families; others saw their schooling interrupted through war or civil strive. Still others, such as the Hmong, came from non-literate societies where schooling was not the norm and reading and writing were new conventions not commonly acquired by individuals in the community.

As immigrants and refugees from developing countries continued to arrive, programs serving these students needed to rethink their assumption that ESL students were literate, and that they merely needed to add English to already existing abilities to read, write and process print. Experience quickly showed that these students were not faring well in conventional programs where literacy in the native language was an implicit prerequisite. ESL literacy struggled any time they were asked to read a word from the blackboard or in a textbook and found it difficult to copy even simple sentences or write a word or two about themselves. Frustration resulted for both teachers and learners and often students gave up, leaving programs long before they had acquired the basic English literacy skills that would allow them study on their own and to succeed.[4]

Defining and Identifying Literacy Students

One of the first tasks of the study was to develop a definition of ESL literacy students and then to find sites and classes with large enough numbers of these students to conduct a research study. The approach we used was to identify students with fewer than six years of formal education as a proxy for low-literacy and then to verify literacy level through a writing sample written either in the native language or in English. Using this

[4] In response to these problems, the U.S. Department of Education commissioned a small descriptive study that examined the response of nine local ESL programs to the needs of this new group of students and how to provide instruction to them, (Wrigley and Guth, 1992).

definition as a basis for discussion, we contacted adult ESL programs to identify sites and classes for the study.

Finding Classes and Students for the Study

There was no simple way to identify programs and areas where there were significant concentrations of large classes of ESL literacy students that we needed to conduct the study. There were no national studies that could guide us and no state or national databases to inform us. Consequently, we used multiple strategies, including a survey of adult education and literacy programs, contacting programs directly and contacting community agencies and program providers in large urban areas with recent immigrant populations.

We first conducted a mail survey of all federally funded adult ESL programs in the six states with the largest ESL enrollment: California, Florida, Illinois, New Jersey, New York, and Texas. From this survey, we identified programs that claimed to have high enrollment of ESL literacy students and then contacted a sample of them by telephone to obtain further information. We also contacted programs in Arizona, Minnesota and Washington; states we also believed had high concentrations of adult ESL literacy students. Project staff selected a sample of candidate sites and conducted site visits to 25 programs.

It proved to be more difficult than we anticipated identifying sites with many ESL literacy-level students. Many programs used assessments of oral language ability in English as a way of placing students in ESL literacy classes, rather than using students' prior educational level or literacy level in the native language. This approach led to the placement in "literacy" level classes of well-educated students—college graduates, doctors and other professionals—who lacked English-speaking abilities but were otherwise highly literate. In general, programs emphasized English speaking ability and often did not consider native language literacy abilities when defining ESL literacy.

Some programs also included as literacy students learners from cultures that do not use a western alphabet. For example, well-educated Russian, Chinese or Arabic-speaking students might be included in a literacy class. Although these students did face some initial difficulties and had to grapple with the English alphabet, for those who had strong literacy skills in the naïve language, this proved to be a minor challenge. These students did not need to learn to read (as the true literate students must), but needed to transfer their underlying skill in processing print to a new system.

Once we became aware of these definitional differences, we identified literacy classes by speaking directly with the *teacher* of a class we were considering for the study. We found teachers to be the best sources of information about students, because they worked with students daily and were familiar with the literacy challenges that some students faced. In addition, teachers could provide the most current information in sites where the population was ever changing and literacy students who may have been on the records three months previous were now no longer in the program. We explained to the

teacher in detail the type of student we wanted to study and asked specific questions about students' backgrounds and prior education. We also targeted sites with populations we knew were likely to be low literate, such as Hmong and Somali students.

Screening Literacy Students for the *What Works Study*

We ultimately selected 38 classes in 13 programs for the study (see Exhibit 1.1, Chapter 1). The classes either had only literacy level students or were mixed beginning ESL and literacy level classes. Almost all classes had at least eight literacy level students enrolled when the study began. Our local study staff or liaisons recruited the literacy students for the study by first identifying students who had fewer than six years of formal education and students the teacher believed might have minimal literacy skills.[5] The liaison then asked students to write a few sentences or a paragraph verify literacy levels. We asked the students to write about their family and why they wanted to learn English. Students had the choice to write either in their native language or in English.

The liaison reviewed the writing samples to verify literacy levels using the project-developed rating criteria, which included general writing characteristics such as clarity of meaning or amount written, and indicators that suggest that students had not been schooled:

- *Letter formation*— low literate students write with very uneven letters, have trouble writing in a straight line and often mix capital and small letters within the same word;

- *Word spacing*— low-literate students leave out spaces between words or add spaces; and

- *Spelling*— low-literate students use non-phonemic or highly unorthodox spelling.

This method of screening was used to assess students' underlying ability to use print in any language, not just English. If students' writings met our criteria, they were included in the study. However, if either writing samples in English or in the native language showed characteristics of more proficient writing, such as clear ideas, sophisticated vocabulary and consistent capitalization and punctuation, we excluded their authors from the study. Exhibit 2.1 shows the writing prompt used for screening.

After identifying eligible students, the study liaison later made a presentation about the study to the eligible literacy students in their native language and obtained their written consent to participate.

[5] Approximately 32 percent of the study participants reported more than 5 years of schooling in their home countries, with the majority of these students reporting 6 years of education. These students were recommended by their teachers, and screened for literacy level using the prompt shown in Exhibit 2.1.

EXHIBIT 2.1:

Student Literacy Screening Form

Please complete this form and write some sentences about your family and yourself. You can use English or your native language, whichever you prefer when you write.*

Name:

Address:

Tell us something about your family.

Why do you want to learn English? Write down five reasons.

Indicators of Low Literacy Level in Writing:

Writing Fluency

- ❑ Writing appears forced and highly uneven
- ❑ Letters are ill-formed and different sizes
- ❑ Mix of capital and small letters
- ❑ Writing does not follow a straight line (slopes up or down significantly)
- ❑ No spaces between words or words spaced very irregularly

Meaning

- ❑ Very little writing; cannot detect a message
- ❑ Meaning of most sentences unclear; words left out

Mechanics

- ❑ Spelling errors that obscure the meaning of individual words
- ❑ Punctuation missing or very idiosyncratic

*Note: This instruction was read to students in their native language.

WHO ARE ESL LITERACY STUDENTS: THE *WHAT WORKS* SAMPLE

Data from the *Work Works Study* allow us to describe adult ESL literacy students—at least the 495 students for whom we have assessment and background information. While these students are not necessarily representative of all ESL literacy students nationwide, they give us an idea of the characteristics and needs of contemporary adult ESL literacy students.

Summary of Student Characteristics

In the following sections we describe students' native languages, countries of origin, educational background, age, sex and employment status. We also examine the most common reasons that students gave for attending classes. In addition, we report these characteristics for the sample overall and for the four distinct groups of literacy students in the *What Works Study*: Spanish speakers from Mexico, Spanish speakers from other countries, Hmong and Somali.[6]

Language and Country of Origin

Overall, there were more than 30 languages represented among the students in the *What Works Study*. However, similar to adult ESL students nationwide, native Spanish-speakers predominated (Exhibit 2.2). Approximately 68 percent of the students in the sample reported Spanish as their first language. Other first languages included Somali (10 percent), Hmong (8 percent), languages of Ethiopia (Oromo, Tigrinya, and Amharic; 5 percent), and a wide variety of other languages of North and West Africa (e.g., Kankan Maninka, Pulaar Fulfulde, Wolof; 4 percent). An additional four percent of students reported Vietnamese, Lao or Khmer (Cambodian) as their first language. A small number of students reported other Asian languages (1 percent) or languages that could not be verified (less than 1 percent).

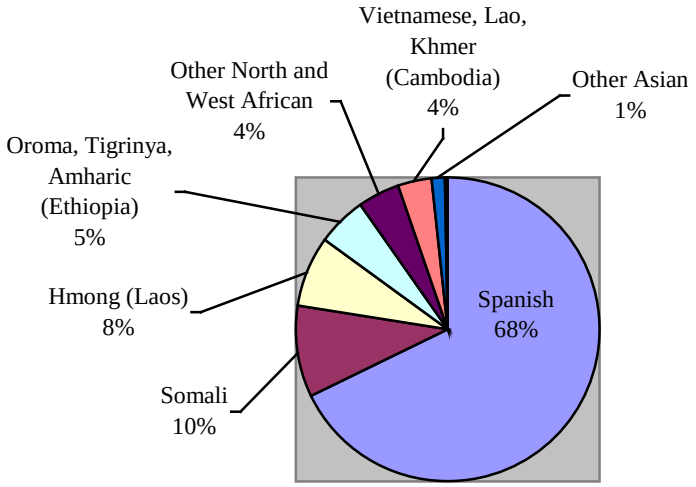
Most students in the sample were from Mexico (59 percent), or from other Spanish-speaking countries (e.g., Guatemala, Dominican Republic, and Honduras–8 percent). A substantial portion of our sample also came from formerly non-literate cultures, including Somalia (10 percent), and Hmong-speakers from Laos (8 percent).

As Exhibit 2.3 shows, most of the students in the study had very little education—a third (33 percent) of all students received no formal education in their home countries, and 61 percent received six years or less of education. Only 4 percent of the students in

[6] All available data are included in the demographic analyses, and thus, the number of students in each analysis differs slightly.

EXHIBIT 2.2:

Students' Language Background (N = 495)



our sample went to school for more than six years.[7] On average, students received approximately 3 years of education in their home countries. [8]

EXHIBIT 2.3:

Education in Home Country, By Language Background

Student Language Background	Number of Students	Mean Years of Education in Home Country	SD of Mean Years	Percent of Students with No Formal Education
All *What Works* Participants	490	3.1	2.8	33.1
Spanish – Mexican	285	4.0	2.7	17.9
Spanish – non-Mexican	43	3.8	2.2	11.6
Hmong	38	0.3	0.9	81.6
Somali	47	1.7	2.9	66.0
All Others*	77	1.8	2.5	57.1

Note: Years of education data were not available for 5 students.
*More than 30 other languages are included in this group.

[7] Students who reported having 6 or more years of education met the same literacy criteria for inclusion in the study as students with fewer years. When we discussed these students' abilities with their teachers, we were told that the students struggle with reading and writing, despite their self-reported educational background.
[8] All student group differences presented in this report are statistically significant at $p < .05$. Sample sizes in tables vary due to missing data. Median years of education are also presented due to the high variation in the sample.

Many of the students with no formal schooling were Hmong and Somali, who averaged only 0.3 and 1.7 years of education, respectively. Comparatively, most Spanish speaking students had more education than both of these groups—the average years of education was 4.0 for Mexican students and 3.8 for non-Mexican Spanish speakers. However, a sizable percent of Spanish speaking students also had no formal education.

We also asked students whether they had taken ESL classes in the past and if they were currently enrolled in any other classes. Twenty-seven percent had taken classes or lessons in the past to learn English, and 8 percent were taking more than one ESL class at the time of their participation in this study. Slightly less than 10 percent had ever taken other previous classes, such as job training.

Sex, Age and Employment Status

Most of the students were female (72 percent) and tended to be older—40 years of age, on average (ranging from 15 to 82). The gender proportion varied slightly across the different language groups. For example, 67 percent of the Spanish-speaking students from Mexico were female, while 87 percent of Hmong students were female.

Similarly, students' ages varied by sex and language background. The female students were, on average, older than the male students in the study (41 years on average for women compared with 38 years on average for men), and the majority of Spanish-speaking students and Hmong students were in their teens through their 40s, whereas most Somali students were in their 40s and older.

Nearly half of the students were employed at some point during their participation in the study (Exhibit 2.4). Approximately 81 percent of the non-Mexican Spanish speakers were employed at some time during the study, while about 49 percent of

EXHIBIT 2.4:

Employment Status, By Language Background

Student Background	Number of Students	Percent of Students Employed
All *What Works* participants[9]	455	44.6
Spanish – Mexican	263	48.7
Spanish – non-Mexican	36	80.6
Hmong	38	7.9
Somali	46	43.5
All others	72	31.9

[9] Employment status was not available for 8 percent of the sample (40 students).

Mexican students and 43 percent of Somali students were employed. A relatively small percentage of Hmong students were employed during the study (8 percent), which is not surprising since most of these students were enrolled in class to meet welfare-to-work requirements.

Reasons for Taking Classes

We asked students to tell us their reasons or goals for attending class.[10] Exhibit 2.5 shows that students wanted to learn to speak and understand English (37 percent), to seek general life improvement (22 percent), develop general literacy skills (12 percent), learn to fill out forms (11 percent), and be able to talk to their children's teachers or help their children with school (7 percent). Other goals volunteered by students included wanting to get a better job, to have a better home life, or to improve life in general.

EXHIBIT 2.5:

Percent of Students Reporting Goals for Attending Class, By Language Background

Reported Goal for Attending Class	Student Group					
	Spanish-Mexican Students % (n=235)	Spanish-Other Students % (n=32)	Hmong Students % (n=37)	Somali Students % (n=45)	Other Students % (n=72)	Total Students % (n=421)
General communication (speak or understand English)	41.3	34.4	24.3	40.0	26.4	36.6
General improvement (better job, home life, or life generally)	25.1	31.3	13.5	15.6	15.3	21.9
Literacy (general reading and writing in English)	10.2	18.8	18.9	2.2	18.1	12.1
Complete forms	9.8	9.4	13.5	6.7	18.1	11.1
Speaking with their children or helping them with school	8.5	3.1	2.7	*	8.3	6.7
Shopping – grocery or other	*	*	5.4	17.8	1.4	2.6
Other goals (e.g., communicate with doctors, citizenship exam, etc.)	5.1	3.1	21.6	17.7	12.5	9.0
TOTALS	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

*Less than 1 percent.

Goals for attending were somewhat consistent across students' language background. For example, all groups emphasized wanting to be able to speak and understand English, improve life in general, and develop literacy skills. The lowest level literacy students (the Hmong and Somalis) more frequently listed improving basic life

[10] Responses reported here are based on initial literacy practices interviews, which were conducted at the beginning of the students' participation in the study (see Chapter 3). Data were missing for 15 percent of the sample (74 students).

skills as goals, including being able to talk to doctors, take citizenship exams, and go shopping.

Profiles of Literacy Students

The *What Works* sample included students from many countries and language groups in Africa, Central America and Asia. However, about 84 percent of the students were from Mexico, Spanish-speaking countries other than Mexico, Somalia, or Laos. Data from our interviews with site staff, teachers, and students allow us to provide a brief qualitative description of each of these student groups and provide a richer picture of the adult ESL literacy students enrolled in these classes.

Mexican Students

Of the 13 *What Works* study sites, 8 served Spanish-speaking literacy students. The literacy students at six of these sites—located in Tucson, Socorro, El Paso, Houston, Los Angeles, and Chicago—were almost exclusively from Mexico. The Mexican students in our study have come to these areas primarily to get better paying jobs than would be available in Mexico. Many of the students had come to the U.S. recently, although some learners had been in the country for many years. This group of students was among the most educated in the study, with a mean of 4.0 years of education in their home country.

Approximately two-thirds of the Mexican students in the study were female (67 percent). The women ranged widely in age, while the male Mexican students in our study tended to be younger (i.e., less than 40 years old), and were more likely to attend night classes than the women.

Most of the students told us that they were attending classes to get a job or a better job, or to learn basic English communication skills. For example, they wanted to be able to speak with a doctor, understand their children's teachers, negotiate the grocery store or to understand English-speakers in general. In one class, students were attending as a requirement for receiving financial assistance (workforce retraining).

Non-Mexican Spanish Speakers

A second group of Spanish-speakers in the *What Works Study* was a highly diverse group of literacy learners from countries other than Mexico. These students were from Central America, the Caribbean, or were born in the U.S. and lived in towns on the Mexican border. The majority of these students attended classes at our New York City and Los Angeles sites, and also attended in Chicago, Fresno, Tucson, Houston, and Socorro. This group of students had an average of 3.8 years of education in their home countries.

Student Story: Focus on Mexico
Interview by Janice Strohmeier

Maria* is from Monterrey, Mexico and is the only person in her family who does not speak English. Her husband is bilingual but he never speaks English to her. Since she also has never worked, she has had very little opportunity to speak English, even though she has lived in Houston for 28 years. She recently decided to try to learn English, but it has proved difficult for her and she sometimes gets discouraged. Her friends, however, encourage her to continue studying. Despite her difficulties, she wants to learn. Her children speak English, and this helps to motivate her to keep trying. Her daughter tells her that if she does not try or practice speaking the language, she will never learn. Maria feels very ashamed, though; she is embarrassed to speak English. She is afraid of saying something wrong, but she is willing to try when she is in class. In public, she does not try. She is too nervous.

Maria also has great difficulty with writing. She says it is very hard for her to put the sounds to the letters to write. She can recognize the letters, but not the word that they make. She is more optimistic about writing than speaking, though; she thinks she will be able to write, with practice, but she feels more inhibited to practice speaking.

Maria says she will continue to come to school. She does not know for how long. She wants to learn to write a little, read more, and of course, speak. But she says it seems like a lot of work.

**Names have been changed to protect students' identities.*

Similar to the Mexican group, the majority of these students were women (78 percent) and ranged widely in age. However, the majority of both male and female students were between 30 and 50. These students were attending ESL classes for a variety of reasons, but chiefly to work on speaking, reading, and writing English for communication, or for life improvement.

The Hmong

Until the 1970s, the Hmong lived in remote farming villages in northern Laos and had little contact with the outside world. They had no written language until the 1950s, and even after that most Hmong had no educational opportunities. Consequently, the Hmong students in the study had little or no schooling nor exposure to literacy as children (0.3 years of education, on average). As a result of the Vietnam War, most of the study's Hmong-speakers spent several years in Thai refugee camps before arriving in the U.S., where they received only minimal basic education. Consequently, these students face formidable language and literacy barriers.

Most of the Hmong students in the study were receiving Temporary Assistance to Needy Families (TANF) and were required to attend ESL classes to receive public assistance. They were predominantly female (87 percent), and the majority were in their

Student Story: Focus on the Dominican Republic
Interview by Deidre Freeman

Juana* is a warm, friendly, outgoing person. She is the youngest of nine children. She has two sons, aged 2 and 10, and says that two children are plenty. She went to school through fifth grade in the Dominican Republic.

She reveals personal information slowly, but once she begins the stories flow out. During the BEST Test, she stopped to touch my hand and told me that she is hard of hearing. She said she was born with this condition. She was given a hearing aid but found that it sounded like paper rustling or crackling in her ear. While at first she brushed this part of her existence aside, her hearing condition seems to be very present in her life. Some of the questions on the interview, like understanding when two people speak to each other, took on new meaning when Juana responded with an emphatic "MUY DIFICIL" (very difficult).

On another level, Juana's hearing condition has affected her self-confidence with work. She told me that when she went to get papers to say that she couldn't work because of her hearing condition, the person who attended her told her that she could indeed work because the person also had a hearing condition and was working. This encouraged Juana, who currently enjoys her job placement as a kitchen aide in a senior center. She likes work. It keeps her from becoming depressed when she just stays at home. She finds she can do more when she works and is more organized. When I asked her about the job she would like to have in the future, she said she'd like to take care of the elderly or to work in housekeeping.

Juana seems to have a variety of literacy practices and engages in print a little more than "necessary." She told me that on the bus sometimes she will read things from church but not too much.

**Names have been changed to protect students' identities.*

30s or 40s. While many of the students had been in the U.S. for a relatively long time—some since the 1970s—they only recently began taking ESL classes due to TANF requirements. Previously, they had been able to live relatively isolated in the U.S. in Hmong communities. One of the study sites serving Hmong students was in the Minneapolis/St. Paul area, which has the largest urban Hmong community in the world. Other Hmong students attended classes in Fresno, which also has a large Hmong population. In fact, many of the Hmong in the Minneapolis/St. Paul area lived in Fresno until recently (Minneapolis Foundation, 1999).

Most of the Hmong students reported that they were attending ESL literacy classes to develop basic life skills, such as filling out forms, answering the phone, or reading products at the store. Also, students reported that learning to communicate with their teacher was an important goal; this reflects the oral, cooperative learning style that is part of the Hmong tradition.

Student Story: Focus on the Hmong
Interview by Patsy Vinogradov

Kia* is a 38-year-old woman. Like so many Hmong, she lived in the mountains of Laos in a farming village. Her family farmed mostly vegetables and also raised some livestock. Kia never went to school or learned to read and write in Hmong; this was not a useful skill to have in her village, especially for a girl.

During the Vietnam War, many of the people in her village went to work for the American military. When the war ended as it did, the Hmong were forced to leave Laos or risk being killed. Kia and her family quickly left everything they had and traveled by foot for a long time to reach Thailand. Kia can't remember how long they traveled, she just said "a long, long time." During much of this time they were hiding in the jungle, traveling at night to escape the soldiers. Sometimes they were spotted and shot at. At one point during the mass exodus to Thailand, Kia was trampled. Now, decades later, she still has serious back and hip pain. Eventually Kia crossed the dangerous Mekong River into Thailand, into safety.

She lived in Thailand for many years in the refugee camp. She was reunited with most of her family, although she lost some siblings and cousins in the jungle or to the soldiers. All of Kia's eight children were born in the refugee camp in Thailand. Her husband died in Thailand shortly before the family immigrated to Minnesota in 1995.

Since moving to the United States, Kia has suffered from depression. She complains of "all over body pain" that doctors cannot diagnose. Every 20 minutes or so during English class, she needs to stand up and stretch out her back and hip. She says it hurts to sit for too long, and it hurts to stand for too long. Her job counselor has told her that she does not qualify for disability payments, and in three months must go to work instead of coming to English class. She is under great stress at home, as two of her older boys have become involved with gangs and have been in trouble with the police many times. Kia weeps for their safety, but says they do not listen to her. When in English class, she says that she tries hard to understand and remember, but the words "just fall out of my head." Kia's current goals include saying words in English at the doctor's office and talking to her future co-workers.

**Names have been changed to protect students' identities.*

Somali Students

Like the Hmong, the Somalis in the study are from a traditionally oral society and had little formal education or exposure to literacy in their native country (1.7 years of education, on average). For a short period of time in the 1970s, written script came into use within schools and the government, and literacy rates increased dramatically (Brigham Young University, 1997). However, this gain was lost in the early 1980s when Somalia's civil war began, and the country's educational system was devastated. The civil war also resulted in the displacement of many Somalis—including the students in the *What Works* study—and affected almost all students on a personal level, including the death of relatives and loss of homes and businesses. Most students arrived in the U.S. in the 1990s, after relocating as refugees to Kenya or Ethiopia.

The Somali students' situation was similar to that of the Hmong students.' Most of the Somali students were female (77 percent), required to attend classes to receive TANF payments, and either in their 20s and younger, or in their 40s and older (in fact, 21 percent were in their 60s and older).

Many of the Somali students were living in the Minneapolis/St. Paul area, which has the largest Somali population in the U.S. (Minneapolis Foundation, 1999). There were also many Somali students in the study who attended classes in the Seattle area.

Most Somalis in the study are Sunni Muslims who study the Qur'an (Islamic scripture), which has values of self-reliance and autonomy at its center. The ESL goals reported by the Somali students were to be able to understand people better, get a job or a better job, and to get more educated in order to develop themselves.

Student Story: Focus on Somalia
Interview by Nancy Strom

Hawo* attends class in Seattle and had no education before coming to the U.S. She is 43 years old and is a single mother with 5 children between 8 and 18 years old. She has been in Seattle two and a half years. She came here because she had a friend here, but first she was in Washington, D.C. for 6 months. She has other family in Ohio. She says she likes it in Seattle and doesn't want to move. She feels comfortable here, knows how to get around and can go everywhere she wants on the bus. Seattle seems to her a safe place for her and her children. When asked how her life here is, she says, "normal, but not like before."

Her husband was rich in Somalia. He had a big store in Mogadishu and was a businessman (export-import of food—sugar, rice, pasta, tea, coffee). She had a big house and 2 cars with drivers. When they left Somalia in 1991 because of the civil war, soldiers confiscated their store. They also killed her brother. Hawo and her husband planned their departure for one month and kept it a secret. They left almost all of their possessions there, but her mother still lives in the house.

They were in a refugee camp in Kenya for 8 years and she and her husband had a small store there, too. Her children went to school. Life was okay there at first. They got all the food they needed, but then the food supplies given out were more limited. In 1995, her husband died of malaria, and in 1997 she was approved to come to the United States.

Her expectations were that she would be rich and have a nice job and a business like she had in Somalia, but now she sees it is very difficult for her here. She would still like to have a business in the future. Her other goal (and challenge) is to speak English. It is difficult for her to spell and also to speak English. Life is difficult for her.

**Names have been changed to protect students' identities.*

Chapter Summary

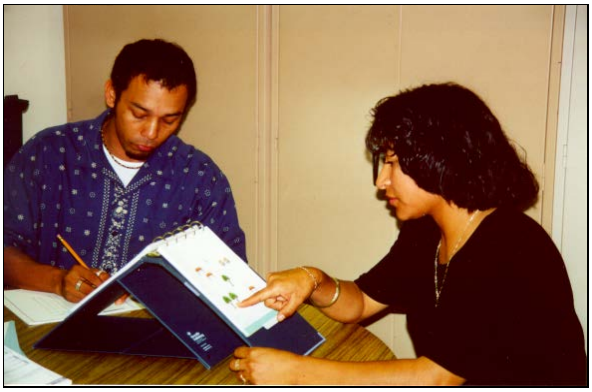
Adult ESL literacy students face substantial learning challenges dues to their lack of formal education, inability to speak English and significant cultural barriers they face as they try to integrate into American society. To identify these students for the study, we defined them according to their ability to read and write in any language and used their years of formal education (fewer than six years) as a proxy to identify them. We then used a writing screen to verify their literacy abilities.

The *What Works Study* sample includes students attending ESL classes in 13 programs (38 classes) in seven states. The 495 students in the study sample represented over 30 language backgrounds. The majority of students were Spanish-speakers from Mexico, or Spanish-speakers from other countries. We also selected Hmong students from Laos, Somali students, and students from African and Asian countries. Overall, students reported an average of 3.1 years of education in their home countries, ranging from an average of 0.3 years for the Hmong students, to 4.0 years for Spanish-speaking Mexican students. About of a third of all students had no formal education.

Almost three-quarters of the students were female, and students' average age was 40 years. Male students were on average younger (38 years) than female (41 years). Over 55 percent of students were unemployed. Almost all of the Hmong students were unemployed and most of these students were required to attend ESL classes to receive TANF benefits.

The main goals that most students reported for taking ESL classes included being able to speak and understand English, improve their life in some way, complete forms and improve like skills, develop English literacy skills, and a variety of other personal goals, such as to obtain a job and to help their children with homework.

CHAPTER 3:
ASSESSING ESL LITERACY STUDENTS



Assessing students' achievement or proficiency is a daunting task in any educational setting. Good assessment requires valid and reliable tests and procedures that are appropriate for the students and instructional content. Other important considerations in assessment include the time it takes to administer the assessment, the ease of administration and the sensitivity of the assessment for capturing learning gains. In addition, the assessment should measure meaningful aspects of literacy and language acquisition.

One of the biggest challenges in the *What Works Study* was to select and develop assessments to measure the English reading and writing skills of the students in the study, along with their English communication skills. The unique characteristics of ESL literacy students and the limited assessment tools available for ESL adults were major barriers. In this chapter we discuss the issues related to assessing ESL literacy students and our process for selecting and developing assessments. Using the study's assessments, we also present a description of the literacy skills of the *What Works Study* sample.

ASSESSMENT IN ADULT ESL LITERACY

Assessment in adult ESL is complicated by the fact that it requires measurement of skills in two domains: English language proficiency and literacy ability. Language proficiency includes such skills as the ability to communicate face-to-face (or over the phone), a store of vocabulary, and the ability to create sentences that are comprehensible to native speakers, if not always grammatically correct. The ability to communicate in English also includes understanding the rules that govern social communication—what to say to whom under what circumstances and, sometimes more importantly, what not to say—a concept known as "social appropriateness." Literacy, on the other hand, requires the ability to process print, which involves decoding and encoding skills, "meaning making" (to ability to understand written texts and the ability to write in ways that convey meaning), the use of strategies to deal with different kinds of texts and vocabulary knowledge.

Assessing ESL literacy is particularly complicated since knowledge of English is interwoven with the ability to process print. While it is clearly not possible to read and write English without knowing English, it is entirely possible to learn to speak English without having learned to read and write. Indeed, many immigrants from poorer countries

fall into that category, having acquired English through interactions in the community and quite often at a workplace. To find out how much English students know, regardless of their ability to read and write, we needed an assessment that solely measured speaking and listening and did not require reading instructions or finding answers on a printed sheet of paper. Conversely, to find out if students had some ability to read and write in English, we had to make sure that students understood the reading task at hand and were not confused by the language in the instructions. Since the language used in the instructions of a task is often more complicated than the task itself, we decided on two strategies: we would give the instructions orally, and we would give them in the native language so that students could be clear on what they were asked to do.

For the *What Works* Study, we needed assessments that could measure English language and literacy gains of adult ESL literacy students. The assessment problems are even greater for this group of students, due to their very limited English skills and little or no experience with school. Tests and assessments that use school-based tasks or formats (such as multiple choice questions) and that require some knowledge of English are not appropriate for ESL literacy students. Furthermore, most ESL assessments are not sensitive enough to measure the small literacy gains that can be expected of ESL literacy students during the relatively short time they attend classes.

Our research design required using standardized tests, but we wanted to supplement these tests with richer assessments that could measure the type of subtle real life learning that most adult ESL classes provide. To capture the complexities of learning a foreign language, we recognized the need for a multi-dimensional, multi-method approach to assessment. Consequently, our assessment battery measured students' oral language skills, along with their reading and writing skill development in English, using both standardized tests and alternative assessments. As part of the assessment, we included a literacy practices interview to gather information on when and where learners used English and how much reading and writing they did (either in English or in the native language) in everyday life. This information was important since increases in language skills often depend on students' opportunity to hear and use English outside of class.

Assessment Selection Process

Standardized Test Selection

We began our task of developing the assessment battery by identifying all standardized tests and assessments that appeared to be appropriate for assessing low-literate ESL adults. We reviewed the literature, prior test reviews, tests in the National Center for Bilingual Education's Assessment Center and consulted with teachers, program directors, and staff of the study sites. Through this process, we selected more than 30 tests for review. Some of the tests selected were designed for use with children, but appeared to be appropriate for use with adults.

We used a two-stage process to review the tests. First, senior project staff reviewed written descriptions of the test and research articles, if available, to evaluate each test on four dimensions:

- Whether the test was at an appropriate literacy level for assessing adult ESL learners with limited literacy skills.
- Whether the test was an achievement test and could be used for multiple assessments.
- Whether the test measured basic language and literacy skills (i.e., reading, writing, speaking or listening).
- The expertise needed to administer the test and the time needed to administer it.

All but ten tests were eliminated from consideration based on this initial review.

Three independent consultants, who had expertise in adult literacy and ESL assessment, reviewed the remaining ten tests. We obtained copies of the tests, along with the administration manuals, from the test publishers for this review. The reviewers used a formal protocol to evaluate the tests along the following dimensions:

- The *domains* that were included (speaking, listening, reading, and writing);
- The *language and literacy skills* within each domain the assessment measured;
- The extent to which the test *allowed separation of general language proficiency from literacy abilities* (reading and writing);
- Whether the test was *appropriate* for the study population and goals;
- *Technical properties* of the test, including validity and reliability and availability of norms;
- The *logistics* of using the test—(e.g., time and difficulty to administer, cost); and
- *Sensitivity* of the test for measuring gains in ESL limited literacy learners, who will receive relatively short amounts of instruction.

Reviewers prepared a written summary of their assessment of the test and then met with project staff to discuss their findings and recommendations.

Reviewers' Assessments of the Tests

In the judgment of the reviewers and study staff, most of the tests had significant shortcomings that made them problematic for use in the study. The major problems identified included:

- A narrow conceptualization of literacy by the test;
- A mis-match between what the test measured and what students are likely to learn in adult ESL literacy classes;
- The lack of sensitivity of the test to capture learning that may occur after a short period of instruction; and
- Cultural assumptions of the tests that assume knowledge of life in the U.S.

Nevertheless, with the help of the consultants, we identified six assessments for consideration. Two assessments were selected to measure each of the three domains of writing, oral communication (speaking and listening), and reading. Finding a reading test for the adult ESL literacy students was especially problematic, as none of the test we reviewed met our criteria. The reading tests we eventually considered were not ESL tests, but general reading tests designed to measure achievement in sub-areas of reading, such as phonemic awareness, comprehension and vocabulary.

Pilot Test

We next conducted a small pilot study of the tests to assess their ease in administration and whether our student population could understand the tests. The pilot entailed using the assessments on ESL literacy learners who had been enrolled in adult ESL classes for approximately three months and students enrolled for about nine months, to simulate the study design of assessing students at three and nine months. Analyses did not reveal significant differences in performance between three and nine-month learners on any of the assessment instruments, even after controlling for length of time students had been in the country.[11] Since the pilot test was uninformative as to which test would be more sensitive, project staff based the selection on the following criteria:

- Psychometric properties (norming, reliability, and validity);
- Use of performance-based tasks or simulated real life tasks;
- Ease of administration and scoring, including need for translation and time requirements; and

[11] The lack of differences may have been due to a selection bias—e.g. students in the class for the nine months may have stayed in the class that long because they had difficulty learning. Thus, the three- and nine-month students were at the same literacy levels, as the test indicated.

- The match between test content and our study focus on literacy development and second language acquisition.

Condelli and Voight (1999) provide a more detailed summary of the pilot test and rationale for test selection.

Standardized Tests Used in the Study

In selecting tests, we were careful to avoid tests that confounded measuring basic literacy skills with general English proficiency. We also sought to avoid tests that assumed some level of prior experience with school-based tasks. These criteria gave us a preference for performance based tests. We selected two writing tests that consisted of performance tasks, the Adult Language Assessment Scales (ALAS) Writing Test and the Comprehensive Adult Student Assessment System (CASAS) Functional Writing Assessment. An oral assessment, the oral interview of the Basic English Skills Test (BEST), was selected to measure speaking and listening skills. This assessment is an individually administered, performance-based test.

Since we could find no adult ESL reading tests at the level we thought the study students could function, we selected four reading subscales of the Woodcock Johnson (WJR) to measure reading skills. The WJR, a test for native English speakers, is appropriate for both children and adults and measures content knowledge in several areas, as well as reading. We determined that the reading subscales could be used on low literacy ESL learners, since they have the advantage of measuring basic low-level reading skills that is a focus of instruction in many adult ESL literacy classes.

Alternative Assessments

We were concerned that using only standardized tests as measures of student learning would be insufficient to capture literacy gains of low-level learners. Based on the pilot test, we feared the standardized tests selected lacked the sensitivity to detect changes in the skills of ESL literacy students after a short period of instruction. We expected early literacy gains to emerge slowly and in subtle ways among the low-level students in our study and we needed a richer way to capture these changes.

We developed three other ways to measure changes in the literacy skills of our students:

- A structured *literacy practices* interview, conducted in the native language, where the students discussed their background, reasons for attending class, and literacy habits in everyday life;

- A *reading demonstration* task, a performance-based assessment to measure and evaluate what the student could actually read; and

- A *literacy observation* rating form, completed by the teacher for each student in the study.[12]

Literacy Practices Interview

The literacy practices interview was a face-to-face interview designed to uncover how students use literacy in their daily life and work environments. For example, it asked what students read and write, how often they read and write and in what language, and whether they get any help reading and writing. The interview, conducted in the student's native language, had four parts:

- *Education and Prior Exposure to English* collected information on years of schooling both in the U.S. and in the home country, prior English instruction and other types of education obtained, reasons for attending class and for no longer attending (if applicable), and the extent of students' opportunities to speak English at home, in their neighborhoods, and on the job.

- *Literacy Habits and Practices* collected information on the type and frequency of materials students read and write, the language in which students read and write, a rating of the students' difficulty with reading and writing, and how much help students get from others with reading and writing.

- *Speaking English in Different Settings* asked students to rate their abilities to speak English in social, functional, and workplace settings, as well as the frequency with which they speak English.

- *Self-Ratings* asked students to rate how much they have learned since the last interview (asked only as part of three- and nine-month assessments).

Reading Demonstration Task

As another reading measure, we developed our own informal assessment, a reading demonstration task. This assessment consisted of a series of reading tasks designed to identify what common functional print students can read and how well they can read them. It allowed students a measure of control over the assessment, since they selected the items they wanted to read. Unlike a standardized test, this assessment also allowed for interaction between the test-taker and the person administering it, who recorded how much help the student needed with each task and how successful the student was in dealing with the task.

As an alternative to the standardized reading test, the reading demonstration allowed the learner to show competence in the tasks that they are most likely to come across in their every day lives. The results provided a snapshot, not only of the learner's competence in dealing with literacy, but also of their level of confidence in attempting to

[12] This form was a checklist of skills in the areas of reading, writing, speaking and listening. Unfortunately, many teachers could not complete these forms and we had an insufficient number for further analysis.

tackle these tasks and use environmental cues to gain meaning. Exhibit 3.1 shows the reading demonstration task protocol.

ASSESSMENTS: ENGLISH LITERACY SKILLS OF ADULT ESL LITERACY STUDENTS

In the *What Works Study*, we assessed students shortly after they enrolled in class and then approximately three months and nine months later. The writing assessments were usually administered in a group setting and the other tests and alternative assessments were administered individually with the study liaison. The liaison explained the test instructions orally in the students' native language. Administration of the WJR, the BEST and the literacy practices interview took about one hour. The liaison usually administered these assessments in two separate sessions with the student, who was offered a $20 stipend after completing the entire assessment battery.

Our study liaisons tracked students for the three and nine month assessments, regardless of whether the student was still attending class. Unfortunately, liaisons were unable to locate many students, especially for the final assessment. We have initial assessment data from the 495 students in the study, second month assessment data for 356 students (72 percent), and final assessment data for 263 students (53 percent).[13] With these assessments we can provide a comprehensive picture of the literacy abilities of the *What Works Study* adult ESL literacy students as they progressed through their ESL classes.[14] In Chapter 6, we report statistical analyses that relate student, class and instructional variables to student growth on these assessments.

Writing Abilities

CASAS Form Completion

The CASAS Functional Writing Assessment involves completing a two-sided form, a simulated job application. The task requires the respondent to provide information such as his or her address; former places of employment; schools and colleges or universities attended; references; and employment qualifications and goals. The scoring process involves rating responses across three dimensions on four- or five-point scales: (1) content, defined as the degree of completeness and appropriateness; (2) spelling, capitalization, and punctuation; and (3) legibility and appearance. To ensure reliability of scoring, we had scoring experts from the CASAS organization, which developed and published the assessment, score all CASAS assessments for the study.

[13] Not all students completed all assessments at each time period, due to lack of time or missed appointments with study liaisons. In addition, some students completed only the first and final assessments and others completed only the second and final assessments.
[14] Results reported here use all available assessments, so comparisons across assessments are cross-section and do not account for differences in student characteristics due to study attrition. However, analyses using only students with all three assessments showed similar, but smaller changes. See appendix for comparisons among students who took different patterns of assessment.

EXHIBIT 3.1:

Reading Demonstration Task Protocol

Instructions to Interviewers

The purpose of the reading demonstration is to find a reading level at which learner can function. The procedure starts the learner at the recognition level, continues to see if the learner can recognize common logos and print, and progresses to ask the learner to read (or guess) what something says. An accurate reading shows evidence of the learner's awareness that print "makes sense."

Conducting the Reading Demonstration

Obtain the following materials and arrange them on a table.

Common Products
- ✓ Coca-Cola can
- ✓ Common food cans, cracker boxes, or bags of rice or beans
- ✓ McDonald's bag

Popular Pictures and Printed Material
- ✓ Advertisements
- ✓ TV Guide

Flyers and Announcements
- ✓ Sales flyers for grocery and drugstores

Mail Items
- ✓ Bill or other common pieces of mail

Connected Texts
- ✓ Series of stories, from simple to more complex
- ✓ Popular magazines
- ✓ Newspapers (e.g., *U.S.A. Today* plus local paper, English or native language)

Procedure

1. The assessment is conducted individually with a learner. Provide instructions in the native language, as necessary, to ensure the learner understands the task.
2. Let learner know that this is the chance to show what kinds of things he or she can now read, even if they are still a bit difficult. Let learner know that you would like for them to try to read a few words or a couple of sentences, not the entire text.
3. Ask learner to select one of the items; something that they think they can read. Ask the learner to read the item for you. If the learner does not select anything, pick up Coca-Cola can and say "how about this?"
4. Ask learner to tell you what it says on the item; feel free to help a bit if the learner struggles. If the task is too difficult, select an easier item.
5. Ask a question or two to check understanding.
6. Select another item, slightly more difficult (could be from the same flyer or magazine).
7. If the learner is reluctant to try, suggest you read the item together.
8. Comment positively on all the items that the learner can read (with help or without).
9. Score performance using the form below.

EXHIBIT 3.1:

Reading Demonstration Task Protocol (Continued)

Instructions to Learners

(Use your own words to make the learner feel comfortable.)

I'd just like to see what kinds of things you find easy and hard to read in English. Please look at these materials and tell me which are very easy for you to read, too hard for you to read, which ones you cannot read at all, and which you feel most comfortable reading.
Please pick one of the easy things and one of the things that you feel most comfortable reading and read them to me. Then please pick one of the hard things and try to read that. I also have a few things in (student's native language). You can read these if you prefer.

Scoring Sheet

Item	English/ L1	Performance/ Fluency	Performance/ Meaning-Making	Help Needed	Amount Read	Comprehension
Coca-Cola can						
McDonald's bag						
Food can						
Ad						
Flyer						
Bill						
Story 1						
Story 2						
Magazine						
Newspaper						

Performance/Fluency

1. Reads fluently without hesitation
2. Reads ok, but haltingly
3. Has trouble reading a number of words
4. Has a great deal of trouble reading the item

Performance/Meaning-Making

1. Reading makes sense
2. A word or two is misread (not just mispronounced)
3. Most items are misread
4. Reading does not make sense

Amount of Help Needed in Reading

1. No help
2. Minimal help
3. Some help
4. A great deal of help

Amount Read (mark more than one, if appropriate)

1. Paragraph
2. Several sentences
3. Key words (large print)
4. Key words (smaller print)

Comprehension

1. Response to question shows comprehension of what was read
2. Response shows partial comprehension of what was read
3. Response shows minimal comprehension
4. Response shows no comprehension
5. No response

Exhibit 3.2 shows the CASAS scoring levels, which range from 0 to 5, and the percentage of students falling in the levels on each scoring dimension. No more than one percent of student scored above 3 on any of the three scoring dimensions, indicative of students' inability to complete most of the form with few errors and very neat handwriting. Average scores across each of the three dimensions were about at Level 1, meaning that although students were able to fill out some of the basic information on the first page of the form (e.g., address, date of birth, schools attended), they had difficulty completing the more complex information on the back of the form (e.g., describing their hobbies, employment qualifications, and career goals) and they made frequent or serious errors with spelling, capitalization, and punctuation.

Average total scores on this assessment indicate that students' writing skills fell within levels 0 or 1 of the ESL proficiency scale. Exhibit 3.2 also shows that overall, students scored slightly higher at the second assessment, but improved little between the second and final assessments.

Student group differences. We compared scores from the four student groups in the study and found significant differences in all of the dimensions measured by the CASAS.

Content. More than 38 percent of Spanish-speaking students, both from Mexico and from countries other than Mexico were able to fill in most of the form, initially scoring at levels 2 and 3 on this subscale. In contrast, less than 6 percent of the Hmong and Somali students were able to fill in most of the form, initially scoring at levels 2 and 3 on this subscale. At the 9 month period, 55 percent of Spanish-speaking students scored at levels 2 and 3 while at nine months, less than 17 percent of Hmong and Somali students scored at this level.

Grammar. More than 48 percent of the Spanish-speaking students from Mexico initially scored at levels 2 and 3 on this subscale while less than 6 percent of Hmong and Somali did so. The low Somali and Hmong scores indicate that they either wrote too little to be judged, had illegible handwriting and had frequent or serious errors in the writing samples that they provided. At 9-months, 55 percent of Spanish -speaking students from Mexico achieved levels 2 and 3, while only 9 percent of Hmong and 17 percent of Somali did so. For Spanish-speaking students from countries other than Mexico, 35 percent initially scored at level 2 or 3, while by nine months, 63 percent had reached that level.

Legibility. More than 44 percent of all Spanish-speaking students, but less than 5 percent of Hmong and 10 percent of Somali students, initially scored at levels 2 and 3 on legibility. At 9 months, 63 percent of Spanish-speaking students scored at levels 2 and 3 while 18 percent of Hmong and only 8 percent of Somali students attained this level.

EXHIBIT 3.2:

Percent of Students at Each level of CASAS Scores

Category Scores and Definitions	Initial Assessment (n=456)	Second Assessment (n=329)	Final Assessment (n=246)
CASAS Content			
Level 0. Very little or no information is filled in.	18.4	11.9	12.6
Level 1. Some of the first page of the form is filled in, but most is missing, unclear, or inappropriate.	46.5	46.2	44.3
Level 2. Most of the first page of the form is filled in but some information may be inappropriate.	21.5	26.7	24.4
Level 3. Most of the first page of the form but none of the second page is filled in. Some details may be lacking or some information may not be well stated.	12.5	14.6	17.9
Level 4. Most of the first and second page of the form is filled in. Some details may be lacking or some information may not be well stated.	1.1	0.6	0.8
Level 5. All or nearly all of the form is completed appropriately, including use of "N/A."	0	0	0
CASAS Grammar			
Level 0. Too little is written to judge.	19.0	11.9	13.0
Level 1. Frequent or serious errors, or Content category score of 1 with some errors.	45.6	43.4	42.7
Level 2. Many errors, or Content score of 1 with few or no errors.	24.6	29.6	29.7
Level 3. Some errors, and requires a Content score of 2 or higher.	10.8	14.8	14.6
Level 4. Few or no errors, and requires a Content score of 2 or higher.	0	0.9	0
CASAS Legibility and Appearance			
Level 0. Too little is written to judge.	18.9	11.8	12.6
Level 1. Poor handwriting and appearance.	38.6	37.4	43.9
Level 2. Handwriting is legible but appearance is not neat.	28.7	37.7	28.9
Level 3. Handwriting is legible and appearance is neat.	13.4	13.1	14.2
Level 4. Handwriting and appearance are very neat. Requires a Content score of 3 or higher.	0.4	0	0.4

ALAS Writing Test

The ALAS Writing Test (ALAS-W) consists of two sections, "Sentences in Action" and "Adventures in Writing." For each of the five items of "Sentences in Action," students are asked to write a sentence in response to a target drawing. Sentences are scored on four-point scales, which ranged from zero, indicating no response or an unintelligible response, to three, indicating an appropriate response with no syntactical or mechanical errors. The "Adventures in Writing" section, which involves writing an essay on topics such as "My Best Day" or "My Favorite Sport," is scored on a six-point scale, ranging from zero to five, where "0" indicates no response or a response written

completely in another language, and "5" indicates an appropriate, well-organized response in English that contains few errors.[15]

Both sections of the ALAS-W presented a challenge for students. Most were able to write few, if any, English words. Words that they were able to provide included nouns and pronouns, such as *he, she, table, party, dinner*, etc. It was not uncommon for students to write partially or even exclusively in their native languages. Typically, Hmong students returned blank test forms.

The average raw score on the "Sentences in Action" section initially was 2.9 with a range of 0 to 14 out of a possible score of 15. This average indicates that responses were quite likely to contain errors in both mechanics (capitalization, punctuation, spelling) and syntax. In addition, responses did not usually contain a subject and/or predicate**.** At the nine-month testing period the average score had increased to 4.3 with a range of 0 to 11.

The average score for the "Adventures in Writing" section initially was .76 with a range of 0 to 4, out of a possible score of 5. This average indicates that responses were likely to be insufficient or completely blank, written completely in another language, mixed with English and the native language, and/or containing isolated words, phrases or dependent clauses with no complete sentences. By the nine-month assessment, the average score increased only slightly to .81 with a range of 0 to 4. This small increase may be indicative of a lack of discrimination by this assessment to detect learning gains in low-level students such as those in the study.

Scoring the ALAS-W includes converting the combined scores of the "Sentences in Action" and "Adventures in Writing" sections into test-defined ESL competency levels. These levels range from 1, indicating "Low Beginner," to 5, indicating "Competent." Students in the study initially tested at an average ability level of 1.5, ranging from 1 to 4 out of a 5 possible competency levels. The average nine-month score was 1.6 with the same range. Distributions of student scores at each assessment are provided in Exhibit 3.3.

Exhibit 3.4 illustrates what students scoring of the low beginner level through high intermediate level could actually write in the "Sentences in Action" section. At the lowest level (low beginner), the student was unable to write comprehensibly. However in this case, some phonemic awareness is evident by the phrase "I go tek dogh," an apparent reference to the dog being walked in the drawing. In the high beginner example, the student was able to write comprehensibly, albeit with poor spelling and grammar. The student at the low intermediate level wrote an accurate and comprehensible sentence that was mechanically flawed, showing poor spelling for example. At the high intermediate level, the student was able to write a comprehensible sentence with no mechanical errors.

[15] We trained three project staff members to score all ALAS writing assessments, using procedures described in the ALAS manual. Our raters achieved over 90 percent agreement on ratings.

EXHIBIT 3.3:

Percent and Frequency of Student's ALAS Writing Test Score Levels

ALAS Combined Scores	Initial Assessment (n=476)		Second Assessment (n=342)		Final Assessment (n=254)	
Level	**Frequency**	**%**	**Frequency**	**%**	**Frequency**	**%**
1. Low Beginner	305	66	209	62	123	53
2. High Beginner	111	24	86	26	64	28
3. Low Intermediate	54	11	36	11	39	17
4. High Intermediate	2	0	5	1	5	2
5. Competent	0	0	0	0	0	0

Student Group Differences

While over half of all students scored at the low beginner ability level across all assessment periods, almost all of the Hmong and Somali-speaking students fell into this level throughout the course of the study. The Spanish-speaking students scored higher than students from the other language groups on both subtests of the ALAS, with approximately 16 to 20 percent of students in each group at the low intermediate level and about 1 to 3 percent of each group at the high intermediate level (level 4).

The Spanish speaking students from countries other than Mexico showed the most improvement on the Sentences in Action subtest of the ALAS, with an average increase of 2.2 points. The differences between language groups were statistically significant for the Sentences in Action subtest. Consistent with the inability to show improvement over time in student scores overall, the Adventures in Writing sub-test reflected little to no overall improvement for any of the language groups or any significant differences among them.

Oral Language Skills

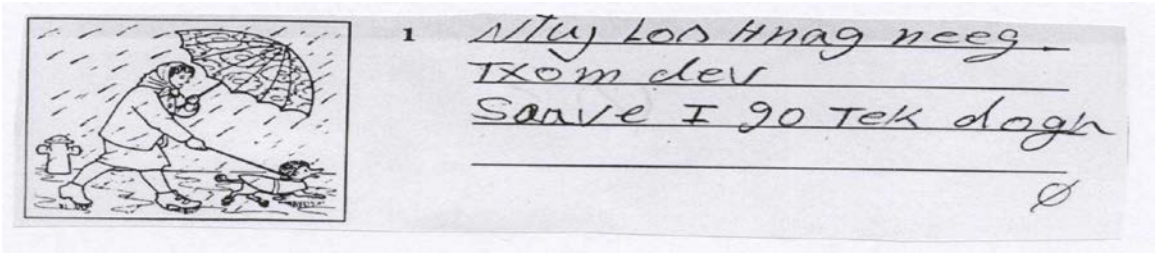
The BEST Oral Interview assesses ESL students' English conversational skills. The test requires a respondent to engage in a simulated conversation, providing name and address, basic personal information and discussing photographs and drawings. Each test item is scored on one of three scales according to the type of skills it measures: listening comprehension, communication, or fluency.[16]

[16] The BEST Oral Interview also includes measures of pronunciation and a reading and writing score, which we did not use in the study.

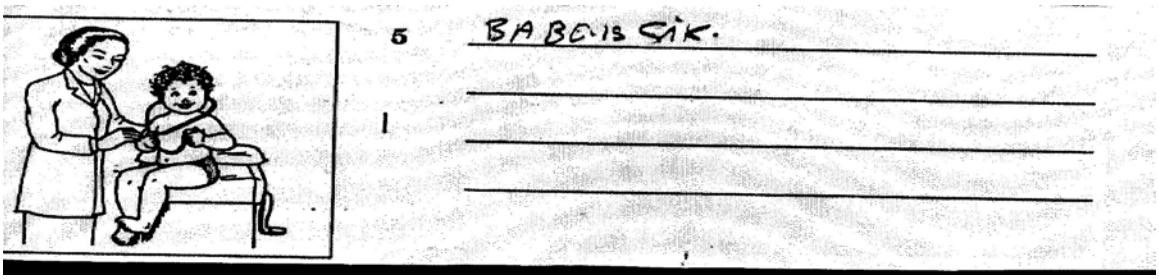
EXHIBIT 3.4:

Samples of Scored "Sentences in Action" Writing

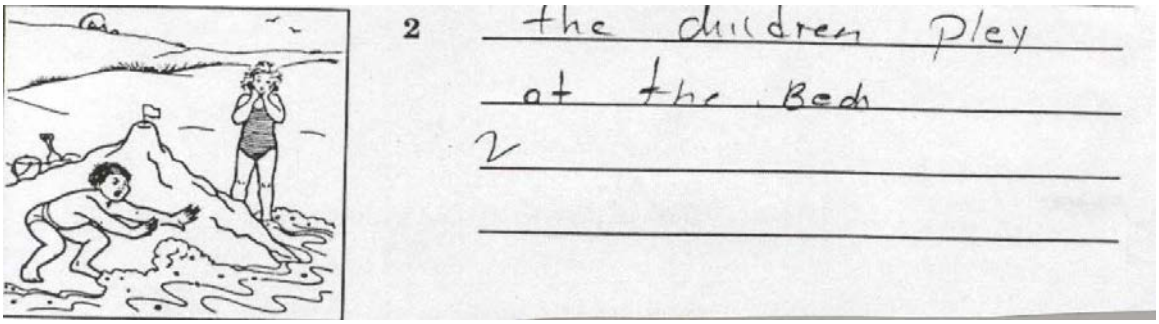
Example of Score 0 (Low Beginner)



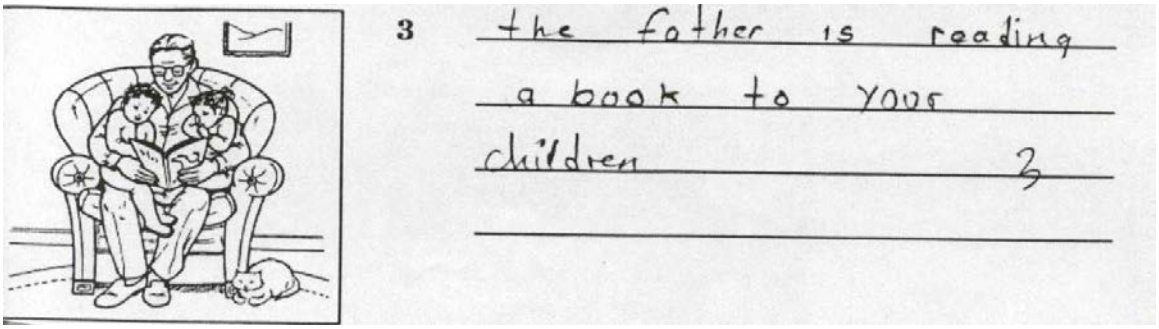
Example of Score 1 (High Beginner)



Example of Score 2 (Low Intermediate)



Example of Score 3 (High Intermediate)



Listening comprehension items assess the extent to which the student demonstrates comprehension by responding with appropriate gestures (e.g., pointing to a clock that shows a particular time) and are scored on a two-point scale (0-1) based on whether the response is accurate or not. Communication items assess the respondent's ability to provide answers in English to basic questions that typically require only one- or two-word responses, such as name, native country or length of time in the United States. These responses are scored on three-point scales (0-2) according to the degree to which they are comprehensible and grammatically accurate. Fluency items measure the extent to which the respondent is able to elaborate in English in response to questions including "Do you like living in Los Angeles?" and "How is shopping in your country different/the same as it is the United States?" and are scored on four-point scales (0-3) according to the extent of elaboration. Staff from the Center for Applied Linguistics, which publishes the BEST, trained project staff and study liaisons on scoring and administration of the assessment.

Not surprisingly, the students in our study found it easier to provide appropriate gestures in response to commands or questions than to provide elaborate responses in English. Students were sometimes able to respond with appropriate gestures and some were able to provide comprehensible verbal responses as well (indicating that they had some listening comprehension), but they lacked the English fluency to provide responses that extended beyond simple, unelaborated answers. The easiest questions for students were those at the beginning of the assessment, which asked for information such as their names and where they live. To some extent, students were also able to tell the time and make change.

Initial listening comprehension scores ranged from 0 to 9, averaging 3.7. This indicates that slightly less than half the time students were able to demonstrate comprehension by providing appropriate gestures in response to questions such as "Which one shows five-fifteen?" "Show me a quarter?" and "Which one hurt his neck?" The average score at the nine-month assessment was 5.5, demonstrating improvement in Listening comprehension over the course of the study.

Initially, the average score on the communication scale was 14.9, with scores ranging from 0 to 47. Students were often able to provide responses that were comprehensible, but not grammatically accurate, to questions such as "How did you get here today?" "What's she doing?" and "What's his job?" Students demonstrated improvement on this measure as well, at the nine-month assessment the average score increased to 22.1, with a range of 0 to 48.

Finally, initial scores on the fluency scale ranged from 0 to 26, averaging 3.9. Students had great difficulty providing minimal, unelaborated responses to questions such as "What would you say if you were lost" and "What do you think happened?" As in the case with any test that integrates speaking and listening, a lack of response can be due either to difficulty understanding the question or difficulty expressing a response in English. The average score at the final assessment increased to 6.3, but the range

decreased slightly (0 to 25), which again may suggest that higher functioning students had left the class prior to the final assessment.

The combined raw scores from the BEST Oral interview were converted to the following student performance levels (SPLs) in accordance with the BEST test manual guidelines.

Level 0. No ability whatsoever. (raw score of 8 or less)

Level I. Functions minimally, if at all, in English; communicates only through gestures. (raw score 9-15)

Level II. Functions in a very limited way in situations related to immediate needs; uses only very simple learned phrases.
(raw score 16-28)

Level III. Functions with some difficulty in situations related to immediate needs; only the most basic oral communication abilities. (raw score 29-41)

Level IV. Can satisfy basic survival needs and a few very routine social demands; some simple oral communication abilities. (raw score 42-50)

Level V. Can satisfy basic survival needs and some limited social demands; can follow simple oral and very basic written instructions. (raw score 51-57)

Level VI. Can satisfy most survival needs and limited social demands; can follow simple oral and written instructions and diagrams. (raw score 58-64)

Level VII. Can satisfy survival needs and routine work and social demands; can follow oral and simple written instructions in familiar and some unfamiliar situations. (raw score greater than 65)

Exhibit 3.5 presents the percentages of students scoring within each SPL. Initially, about 70 percent of students scored at level 2 or lower and over 80 percent of the students scored at level 3 or lower. This assessment showed significant student improvement over time; by the nine-month assessment, only 40 percent of students scored at Level 2 or below and over 30 percent scored at Level 4 or above.

Student Group Differences

Spanish speaking students from countries other than Mexico consistently scored higher than other students. The Hmong were not only the lowest scoring group, but their average scores did not increase over the three assessment periods. The Somali students

EXHIBIT 3.5:

Frequency and Percent of Student Performance Levels (SPLs) By Time Periods for the BEST Oral Interview

Student Performance Levels (SPLs)	Initial Assessment (n=447)		Second Assessment (n=314)		Final Assessment (n=212)	
	Frequency	%	Frequency	%	Frequency	%
Level 0	115	25.7	29	9.2	17	8.0
Level I	77	17.2	47	15.0	17	8.0
Level II	119	26.6	95	30.2	52	24.5
Level III	65	14.6	61	19.4	55	26.0
Level IV	32	7.2	33	10.5	27	12.8
Level V	9	2.0	15	4.8	17	8.0
Level VI	14	3.1	20	6.4	14	6.6
Level VII	16	3.6	14	4.5	13	6.1

showed the greatest improvement on the BEST test, their average score increased 1.5 points over the course of the study.

Reading Skills

The Woodcock-Johnson

We used four subtests of the WJR reading battery, the Basic Reading Skills Cluster (BRSC), which includes the Letter-Word Identification, and Word Attack subtests; and the Reading Comprehension Cluster (RCC), which includes the Passage Comprehension, and Vocabulary subtests. On each of the subtests, items get increasingly more difficult and testing is discontinued after the respondent answers a certain number of consecutive items incorrectly (six or four, depending on the subtest).

The Letter-Word Identification subtest entails identifying the names of drawings and individual letters, followed by reading words. In Word Attack, students read nonsense words (e.g., *nan, splaunch*). The first several items of the Passage Comprehension subtest, required students to match drawings to words (e.g., respondent points to the picture of the yellow bird after seeing the words *yellow bird*). Next, students responded orally with missing words in sentences and passages (cloze format). The Reading Vocabulary subtest required students to provide synonyms, and then antonyms, for target words. Exhibit 3.6 shows the raw score ranges and grade equivalents for each WJR subtest, computed according to the grade-equivalent norms published in the test manual.

EXHIBIT 3.6:

Mean Student Scores for the Woodcock-Johnson Subtests for Reading Skills (WJR)

WJ-R Subtest	Initial Assessment (n=481)		3 Month Assessment (n=341)		9 Month Assessment (n=212)	
	Avg. Score	Avg. Grade Equivalent	Avg. Score	Avg. Grade Equivalent	Avg. Score	Avg. Grade Equivalent
Letter-Word	22.6	1.5	25.3	1.7	28.2	2.0
Word Attack	5.8	1.6	6.8	1.8	9.3	2.0
Passage Comprehension	4.5	1.1	5.3	1.2	6.8	1.3
Reading Vocabulary	2.1	.9	2.7	.9	4.3	1.2

Note: Possible ranges for each of the subtests differ and are as follows: Letter-Word 0 to 57, Word Attack 0 to 30, Passage comprehension 0 to 43, and Reading Vocabulary 0 to 69.

Letter-Word Subtest. Letter-Word Activity scores initially ranged from 0-56, averaging 22.6, indicating that students demonstrated reading skills approximately halfway between a first and second grade level. Approximately 30 percent of students initially scored at the kindergarten level or below. Although students were often able to identify drawings (e.g., chair, book), individual letters, and short words such as *in*, *dog*, and *as*, most multi-syllabic words and words with irregular spellings were very difficult for them. Students' scores increased significantly on this measure over time. By the final assessment, student scores ranged from 2-56, and averaged at the second grade level.

Word Attack Subtest. Initially, students were able to correctly pronounce 5-6 nonsense words (ranging from 0-29 out of a possible 30), indicative of performance at the 1.6 grade level. Although some students were able to correctly pronounce a few of the easier "words," such as *zoop* and *lish*, almost all of them were unable to correctly pronounce the more difficult "words" like *thrept*, *quantric*, and *knoink*. By the final assessment, students were, on average, able to correctly pronounce 9-10 nonsense words correctly (ranging from 0-30) and were scoring at the second grade level. Student's scores increased significantly on this measure over the course of the study.

Passage Comprehension Subtest. At the beginning of study, students were, on average, performing at the first grade level (1.1), with scores ranging from 0-18. Some students were able to match words to the pictures (e.g., *red table*, *little dog*), as well as complete the first few sentences (e.g., *The cat is in the* _____, accompanied by a drawing of a cat in a hat). However, once the sentences advanced beyond the first grade reading level, students had difficulty reading them (e.g., *After a few days, the baby bear could crawl over his* _____, along with a drawing of two bears). Although there was a statistically significant increase in student performance over the course of the study, the final assessment average grade equivalent increased only slightly to 1.3 (ranging from 0-22).

Reading Vocabulary Subtest. This subtest of the Woodcock-Johnson consists of two parts. For one part, students had to read and provide synonyms for a list of words, for the other parts they had to provide antonyms. Although initial scores ranged from zero to 32, over 53 percent of the students were unable to complete any portion of either task on this subtest. The average raw score was 2 out of a possible 69, which was considered slightly below the first grade reading level at .9. Only a few students were able to provide synonyms or antonyms for words such as *mom, small,* and *go.*

At the nine-month assessment period the average score rose to 4.3 with a grade equivalent of 1.2 and a range of 0-35; however, over 37 percent of students were still unable to complete any of this subtest. Although there was statistically significant student improvement over time on this subtest, these subtests were clearly too difficult for the ESL literacy students in our study. Learning synonyms and antonyms of words is a school-based task with which literacy students are unfamiliar. In addition, many of the words on the subtest were not high frequency words that ESL learners would be more likely to recognize.

Student group differences. As with the other assessment measures, the two Spanish-speaking student groups scored the highest across all of the skills subtests. The Hmong-speaking students were the lowest level readers, scoring low on the word attack and passage comprehension subtests, and not scoring above the kindergarten grade level on the reading vocabulary subtest. Differences in performance on the Woodcock Johnson among language groups were statistically significant.

Reading Demonstration Task

The WJR provides standardized measures of students' reading skills in vocabulary, comprehension and phonemic awareness. However, while the test provides measures of how well students read, it cannot be determined from the test *what* they can read. To get a richer, more holistic sense of students' reading abilities, each student completed the reading demonstration task, an applied reading assessment utilizing real items, developed for this study.

For this task, students were asked to select from a set of authentic environmental texts and common household items. The items included Coca-Cola cans, common food products, bills, local newspapers, and popular magazines. Items in both English and the student's native language were included. The study liaison asked the student to read the item and if a student was reluctant to read, urged him or her to try something and selected a simple item, such as the Coca-Cola can. The liaison offered to "read along" and provided help if the student still resisted reading. After a student read an item, the liaison checked comprehension. Students were encouraged to read more than one item and on average, attempted to read 4 items. As shown in Exhibit 3.7, the items most commonly selected were the Coca-Cola can and the food label; the items least often chosen were the utility bill and the more difficult of the two stories.

EXHIBIT 3.7:

Frequency of Item Selection at Initial Assessment

Item	Number of Students Selecting Each Item to Read
Coca-Cola Can	287
Food Can	271
Story 1	235
Newspaper	216
Flyer	209
Ad	204
Magazine	193
McDonald	179
Bill	154
Story 2	139

Note. Numbers in table sum to greater than our sample size because students could and did select more than one item.

Students' readings of the selected items were rated on four- or five- point scales on four dimensions.[17]

- **Fluency** assessed students' ability to read the items aloud. Scoring categories were: reads fluently, reads haltingly, has some trouble, or has a great deal of trouble.

- **Meaning-making** assessed students' ability to make sense of what they were reading, scored as able to make sense, misread a word or two, misread most items, or reading does not make sense.

- **Comprehension** assessed students' responses to reading the items. The tester asked questions about the text after the student read it to gauge comprehension (e.g., "What did you just read?") and scored responses as shows comprehension, shows partial comprehension, shows minimal comprehension, and shows no comprehension.

- **Help Needed** assessed student's ability to read the items without assistance, scored as needs no help, needs minimal help, needs some help, and needs a great deal of help.

We analyzed the reading demonstration scores using Item Response Theory (IRT) methodology, resulting in a ranking of the text items read by the students according to approximate difficulty. Item difficulty was based on the resulting parameters from these

[17] We also measured the amount of reading, which was intended to assess the amount of text students could read from the materials and was scored as read a paragraph, read several sentences, read key words (large print), and read key words (small print). However, many of the items students selected to read did not vary on this dimension, and it proved not to be descriptively or statistically useful, and is thus not reported.

analyses. These parameters and rankings are provided and further discussed in the appendix. The Coca-Cola can, French fry bag and food can label were the easiest items, and the newspaper and magazine article were the most difficult items for our students, with the other items falling in between. We then examined what items students could read and how well they understand what they read.

Fluency. Student performance on the reading demonstration task underscores the low level reading abilities of the *What Works Study* students. Initially, as shown in Exhibit 3.8, a fifth of the 358 students were unable to even attempt to read any of the items in the reading demonstration task, and of those that tried to read items, nearly a third were unable to read anything fluently or haltingly—including the Coca-Cola can. Many of these students were Hmong and Somali students who had almost no experience with text. Nearly a quarter of the students could read nothing but the easiest items (the Coca-Cola can, food labels or French fry bag). The remaining students could read an average of one or two items and only a fifth of all students could read either of the two most difficult items. Student improvement over the course of the study on this task was statistically significantly for all items except the three most difficult (the magazine, newspaper and story 2).

EXHIBIT 3.8:

Percent of Students Exhibiting Fluency on the Reading Demonstration Task

Fluency	Time 1 (n=435)	Time 2 (n=310)	Time 3 (n=215)
No attempt to read any item*	18	15	15
Attempted to read, could read nothing fluently or haltingly	29	16	16
Read only simple items (Coca-Cola can, food label, of French fry bag)	21	18	18
Read simple and more difficult items (e.g., ad, flyer, bill, both stories)	32	43	45
Read most difficult items (magazine or newspaper)	18	24	21

* Percent is of total sample, other percents are of those who attempted the task. Difficulty of items is based on IRT analysis.

Although few students were able to read the most difficult items, this percentage did increase over the course of the study. For example, while 54 percent of the students who tried could initially read the French fry bag, only 35 percent could read the flyer and 19 percent could read an excerpt from a magazine article. At the final assessment, the number of students who tried to read the French fry bag and were able to, had risen to 70 percent, over half (52 percent) could read the flyer and 29 percent could read an excerpt from a magazine article.

The percentage of students able to read the stories was surprising and somewhat higher than expected. However, this appears to be due to the fact that many of the stories

used were very simple and drawn from new ESL reader texts, familiar to students from their class work.

Comprehension. As illustrated in Exhibit 3.9, student comprehension of the items read in the reading demonstration task drastically improved over time. By the end of the study, only eight percent of students showed no comprehension of any of the items, and the majority of students showed understanding of at least one of the moderately difficult items.

EXHIBIT 3.9:

Percent of Students Exhibiting Comprehension of Items on the Reading Demonstration Task

Comprehension	Time 1 (n=435)	Time 2 (n=310)	Time 3 (n=215)
Attempted to read, but could understand none of the items	25	13	8
Showed comprehension of only the easy items (Coca-Cola can, food label, of French fry bag)	24	17	18
Showed comprehension of moderately difficult items (e.g., ad, flyer, bill, both stories)	40	49	55
Showed comprehension of most difficult items (magazine or newspaper)	12	20	19

Meaning-Making. As can be seen in Exhibit 3.10, the pattern of results for meaning-making mirrors that for fluency. The proportion and spread of students able to read the items in a meaningful way is nearly identical to those able to read the items fluently. In fact, these two measures are very highly correlated and likely measure the same ability. The correlation between the two scales at each of the three assessments ranges from .81 to .86. Because fluency is a more conceptually sound and intuitively interpretable construct than meaning-making, it was retained while meaning-making was dropped from further analyses.

EXHIBIT 3.10:

Percent of Students Exhibiting Meaning Making on the Reading Demonstration Task

Meaning-Making	Time 1 (n=435)	Time 2 (n=310)	Time 3 (n=215)
Attempted to read, but could understand none of the items	24	13	8
Able to read, with just one or two words mis-read, only easy items (Coca-Cola can, food label, of French fry bag)	20	16	19
Able to read, with just one or two words mis-read, moderately difficult items (e.g., ad, flyer, bill, both stories)	36	15	52
Able to read, with just one or two words mis-read, the most difficult items (magazine or newspaper)	20	25	21

Help needed. Initially, many students attempting the task needed help reading all selected items. This proportion dropped substantially over the course of the study (see Exhibit 3.11). Few students were able to read the difficult items without help, but over a third were able to read moderately difficult items at the initial assessment. By the final assessment, approximately half were able to read these items without assistance.

EXHIBIT 3.11:

Percent of Students Needing Help on the Reading Demonstration Task

Help Needed	Time 1 (n=435)	Time 2 (n=310)	Time 3 (n=215)
Attempted to read, but needed help with all items	36	18	10
Needed no or minimal help with the easy items (Coca-Cola can, food label, of French fry bag)	18	22	22
Needed no or minimal help with the moderately difficult items (e.g., ad, flyer, bill, both stories)	31	39	49
Needed no or minimal help with the most difficult items (magazine or newspaper)	15	21	19

Student group differences. Overall, the Spanish-speaking students (who also had the most formal education), both from Mexico and from countries other than Mexico, were significantly more likely to successfully read the more difficult items. The Hmong and Somali students often were unable to read the simple items. In fact, only 3 or 4 Hmong and Somali students could read items more difficult than the Coca-Cola can or French fry bag.

Reading Demonstration Student Performance Levels

To explore further student literacy growth, students were assigned to a proficiency level for the fluency and comprehension sub-tests of the reading demonstration task. These performance levels were based both on the IRT-based difficulty of the item and the proficiency with which each item was read. The levels ranged from 0 – 3, with level 0 being the least advanced and level 3 being the most advanced and are defined as follows:

Fluency Performance Levels:

- **Level 0.** The items were read with trouble or great difficulty. None of the reading demonstration items were read 'fluently without hesitation' or 'OK, but haltingly.'

- **Level 1.** At least one of the least difficult items (Coca-Cola can, McDonald's wrapper, food label) was read fluently without hesitation or OK, but haltingly.

- **Level 2.** At least one of the moderately difficult items (flyer, story 1, story 2, advertisement, bill) was read fluently without hesitation or OK, but haltingly.

- **Level 3.** At least one of the most difficult items (magazine or newspaper) was read fluently without hesitation or OK, but haltingly.

Comprehension Performance Levels:

- **Level 0.** The items selected are misread, or the reading just does not make sense. None of the reading demonstration items were read in a manner that made sense with no more than a few words mis-read.

- **Level 1.** At least one of the least difficult items (Coca-Cola can, McDonald's bag, food label) was read in a manner that made sense with no more than a few words mis-read.

- **Level 2.** At least one of the moderately difficult items (flyer, story 1, story 2 ad, bill) was read in a manner that made sense with no more than a few words mis-read.

- **Level 3.** At least one of the most difficult items (magazine, newspaper) was read in a manner that made sense with no more than a few words mis-read.

The reading demonstration levels provide useful information about the increase in students' ability over time. The average initial level for fluency was 1.4, increasing to 1.7 at the end of the study, and the average initial comprehension level was 1.4, increasing to 1.9. Student's scores on this measure improved significantly over the course of the study, as shown in Exhibit 3.12.

EXHIBIT 3.12:

Percent and Number of Students in Reading Demonstration Student Performance Levels

Reading Demonstration Score Level	Initial Assessment	Second Assessment	Final Assessment
Fluency	**(n=356)**	**(n=262)**	**(n=182)**
Level 0	28.9% (103)	15.7% (41)	16.5% (30)
Level 1	21.1% (75)	17.9% (47)	17.6% (32)
Level 2	32.0% (114)	42.8% (112)	44.5% (81)
Level 3	18.0% (64)	23.7% (62)	21.4% (39)
Comprehension	**(n=354)**	**(n=259)**	**(n=182)**
Level 0	25.1% (89)	12.7% (33)	7.7% (14)
Level 1	23.7% (84)	17.4% (45)	18.1% (33)
Level 2	39.6% (140)	49.4% (128)	55.0% (100)
Level 3	11.6% (41)	20.5% (53)	19.2% (35)

As can be seen from Exhibit 3.12, while many students scored in Level 0, many others scored in Level 2. Unlike the other assessments where the majority of students consistently scored in the lowest categories, the student scores are nearly evenly spread across the possible proficiency levels of the reading demonstration task. Because this test

was developed specifically for the *What Works Study*, this is especially promising for future development of assessment for adult ESL literacy students, as it suggests that this test may be better able to differentiate in ability in this low literacy population.

Unfortunately, the number of students completing the reading demonstration task dropped substantially at subsequent assessments (from 356 for Fluency and 354 for Comprehension to 182 for each subscale at the final assessment). Collecting data using the reading demonstration task proved to be somewhat difficult. Students functioning at low basic literacy levels did not like to attempt to read text they knew they could not, and as such, on occasion refused to attempt the task.

Student group differences. Spanish speaking students scored significantly higher than did students in other language groups on the Fluency subscale. The average initial fluency level for Spanish speakers from countries other than Mexico was 1.7, the average level for those from Mexico was 1.4. The Somali and Hmong, on average, scored about a half level below the Spanish-speakers (1.2 and .9 respectively).

Spanish speaking students from Mexico and countries other than Mexico and students from Somali scored high on the comprehension levels (initial averages 1.3, 1.5 and 1.4 respectively). The average comprehension level for the Hmong was 1.1.

Literacy Practices Interview

The purpose of the literacy practices interview was to obtain qualitative information about the students' background, why they were attending class, what they thought they were learning and their literary habits. Using a structured format, the interview also collected information on what students read and wrote, what language they normally used, how difficult it was for them to read and write in English, and whether they got help reading and writing. The amount of difficulty students had speaking and listening in English was also collected.

Reading Frequency and Difficulty

Exhibit 3.13 shows the students' reported frequency of reading items in their native language and in English, as well as the percentage of students that experienced difficulty reading the items in English. As can be expected, students in the study typically read only the simplest texts. The most commonly read items in English included billboards, labels, dictionaries or phone books, transportation schedules, and advertisements. Nearly half of students initially reported that they never read newspapers, magazines, books or letters in English. By the nine-month assessment this number had dropped to approximately a quarter, although throughout the duration of the study nearly 80 percent of students reported that it was very difficult or sometimes difficult for them to read these texts. This is not surprising given the high difficulty level of newspapers, books and magazines.

EXHIBIT 3.13:

Percent of Students Reading Items in their Native Language and English

	% Reading Item			% Reporting Reading Item is "Very" or "Somewhat" Difficult in English
	At Least a Few Times a Week (in Native Language or English)	"Never" in English	"Always" or "Usually" in English	
Initial Assessment (n=405)				
Billboards	44	8	66	-
Print Advertisements	23	19	57	61
Maps, Charts, Diagrams	7	22	43	63
Manuals or Instructions	11	26	42	-
Dictionaries, Phone books, Recipes	24	21	39	-
Labels	25	12	53	55
Letters	17	51	23	79
Bus or Train Schedule	16	13	62	52
Menus	12	22	39	53
Newspapers	16	45	24	85
Magazines	16	45	20	80
Books	35	36	34	77
Billboards	48	8	80	-
Print Advertisements	20	13	62	52
Maps, Charts, Diagrams	6	7	68	63
Manuals or Instructions	9	13	51	-
Dictionaries, Phone books, Recipes	27	15	47	-
Labels	21	13	64	59
Letters	14	42	36	75
Bus or Train Schedule	12	9	77	36
Menus	7	19	49	54
Newspapers	18	33	27	86
Magazines	12	37	27	81
Books	31	25	43	77
Billboards	48	15	85	-
Print Advertisements	20	4	77	46
Maps, Charts, Diagrams	8	4	67	53
Manuals or Instructions	11	12	58	-
Dictionaries, Phone books, Recipes	28	3	53	-
Labels	22	3	70	45
Letters	10	39	31	71
Bus or Train Schedule	10	2	88	37
Menus	10	9	54	46
Newspapers	14	24	27	86
Magazines	11	30	23	84
Books	35	20	47	75

Note: Electronic items (email and web pages) appeared on the Literacy Practices Interviews but are not presented here because so few students had any interaction or familiarity with them.
*Students who responded "never" in the previous column are not included in the responses listed here. Items with a dash were included on the frequency item, but not on the difficulty item.

The literacy students in the study had not yet entered the electronic age: virtually no students in the sample read e-mail or web pages, and more than 94 percent of students indicated that they found it difficult to do so. The low frequency of use may also reflect lack of access to electronic media among this population of students.

When students did attempt to read, they frequently had to rely on others to help them. More than half of the students (65 percent) initially reported that they received "a lot of help to read in English." This number dropped to 56 percent at three months and to 50 percent at nine months. An examination of the students' responses by language groups indicates that only Spanish-speaking students—who had the most formal education among students in the sample—reported reading multiple items at least a few times a week.

Writing Frequency and Difficulty

Exhibit 3.14, presents what students reported writing, both in their native language and in English, and the difficulty they had in writing English. Students in the *What Works Study* wrote very little. At least half of the students reported that they "never" wrote almost all of the common items in English listed in the exhibit. When they did write, it was most often short notes or just a sentence or two. Items frequently written in English were bills, invoices and checks, and forms, like those at the doctor's office or at schools.

ESL students infrequently wrote letters in English. At the initial assessment, only about a third of the students (37 percent) said that they write "a sentence or two about something" more than once a week. By the final assessment, this percent had only risen to 41 percent. Most students report having difficulty writing all items in English, although the most difficult writing tasks included writing a couple sentences and letters.

Generally, the students needed help with their writing. Approximately two-thirds of the students (66 percent) initially reported that they needed "a lot of help" when they write in English, and 57 percent still needed "a lot" of help at the end of the study. An examination of student responses by language group indicated that of the students reporting writing items in English "always" or "usually," the majority were Spanish-speaking students.

Listening Frequency and Difficulty

To get a measure of students' ability to understand spoken English, we asked them to rate the difficulty they have understanding English spoken in different contexts. Students reported a great deal of difficulty understanding spoken English: 61 percent reported a great amount of difficulty listening to people talking to one another in English, and 49 percent reporting difficulty understanding people speaking to them in English at work. The students listening skills improved over time. At the end of the study, the percent of students reporting great difficulty listening to people talking to one another in English had dropped to 46 percent, and the percent reporting difficulty listening to spoken English at work had dropped to 32 percent.

EXHIBIT 3.14:

Percent of Students Writing Items in Native Language and English

	% Of Students Reported Writing Item in Native Language or English More Than Once a Week	% Of Students Reported "Never" Writing Item in Native Language or English	% Of Students Reported Writing Item in English "Always" or "Usually"*	% Students Reported Difficulty in Writing Item in English (very/somewhat)
Initial Assessment (n=267)				
Letters	8	60	20	82
Forms (e.g. doctor's office)	7	62	31	68
Instructions or Directions	10	65	23	63
Bills, invoices, checks	12	67	42	55
A sentence or two	37	39	42	84
Short messages or notes	15	61	18	60
A paragraph or short story	12	71	30	76
E-mail **	1	98	0	0
Second Assessment (n=170)				
Letters	7	62	13	80
Forms (e.g. doctor's office)	14	61	50	68
Instructions or Directions	11	65	41	64
Bills, invoices, checks	9	63	64	60
A sentence or two	41	34	50	80
Short messages or notes	11	60	27	68
A paragraph or short story	15	65	42	68
E-mail**	1	99	0	-
Final Assessment (n=119)				
Letters	6	67	26	81
Forms (e.g. doctor's office)	14	53	59	65
Instructions or Directions	9	64	53	53
Bills, invoices, checks	9	59	63	43
A sentence or two	41	37	50	78
Short messages or notes	12	60	25	64
A paragraph or short story	9	65	42	62
E-mail **	3	93	2	-

*Students who responded "never" in the previous column are not included in the responses listed here
**Sample size small for this item (n < 23)

We also asked students whether they listened to the radio, watched television or videos and went to the movies; whether they watched or listened in English or their native language; and how difficult it was to watch or listen in English. Exhibit 3.15 shows that while most students watched television, videos and listened to the radio, few students reported watching or listening in English.

Overall, listening to the radio and watching movies in theatres were the most difficult. Understanding spoken English through the various media remained relatively difficult for students throughout the duration of the study. The percentage of students finding these tasks difficult remained relatively unchanged, dropping only slightly at the later assessments.

EXHIBIT 3.15:

Percent of Students Listening to Items in Native Language and English

Item	% Of Students Reported Listening to Item in Native Language or English	% Of Students Reported "Always" or "Usually" Listening to Item in English	% Of Students Reported "Never" Listening to Item in English	% Students Reported Difficulty in Listening to Item in English
Initial Assessment				
Radio	76	17	33	83
Television	92	34	16	75
Videos	73	22	23	75
Movies	50	12	27	77
Second Assessment				
Radio	72	17	21	81
Television	92	40	11	78
Videos	63	20	18	70
Movies	29	10	11	80
Final Assessment				
Radio	67	14	22	74
Television	91	41	10	69
Videos	52	21	11	68
Movies	21	13	5	60

Student Group Differences

There were significant differences among the language groups in the difficulty associated with all activities except watching movies in theatres. Students in the "other" language group reported the least difficulty doing these activities, and the Hmong students reported the most difficulty.

English Speaking Habits in Everyday Life

We asked students a series of questions about their speaking habits in their everyday life, including how often they spoke English, in what settings, and how much help they needed to speak English in different settings. At the beginning of the study, when asked about the frequency with which they spoke English at home and in their "everyday life," many students (68 percent) reported that they "rarely or never speak English." Over one-half of students (55 percent) indicated that they did not speak English in the everyday life, including when seeing doctors, shopping, ordering at a restaurant, or making small talk about the weather and sports. When asked about the levels of difficulty they have with different types of conversations in English, 80 percent of students reported that they are unable to have conversations in English about things that are important to them without help from others. In addition, the majority (81 percent) of the students reported that they are unable to talk to their children's teachers or talk on the phone in English (72 percent) without assistance.

By the end of the study, less than half (42 percent) indicated that they do not speak English in the everyday life, although more than half (56 percent) still reported that

they "rarely or never speak English." at home and in their "everyday life". When asked about the respective levels of difficulty they have with different types of conversations in English, 78 percent of students were unable to have conversations in English about things that are important to them without help from others. In addition, more than half (63 percent) of the students reported that they are unable to talk to their children's teachers or talk on the phone in English (68 percent) without assistance.

Initially, over half (52 percent) of the employed students were unable to speak English on their jobs. At work, they reported being unable to talk at meetings (68 percent), give suggestions about how to do things (60 percent), or talk to coworkers about work (44 percent) in English. By the end of the study, only a third of the employed students (32 percent) were unable to speak English on the job. However, they still reported being unable to talk at meetings (62 percent) or give suggestions (53 percent), but fewer reported being unable to discuss work with colleagues (27 percent) in English. Student's ability to speak to their supervisors about the job increased during the duration of the study. While nearly half (42 percent) were unable to talk to their supervisor about work at the initial assessment, only 18 percent were unable to at the final assessment.

Study Habits

To gauge how much students practiced English and studied on their own outside of class, we asked them how often they did such activities as homework, looking up words in a dictionary and writing down unfamiliar words. Exhibit 3.16 illustrates the study habits of the students in the study. A little more than half consistently reported that they "always or usually" do their homework for their English class. Nearly a third "always or usually" studied English on their own, outside of class, and approximately a third asked English speakers to help them communicate or solve problems. Students were less likely to look up words in a dictionary or write down unfamiliar words to look up later. In fact, nearly half the students reported rarely or never doing so. Students also infrequently asked the teacher for help outside of class or asked what words meant in conversation, slightly less than half reported rarely or never doing. There were no significant differences in study habits between language groups.

Student Goals

Students in the study gave many reasons for taking English classes. The most frequently given reason was to improve general communication skills (reported by 37 percent of the students at 3 months and 31 percent at 9 months). Students also enrolled in ESL classes to improve general literacy skills (21 percent initially and 19 percent at final assessment), and to promote general life improvement (e.g., better job, home, or life – 17 percent and 23 percent). Only six students cited citizenship as the main reason for taking ESL classes.

Student Ratings of Class Helpfulness

To assess the extent to which what was learned in class was helpful in other areas of students' lives, we asked them about everyday activities for which it might be helpful

to learn English. At three months, what had been learned in class was "a lot of help" or "some help" doing everyday activities such as shopping and talking to people (51 percent), communicating better with family and friends (39 percent), and becoming more involved with community and individual rights (32 percent). Employed students reported that what had been learned helped them do their job better or obtain a better job (38 percent) and students with children reported that what had been learned made them better able to deal with their children's teachers (21 percent).

EXHIBIT 3.16:

Percentage of Students Reporting Engagement in Study Habits

	Rarely or Never	Sometimes	Always or Usually
Initial Assessment			
Write down unfamiliar words to look up later	52	24	24
Ask what words mean in conversation	44	26	30
Look up words in dictionary	58	16	26
Ask teacher for help outside of class	50	26	24
Ask English speakers to help communicate	42	23	35
Do homework	31	17	52
Study English on your own other than for class	38	23	39
Second Assessment			
Write down unfamiliar words to look up later	51	29	20
Ask what words mean in conversation	47	30	23
Look up words in dictionary	53	26	22
Ask teacher for help outside of class	46	29	24
Ask English speakers to help communicate	43	27	30
Do homework	25	13	62
Study English on your own other than for class	42	18	39
Final Assessment			
Write down unfamiliar words to look up later	47	32	21
Ask what words mean in conversation	42	41	18
Look up words in dictionary	49	29	22
Ask teacher for help outside of class	41	34	24
Ask English speakers to help communicate	39	39	22
Do homework	22	26	52
Study English on your own other than for class	36	26	38

The percentage of responses indicating that what was learned in English class was "a lot of help" or "some help" was relatively stable over the course of the study. At the nine-month follow-up the percents were relatively unchanged from those at the initial assessment. The largest increase in rated helpfulness was reported by the employed students who reported that what was learned in class helped increase job performance or job obtainment (48 percent), and by students with children, who reported that what was learned in class helped them better deal with teachers (33 percent).

Student Life Changes

By the end of the study, 28 students reported having gotten a new or better job, 23 students reported applying for or obtaining citizenship, and 12 students had registered to vote or had actually voted for the first time. When asked to tell us about something they learned from ESL class, students volunteered improved reading/writing (*n*=38, 36 percent), improved speaking/oral understanding (*n*=21, 20 percent), increased understanding (*n*=15, 14 percent), nothing/not much (*n*=15, 14 percent), and general English improvement (*n*=10, 10 percent).

Chapter Summary

The research design for this study required the use of standardized tests. However, developing assessment procedures for the study was especially challenging, since assessment of adult ESL literacy students requires measurement of skills in two domains: English language proficiency and literacy ability. In addition, ESL literacy students by definition have very limited English skills and also have little or no experience with school. Thus, tests and assessments that use school-based tasks or multiple-choice formats that require some knowledge of English were not appropriate for the study. Furthermore, most existing ESL assessments are not sensitive enough to measure the small literacy gains expected of ESL literacy students during the short time that they attend classes.

After a through review of existing assessments we selected two writing tests, the Adult Language Assessment Scales (ALAS) and Comprehensive Adult Student Assessment System (CASAS) Functional Writing Assessment; the oral interview of the Basic English Skills Test (BEST) to assess speaking and listening skills; and four reading subscales of the Woodcock Johnson (WJR) to measure reading skills. We supplemented these standardized assessments with three alternative assessments: a literacy practices interview, a reading demonstration task, and a literacy observation by the teacher.

The assessment scores reflect the low literacy level of the students in the study. All tests showed slight overall improvement over the course of the study, although the pattern of responses on some of the subtests (ALAS, BEST) indicated that higher level students may have advanced to higher level classes during the study period, or that some sub-scales (ALAS) were not discriminating enough to detect learning gains in low-level students, such as those included in this study.

As illustrated on the CASAS and A-LAS, many students were able to write some basic information about themselves in English but few were able to write anything more detailed than name, address and birth date. Students writing contained frequent and/or serious errors with mechanics and syntax; they frequently left many items blank, and wrote responses completely or partially in another language.

When responding verbally to the simple questions posed in English on the BEST test, students were often able to provide responses that were comprehensible, but not grammatically accurate. Providing minimal, unelaborated responses to more complex questions proved very difficult. Even though the easiest task on this assessment was to provide appropriate gestures in response to simple commands or questions, students were able to demonstrate comprehension by providing appropriate gestures in response to basic questions slightly less than half the time.

Reading abilities as determined by the Woodcock-Johnson averaged between a first and second grade reading level, although nearly a third of the students initially scored at or below the kindergarten level. Initially, almost all students were unable to correctly pronounce nonsense words, although by the end of the study most students were able to correctly pronounce several nonsense words correctly and were scoring at the second grade level. Some students were able to match words to pictures as well as complete a few simple sentences at the first grade reading level or below (although most students had difficulty reading beyond that level). The most difficult reading task involved producing synonyms and antonyms, and few students were able to do so.

Performance on the reading demonstration task further illustrated the low level reading abilities of the students in the study. Nearly a third were unable to read any of the items on the reading demonstration fluently or haltingly, and a quarter could read nothing but the easiest items. At the end of the study, over two-thirds could read one or more of the easy items and over half could read one or more of the moderately difficult items. Student comprehension of the items read in the reading demonstration task drastically improved over the course of the study as well. At nine months most students showed comprehension of at least the easier items, and the majority of students showed understanding of the moderate and most difficult items. Initially, many students attempting the task needed help with at least some of the selected items. By the final assessment, nearly half were able to read the items without any assistance.

Spanish speakers consistently scored higher on the assessments than did students from the other language groups, although they also had the most years of prior education (see chapter 2). The Somali and Hmong students generally scored lower than the other students in this study, although this is to be expected given their inexperience with written text.

Students in the study typically read only the simplest English texts outside of class. The most commonly read English language items included billboards, labels, dictionaries or phone books, transportation schedules, and advertisements. Nearly half of students never read newspapers, magazines, books or letters in English, and of those that did, nearly all reported that it was very difficult for them to do so.

Students wrote very little outside of class. At least half of the students reported that they “never” wrote many common items in English listed in the literacy practices interview and when they did write, it was most often short notes, a sentence or two, bills, invoices and checks, and forms, like those at the doctor’s office or at schools.

Most of the students initially reported that they need "a lot of help" when they write in English, and many still needed "a lot" of help at the end of the study.

Students also reported great difficulty understanding people talking to one another in English. However, the students listening skills improved over time, at the end of the study, the percent of students reporting a great deal of difficulty understanding people talking to one another in English had dropped to less than half. Students also reported difficulty watching television, listening to the radio, and watching videos in English.

The frequency with which students spoke English increased over the nine months of the study. Initially, most students rarely or never spoke English outside of class and reported that they were unable to have conversations in English about things that were important to them without help from others. By the end of the study, less than half claimed to rarely or never speaking English outside of class. Initially, over half of employed students were unable to speak English on their jobs, but by the end of the study, only a third of the employed students were unable to speak English on the job.

Students were not likely to pursue learning activities or extra help outside of class. A little over half reported that they "always" or "usually" do their English homework. About a third studied English on their own or asked English speakers to help them communicate or solve problems. Some students looked up words in a dictionary or wrote down unfamiliar words to look up later, although nearly half the students reported rarely or never doing so. Students also infrequently asked the teacher for help outside of class or asked what words meant in conversation.

Learning English was benefiting the students in the study. The most frequently given reason for enrolling in ESL was to improve general communication skills, and students reported that what they had learned in class was "a lot of help" or "some help" doing everyday activities requiring general communication skills. Employed students reported that what had been learned helped them do their job better or obtain a better job and students with children reported that what had been learned made them better able to deal with their children's teachers.

CHAPTER 4:
ADULT LITERACY ESL INSTRUCTION AND TEACHERS

The main focus of the *What Works Study* was to identify instructional practices related to the development of literacy and language skills of adult ESL literacy learners. To identify effective practices, we needed to organize instructional activities into a meaningful framework that reflected the way ESL literacy is generally taught. We also needed a way to quantify instructional activities, since we wanted to use statistical methods to correlate these instructional inputs, student characteristics and class variables with student growth in language and literacy development.

In this chapter, we present the framework that guided our approach toward conceptualizing and measuring classroom instruction. We then describe the development of an observation guide that we used to quantify activities according to their focus on basic literacy development and second language acquisition, as well as other classroom variables. We also explain how observers were trained and how the used the framework to capture classroom realities. The second part of the chapter presents descriptive data on the activities and characteristics of the 38 classes in the study.

As the people most directly responsible for literacy and language instruction in the adult ESL classroom, teachers may often have a direct influence on student interest, motivation and learning. In the final section of this chapter, we describe the characteristics of the teachers in the *What Works Study,* including their background, education and professional development experiences.

INSTRUCTIONAL FRAMEWORK OF THE *WHAT WORKS STUDY*

Teaching adult immigrants and refugees to become proficient speakers of English *and* to be skilled readers is a complex endeavor and trying to develop a framework for capturing this work was quite a challenge. Teaching ESL Literacy requires a dual effort comprised of instruction in (1) the language skills necessary to communicate in English, including sub skills related to sentence structure, pronunciation, word endings, tenses; and (2) the reading and writing skills necessary to process print and gain meaning from the written word. Since adult ESL literacy students need to make their way in the United

States, language teaching, by necessity, also requires instruction on how to negotiate systems, how to communicate the language appropriately in different situations, and how to advocate for oneself. Since adult literacy learners, by definition, have few years of formal schooling, they also need teachers who can help them acquire the background knowledge that is necessary to understand radio, television, newspapers, books and magazines. Relative newcomers will look to their teachers to help them understand how things work and how things get done in the new country.

To develop a conceptual framework to capture what ESL teachers generally do in the classroom to help literacy students develop the language and literacy skills needed to navigate life in the United States, we began by reviewing the literature on literacy and language learning. Our review included studies and writings in anthropology, applied linguistics, literacy development (in children and in adults), reading as a second language, critical literacy, principles of adult education, and research in effective instructional practices and engaged learning.[18]

Besides conducting an extensive review of the literature, we also went to the field. In the first phase of the study we visited 25 adult ESL programs and observed over 75 classes. During these visits it become quite clear that one of the original study plans, to compare student learning gains after exposure to formal instructional approaches, such as whole language, participatory and competency-based models, would not work. These instructional methods, although quite distinct in the literature, were rarely, if ever, implemented in pure form. In practice, teachers typically used an eclectic mix of instructional activities according to the needs of learners in the class, their own teaching preferences, and the resources available for instruction.

One thing became obvious in our observations: although most teachers used an eclectic mix of approaches, they differed significantly in the amount of time and effort they spent on either English language development or literacy development. The language development activities followed a second language acquisition model to teach basic components of English (e.g., grammar, vocabulary, syntax) along with practice in communication and life skills. In this model, literacy development occurs incidentally, on an *ad-hoc* basis. A second set of activities we observed focused on basic *literacy development*, either explicitly through direct teaching or by providing learning experiences that asked students to focus on print. The activities stressed learning how to read and write, with attention paid to building skills related to reading fluency, decoding and encoding and strategies for meaning-making, or comprehension. We found that these two sets of activities offered a useful framework with which to look at the key dimensions of ESL literacy in the classroom.

ESL Acquisition Model

The instructional focus of the ESL acquisition model is on helping learners acquire English language skills. The primary emphasis of this approach is to teach learners how to communicate in English by focusing on language functions and

[18]The study bibliography at the end of this report lists the main references we consulted.

vocabulary, along with basic structure of English. Instruction also includes providing opportunities to practice using the language in conversation and in various contexts, such as school, community or at work. Much of the emphasis in this approach is on the development of skills needed for communicating face-to-face with English speakers.

In this model, written English words and phrases are used to reinforce the language being introduced and as a device to help learners remember what they hear. For example, a teacher might say a new word or phrase, write it on the board and then ask the class to repeat the phrase. These same words and phrases might later appear on a vocabulary worksheet or in a textbook as part of a dialogue for students to read aloud. In this approach, which has been successfully used with students who are literate in the native language for many years, students get much practice connecting oral language with print.

The ESL acquisition model, however, does not guide students toward understanding the building blocks of print processing. The model relies on integrating oral and written language to strengthen the language skills being acquired. As a rule, activities within an ESL acquisition model do not include teaching initial literacy, such as phonemic awareness, decoding or alphabet knowledge related to reading and writing. It is assumed that these skills exist in the native language, or that learners can acquire them through exposure to English. Any difficulties a learner might have reading or writing in English are assumed to be related to a lack of language skills (not unfamiliarity with processing print), and problems are addressed as language not literacy issues. This model implicitly holds that once English words, structures, and pronunciation are acquired, reading and writing will develop alongside speaking skills, without additional intervention in reading necessary

Literacy Development Model

Teachers focusing on literacy development place a much greater emphasis on basic reading and writing skills. These skills and strategies relate to developing reading and writing fluency by moving learners toward automaticity in decoding and encoding and to reading and writing focused on "meaning-making," that is understanding what is on a page or expressing ideas in print.

Fluency-related reading skills might include practicing the letters of the alphabet or letter and word recognition, as well as practice in recognizing sound/symbol relationships and in blending sounds. Supported reading, such as choral reading or the rereading of familiar texts, might also be used to build fluency. On the meaning-making side, students may be asked to predict what a common sign or announcement might mean, and they might be encouraged to use meaning-making strategies that take advantage of their knowledge of the world, including their ability to recognize and make sense of documents required for permanent residency and citizenship.

Instruction might also focus on helping learners develop effective text-processing strategies, such as using background knowledge, context and grapho-phonemic clues to interpret words and phrases. For example, a group might be given the task to work with

flyers, announcements and letters and select those sent by the immigration service, by a school, or by a hardware store. The approach to writing may follow a similar pattern. Students may get some practice forming letters and words, fitting writing into small spaces and leaving spaces between words. Students might practice writing using their own names or the names of their country as a starting point and also use common words and phrases that they encounter daily. Writing for meaning might also include writing a birthday card for a classmate or writing a few sentences about one's family.

Exhibit 4.1 summarizes the general differences between the models in terms of curriculum and instructional activities. While the distinction between ESL acquisition and literacy approaches is identifiable in a general sense, classes are usually comprised of a mix of ESL acquisition and literacy characteristics, given that developing literacy in ESL necessarily requires both the acquisition of oral communication skills and the learning of reading and writing skills. In practice then, it is not so much a question of teachers choosing one model over another, as it is a matter of the degree to which an emphasis on literacy is integrated into language teaching.

Coding Instruction: The Classroom Observation Guide

After deciding on this general instructional framework to guide our understanding of instruction, we developed a classroom observation guide as a formal way to code and quantify these activities. Guided by theory of literacy and language development and our class observations, we outlined the learning tasks and teaching strategies associated with both the literacy development and ESL acquisition models and developed codes that described the components of learning and instruction associated with them. We then assigned each "instructional code" a unique letter and number for measurement and analysis. Coded items were clustered under subheadings. For example, within the categories of "Reading" we developed codes for:

- Building print awareness, such as strategies to make learners understand that print has meaning;
- Alphabetics and fluency development, where students practice the alphabet and learn phonics;
- Reinforcement and practice, including supported reading and reading aloud; and
- Comprehension and meaning-making strategies, such as skimming and scanning, identifying key words and prediction.

Components associated with the ESL acquisition model included categories such as:

- Oral communication, which included listening, speaking and pronunciation; and "understanding how English works" (grammar and studying word parts);

EXHIBIT 4.1:

Characteristics of ESL Acquisition and Literacy Development Models

	ESL Acquisition Model	Literacy Development Model
Curriculum Goals	▪ Emphasis on acquisition of English language skills and structure, developing oral communication and practicing life skills; reading and writing is used as a means of reinforcing language acquisition, not as an end in itself.	▪ Focus is on the overall development of literacy skills; emphasis on fluency development, reading comprehension and writing development; English language skills are introduced as needed to allow understanding of what is written and to put ideas in writing.
Focus of Instructional Activities	▪ Basic grammar development (e.g., tenses, verbs, nouns), pronunciation focus. ▪ Reading used to reinforce language skills; little systematic attention given to reading as a process separate from general language development. ▪ ▪ Focus on phrases and language functions used in face-to-face communication (e.g., greetings, asking directions); some functional reading and writing, such as reading a calendar, filling out a form, or recognizing signs. ▪ Writing is often used reinforce language skills, as students fill in the blanks, copy sentences, or write dictations. The ability to form letters, copy words and phrases and write at least few sentences in the native language is assumed. ▪ Reading often consists of dialogues and short passages designed to build vocabulary and cultural background knowledge. Basic reading skills in the native language are assumed. ▪ Strong emphasis on vocabulary development, with a special focus on pronunciation or intonation. ▪ The native language may be used to clarify or explain concepts that are difficult to understand.	▪ Focus on reading and writing development (alphabetics; word attack; phonemic awareness) and strategies for meaning-making. ▪ Reading is seen as a system as well as a process that requires its own focus. ▪ Focus on expressive reading and writing as part of literacy development; some functional reading and writing such as reading a calendar, filling out a form, or recognizing signs. ▪ ▪ Writing may start with the mechanics of holding a pencil or putting pen to paper and forming letters and words. It is not assumed that all students in the class know how to write basic information. ▪ Strong emphasis on vocabulary development to facilitate reading comprehension and expression of ideas; decoding and word attack skills; some emphasis on spelling. ▪ The native language may be used to show how oral language maps to print and how sounds (ma-ma; pa-pa) are represented by letters and syllables.

- Vocabulary and learning the meaning of idioms;
- Language functions, such as dealing with conversational exchanges (greetings, leave taking, asking directions, expressing an opinion, speaking up); and
- Socio-cultural knowledge, such as learning information associated with culture, background knowledge associated with systems such as health or transportation and learning about the responsibilities associated with civics and citizenship.

Exhibit 4.2 shows a sample of the ESL acquisition codes we used. The addendum to this report has a list of all codes and a sample observation.

Other Categories and Functional Literacy

As we observed instructional and developed instructional codes, it became clear that several components of language and literacy development were common to both models. For example, ESL teachers frequently connect spoken language with written language in instruction, such as by having students write words as they say them. Another practice we often observed was the use of students' native language within instruction (by either teachers or students) to facilitate understanding of concepts, words or phrases. Rather than force these activities to fit under ESL acquisition or literacy development codes, we created separate coding categories for them.

We also recognized that instructional activities focused on developing *functional literacy* could not easily be assigned to either literacy or ESL categories. Functional literacy combines teaching of literacy and second language skills within a life skills development focus, common to many adult ESL classes. We developed functional literacy categories to include such as tasks as:

- Working with documents and short prose texts (forms, labels, letters, messages);
- Use of the alphabet to perform tasks such as looking things up on a phone book or creating a personalized dictionary;
- Working with graphic texts (e.g., maps or symbols); and
- Working with numbers and math to understand prices, money or for measurement.

We created a separate coding category for functional literacy to allow us to isolate their use apart from literacy development and ESL acquisition activities.

EXHIBIT 4.2:

Sample of Codes Used with Classroom Observations (ESL Acquisition Codes)

ESL Acquisition		Activity	
J	Oral Communication Skills—Listening	**1**	Listening and repeating sentences, phrases, and dialogues
		2	Listening to focus on pronunciation
		3	Listening and responding nonverbally (e.g., TPR, Bingo games)
		4	Repeated listening to gain meaning
		5	Guided Listening (e.g., Listening and answering comprehension questions)
		6	Using listening strategies
K	Oral Communication Skills—Speaking	**1**	Practicing communication skills with structured language (repetition)
		2	Practicing communication with guided structure (some open-ended phrases)
		3	Practicing open-ended communication (conversation)
		4	Spontaneous exchange of information (conversation, discussion)
		5	Practicing pronunciation (distinguishing sounds; saying different sounds)
			Practicing stress, tone and rhythm (single items)
		6	Practicing stress, tone and rhythm (sentences or texts, such as rhymes)
		7	
		8	Using strategies that promote clear speech (comprehensibility)
L	Understanding How English Works (syntax and morphology)	**1**	Working with grammar patterns (oral)
		2	Hearing explanations of grammar
		3	Writing sentences focused on grammar patterns
		4	Completing grammar exercises
		5	Editing sentences focusing on grammar
		6	Studying word parts (prefixes, suffices, endings, etc.)
		7	Studying parts of speech (verbs, nouns, adjectives)
		8	Using problem solving to discover rules and patterns (e.g., "task-based" grammar)
M	Vocabulary and Idioms	**1**	Learning words unrelated in meaning or context
		2	Learning words that arise out of a particular context
		3	Learning words that are related (decide; decision; decisive)
		4	Learning idioms
N	Learning the Language of Math	**1**	Learning the names of numbers
		2	Learning the names of calculations and operations
		3	Learning how to say number sets
O	Language Functions	**1**	Routine exchanges
		2	Dealing with problems
		3	Negotiating a group discussion
		4	Speaking up (for oneself or others)
P	Socio-Cultural Knowledge	**1**	Learning cultural facts
		2	Acquiring background knowledge of life skills
		3	Learning how to navigate systems
		4	Learning about community resources
		5	Learning about rights and responsibilities as a citizen (civics)
		6	Learning social appropriateness in language and communication
		7	Making cross-cultural comparisons
Q	Connecting Spoken and Written Word	**1**	Learning new words, phrases, and sentences by hearing, seeing in print, and/or copying (use with other codes)
		2	Writing dictation

Note: For complete set of codes, see report addendum.

Our instructional coding scheme allowed us to describe and quantify the content of instruction along several dimensions of literacy development and second language learning. However, while these codes could tell us *what* was being taught in class they did not describe *how* teachers were teaching, what students were asked to do to *keep engaged* in class and the *intent and focus* of the learning task. To capture these aspects of instruction, we developed three additional sets of codes and ratings for the observation guide: instructional strategies, student engagement and instructional context.

Instructional Strategies

Instructional strategies were activities teachers generally used to organize and teach the lesson. The strategies we selected were those highlighted in the literature on effective teaching and on studies describing what it takes to acquire a second language and develop literacy skills. We identified 11 strategies, including sharing the goal or focus of a lesson and bringing individual activities back to a central point, providing opportunity for practice, linking what's to be learned to students' lives by "bringing in the outside" (e.g., use of authentic materials, tying activities to a real-life context) into the classroom and providing feedback to students on their work. Strategies were rated for the entire class session according to the extent they were observed, using a scale from "0" (not observed), to "3," observed to a high degree and characteristic of the way the instructor tended to teach.

Opportunities for Student Engagement

To record the extent to which students were engaged in the class activities, we developed nine categories of student involvement. These categories, based on general concepts of instructional practice that promotes learning, included whether students had a chance to contribute their own ideas to the class, to learn with and from others, to spend sufficient time on a task to "get it," were engaged with different types of literacy (functional, expressive) and had the chance to use different modes of learning (listening, writing, hands-on tasks). As with the instructional strategies, types of engagement were rated for the entire class session using a scale from "0" (not observed), to "3", observed to a high degree and characteristic of the way the instructor tended to teach.

Instructional Context

We created coding categories of context and application to capture the apparent intent and focus of each learning activity that the teachers presented. For example, we wanted to capture to what extent teachers used "controlled practice" to teach and to what extent they set up activities that called for "authentic communication or unscripted exchange of information." Given the prominence afforded to participatory approaches to language and literacy development in the literature, we wanted to see to what extent teachers focused their lessons on "problem posing" and the extent students were encouraged to use "critical literacy" to challenge or question something they were hearing or reading. Knowing that most teachers of adult ESL use life skills themes as an organizing principle for their teaching, we created codes for this category as well. We

also included additional categories for "goal setting," and "learning how to learn," Context codes were assigned for each coded instructional activity.

Conducting Classroom Observations

The *What Works* study liaisons observed every class in the study an average of once to twice per month, using the guide. The general procedure for the observation was to record basic information about the class, such as class size, main textbook used (if any), whether and how the students' native language was used (by teachers or by students) and a summary of the lesson observed. Liaisons also provided drawings of the classroom configurations.

During class, the liaison kept a running record of all classroom activities, describing what teachers and students were doing and indicating the time spent on each activity. We instructed liaisons to focus on merely describing what they saw without judging or evaluating the merit of a teaching strategy or learning activity. After the observation, the liaison coded each instructional activity according to focus of the activity, and recorded the time in minutes that the teachers engaged in the activity. Up to three sets of codes were assigned for each activity: the main emphasis, secondary emphasis and other emphasis.

As an example of the coding for instructional activities, in one class a teacher spent 15 minutes teaching new vocabulary words and also had the students practice pronouncing the words. The teacher also responded briefly to a question on spelling one of the words. Using the ESL acquisition codes, we coded these activities as 15 minutes of main emphasis on vocabulary (M1), a secondary emphasis on practicing pronunciation (K7), and an other emphasis on spelling (F2—a literacy code).

In additional to instructional content, liaisons also coded the context of the activity, rated the instructional strategies and student engagement measures and recorded the materials used in class. In sum, the resulting record included the following information:

- A general description of the class, including class size, classroom configuration and use of students' native language;
- Codes for each instructional activities (e.g., literacy development and ESL acquisition) and the amount of time spent on them;
- Codes for the context in which each activity was taught;
- Ratings of student engagement in the class;
- Ratings of the instructional strategies employed by the teacher; and
- Descriptions of the instructional materials that were used.

The addendum to the report has as sample, completed guide with all codes.

Training of Classroom Observers

Due to the great importance of the classroom observation data to the study, it was essential to have high reliability among observations and that observers had a thorough understanding of the coding scheme of the observation guide. To ensure reliability, the study liaisons we used as observers were knowledgeable of adult ESL instruction. Most were former adult ESL teachers and some had graduate degrees in adult education, ESL or related fields. We also trained liaisons on the use of the guide and closely monitored their coding throughout the study.

We brought all liaisons to a single location for a two-day training, where we reviewed all aspects of the study and data collection. The training in coding was quite rigorous and included a review and discussion of the purpose and development of the observation guide and codes. Liaisons then watched videotapes of adult ESL classrooms and coded the activities with the guide. Senior project staff then discussed their coding with them.

Within a few weeks of the training, senior and junior project staff traveled to each site to observe classes with study liaisons. Project staff and liaisons described and coded classes independently and then compared and discussed coding until reliability was established. Project staff made additional visits to sites approximately every six months to observe classes and verify coding again with the liaison. We also provided liaisons with a glossary, developed by senior project staff, that defined each code and rating in the observation guide. The glossary also included examples of instructional activities for each code.

After completing observations, liaisons mailed their coded observation guides with the running narratives to project staff. A senior staff member checked the coding against the narrative and discussed discrepancies with the liaisons. In addition, anytime the liaisons had questions about describing or coding classroom activities, we instructed them to check with project staff via phone or fax. We checked observations in this way throughout the data collection period, although after a few observations, reliability among observers was very high.

DESCRIPTIONS OF ADULT ESL LITERACY CLASSES

We coded 530 observations made of the 38 adult ESL classes in the *What Works Study*. Seventeen classes participated in only the first year of data collection (1999-2000), four classes participated only in the second year (2000-2001) and 17 classes participated in both years. Each class in the study was observed at least three times and an average of nine times. Using this information, we are able to provide descriptions of the adult ESL literacy classroom using the study's instructional framework, as well as provide a more general picture on the types of instruction provided. We also used the

measures from the observation guide in our analyses of student attendance and learning gains reported in Chapters 5 and 6.

We begin with an overall summary of the study class characteristics and then describe instructional activities, focusing first on instructional emphases and then instructional strategies. We also describe use of students' native language in instruction and instructional contexts used, and provide examples of the types of instructional activities teachers used.

General Description of Study Classes

To describe the class environment, we recorded the average class size, whether the majority of the students in each class were literacy level students or whether there was a mix of literacy and beginning level ESL students, and what resources (text books, instructional aides) teachers used in class. These factors are important since class size, the presence of instructional aides and the proportion of literacy level students in a class determines the amount of attention teachers have available for students and can spend on literacy development activities. For example, it would be difficult for a teacher to focus on basic literacy activities in a class with a small percentage of literacy students, as the other students would not need such instruction and might become bored.

Class Composition

The size of classes varied widely across sites. The number of students per class ranged from 3 to 30, with an average enrollment per class of 15 students. Classes in California and in large urban areas had the largest average number of students attending. Harris County (Houston) for example, had an average of 30 students attending each class, approximately half of whom were literacy level students by our study definition. In contrast, average class sizes were smaller in the community colleges and in school districts in the smaller cities. At Seattle Central Community College, for example, an average of six students attended the classes we observed, all of whom were in the study. Classes met between 2 and 5 days a week (nearly half met 4 days a week) for an average of nearly three hours - 170 minutes, ranging from 2 to 6 hours per class meeting.

Class compositions also varied widely. Most classes mixed the low literacy or pre-literacy students with beginning level ESL students or higher literacy students, although 12 classes consisted of only low literacy students. The majority of classes (28) were held during the day and nine of the classes in this study were mandatory for students required to attend to receive specific government benefits.

Classroom Resources: Materials and Instructional Aides

Teachers in the *What Works Study* did not have many instructional materials available to them. In over two-thirds (68 percent) of all activities, the teachers used materials they developed or put exercises and prompts on the classroom blackboard. Most teachers in the study did not use textbooks or other formal instructional materials.

Of those classes that did use formal, pre-developed materials in class, most used textbooks. The most common texts used were *Survival English*, *Crossroads*, *Focus*, *Side by Side*, *Take Charge*, *Longman ESL Series*, and various basic English grammar texts. Some teachers (5%) used dictionaries in class - both picture dictionaries and English/Spanish dictionaries. Less frequently, observers noted teacher use of realia (journals, newspapers) or miscellaneous materials (computer programs, lists of the most common English words) to supplement class lessons.

The use of instructional aides was also rare within the study classes. Most teachers in the study had no additional classroom help, as only six of the observed classes had a classroom aide present. Usually a single aide, such as a volunteer, was assisting the teacher.

Instructional Emphases and Strategies in Adult ESL Literacy Classes

Our observations focused on identifying instructional activities according to whether they were oriented toward the acquisition of English language skills or literacy development. We also identified instruction focused on development of functional literacy skills. We grouped activities along each dimension using the main emphasis codes and computed a percentage of time spent on each type of activity per observed class. We then averaged this percentage across all observed classes.

ESL Acquisition, Literacy Development and Functional Literacy Instruction

Exhibit 4.3 shows the average percentage of time spent on ESL acquisition activities for each class. As expected, in all classes teachers used a combination of at least two types of instructional activities, usually both ESL acquisition and basic literacy development. Activities oriented towards ESL acquisition were more common, followed by those oriented towards literacy development. On average, teachers spent 50 percent of their instructional time on ESL acquisition, and 40 percent on literacy development. We observed activities with a functional literacy focus much less often, only 9 percent of total instructional time on average. [19]

Twenty classes spent between 40 percent and 60 percent of observed time on ESL acquisition activities, while 11 classes spent more than 60 percent of their time on ESL acquisition. Only seven classes emphasized literacy development a majority of time (i.e., emphasized ESL acquisition less than 40 percent of the time). No class emphasized functional literacy skills over the ESL acquisition or literacy development skills. In fact, six of the study classes incorporated no functional literacy skills at all into their classes.

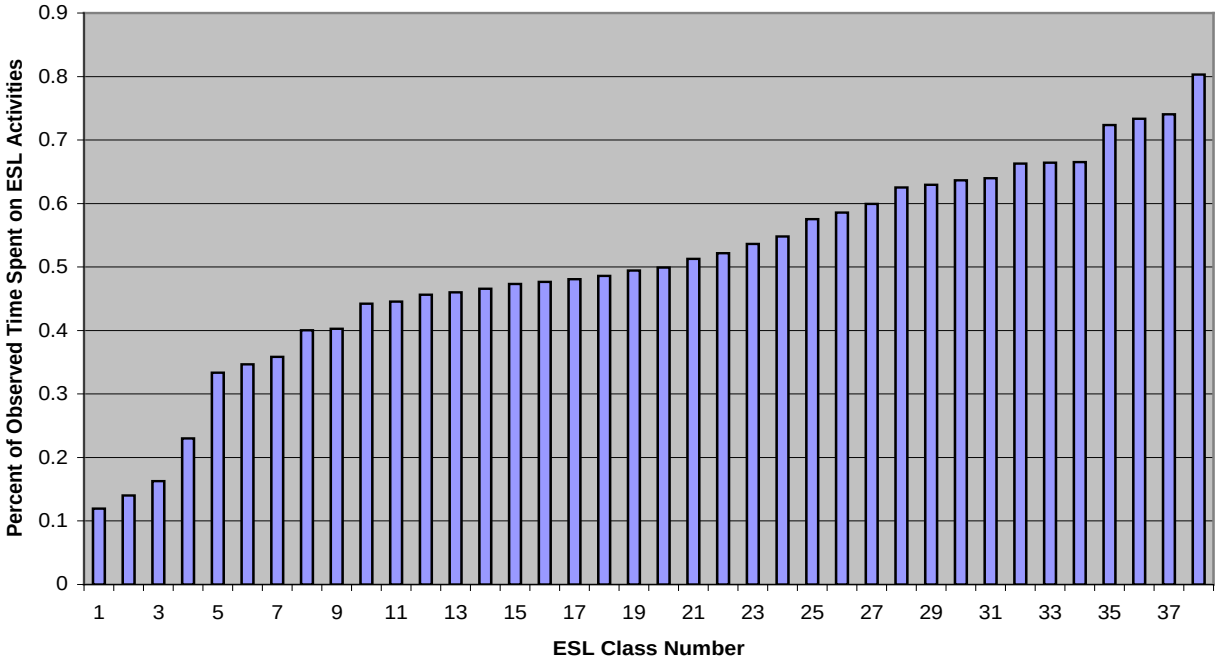
The most commonly observed ESL activities included practicing communication skills with structured language (repetition) or guided structure (some open-ended phrases), working with grammar patterns, and learning vocabulary and idioms. The most commonly observed literacy development activities included reading aloud individually

[19]Since we observed very little functional literacy instruction within the study classes, we did not conduct further analysis of this type of instruction. The low incidence of functional literacy also means that the distribution for literacy development activities is almost the mirror image of the ESL acquisition activities shown in Exhibit 4.3.

or listening to others, reading for meaning (silent), writing sentences or dialogues based on a pattern, and filling in blanks in sentences. The most commonly observed functional literacy activities included measuring and working with dates, calendars, and time.

EXHIBIT 4.3:

Proportion of Observed Time Spent on ESL Acquisition Activities



Instructional Emphasis Measures

The foregoing analysis informs us of the relative emphasis teachers place on ESL acquisition, literacy development activities, and functional literacy activities, but does not tell us what specifically is taught. To get a richer understanding of instructional activities, we combined and re-examined the actual codes within each instructional area (ESL acquisition, literacy development, and functional reading). By reorganizing the observed activities according to the English language content areas covered (e.g., speaking, reading, writing, and basic skills) and the time spent on these activities, we were able to identify the instructional emphases that teachers most commonly used in the 38 classes in the *What Works Study.* We identified the following four distinct instructional class emphases:

- **Emphasis on basic literacy skills** – measures the time teachers spent on basic reading development activities. To construct this measure of emphasis we used the literacy development codes of print awareness and directionality, reading recognition and fluency development (codes categories A and B); and

ESL acquisition codes measuring teaching of vocabulary and grammar (code categories L and M).

- **Emphasis on writing** - measures time spent on writing development, including activities that emphasized writing subskill and fluency development, writing practice and both guided and free-writing composition (code categories E, F, G, H and I). We also included basic functional writing emphasis (code category R).

- **Emphasis on oral communications –** measures time spent on developing using the ESL acquisition codes of speaking and listening skills development (code categories J and K) and instruction in language functions (code category O).

- **Emphasis on reading comprehension** - measures time teachers spent on developing reading comprehension and including activities such as reading reinforcement and meaning making strategies.

All classes emphasized to some extent development in all four content areas. However, the least time overall was spent emphasizing reading comprehension, and approximately equal amounts of class time were devoted to developing basic literacy skills, writing and oral communication skills. Exhibit 4.4 summarizes the most frequently observed instructional activities characteristic of each class emphasis.

Emphasis on basic literacy skills. Overall, 26 percent of observed class time was spent developing basic literacy skills through increasing print awareness; word, sound, and alphabetic recognition; exposure to English grammar and syntax; and learning vocabulary. Typical activities included memorizing the alphabet and numbers, learning word parts and parts of speech, and learning new words. All of the classes spent at least 4 percent of class time teaching basic reading skills (up to 48 percent), and 16 of the 38 classes spent a higher proportion of observed time on instruction that emphasized development of basic skills in literacy than on any other emphasis.

Emphasis on writing. On average, classes spent 23 percent of observed time developing writing by practicing writing (ranging from 5 to 48 percent). Frequent activities included copying sentences or text from a book or the board, using phonemic knowledge to spell (inventive spelling), and practicing capitalization and punctuation. Seven classes emphasized writing over all other emphases, and 13 spent the second highest proportion of time emphasizing writing development.

Emphasis on oral communications. Classes spent, on average, 20 percent of class time emphasizing oral communications through listening, speaking, and practicing structured oral exchanges (ranging from 2 to 40 percent). Typical activities include listening to and repeating phrases, such as from dialogues; practicing pronunciation with oral drills; repeated listening activities; and listening games (e.g., bingo with non-verbal response or total physical response-type activities). Ten classes spent the highest

proportion of time emphasizing activities to increase oral communications skill and 11 others spent the second-highest proportion of time emphasizing these skills.

Emphasis on reading comprehension. Classes, on average, spent 15 percent of class time emphasizing basic reading development skills through reading practice and comprehension. The average proportion of time ranged from less than one percent to 47 percent. Frequent activities include those that reinforce meaning-making, such as choral and silent reading, using context cues to guess meaning of words, and using background meaning to make sense of words. Five classes emphasized reading comprehension over all other instructional emphases, and 5 other classes spent the second highest proportion of observed time on activities emphasizing reading comprehension skills.

EXHIBIT 4.4:

Most Frequently Observed Activities within each of the Instructional Emphases

Characteristic Instructional Activities for Main Emphasis
Oral Communication – Observed Mean of 20 Percent of Time
Listening and repeating sentences, phrases, and dialogues
Practicing communication skills with structured language (repetition)
Practicing communication with guided structure (some open-ended phrases)
Practicing open-ended communication (conversation)
Practicing pronunciation (distinguishing sounds; saying different sounds) and using strategies that promote clear speech (comprehensibility)
Reading Comprehension – Observed Mean of 15 Percent of Time
Reading as a group (choral or echo reading)
Reading aloud individually or listening to others and reading along
Reading for intonation and practicing through supported reading
Reading from the board
Matching words to pictures or realia
Reading for meaning (silent)
Reading and responding to questions
Writing – Observed Mean of 23 Percent of Time
Copying words or letters to practice writing
Learning and practicing standard spelling
Writing sentences or dialogues based on a pattern
Copying sentences or text from a book or the board
Filling in blanks in sentences
Editing own writing or writing of others
Basic Literacy Skills– Observed Mean of 26 Percent of Time
Recognizing numbers, individual letters, and learning the names of the alphabet in sequence
Practicing phonics, sound-symbol relationships (phonemic awareness)
Working with oral grammar patterns and using problem solving to discover rules and patterns (e.g., “task-based” grammar)
Hearing explanations of grammar
Writing sentences focused on grammar patterns
Studying parts of speech (verbs, nouns, adjectives)
Learning words that arise out of a particular context

Instructional Contexts

Besides coding the instructional activities, we coded the context in which the students were asked to apply the literacy and English skills they were learning. For example, we coded whether the students were engaged in a controlled language practice, exchanging information in a non-scripted context, working on problem solving, focusing on a life skills task or developing critical literacy skills.

We observed very little variation in instructional contexts teachers used. The vast majority of classroom activities (about 85 percent) were conducted in the context of controlled or guided practice of the skills introduced in the lesson. These activities were intended to reinforce the lesson in structured or semi-structured tasks and offered students limited opportunity to guide the course of the lesson or to express their own ideas in ways that deviated from the pattern being practiced.

Other contexts were much less common. Approximately eight percent of the observed activities involved the sharing of ideas through open-ended, non-scripted exchanges. Approximately four percent of the activities focused on developing language abilities related to every day life skills. We very rarely observed instructional activities taught in contexts that required higher-order thinking skills.

Instructional Strategies and Student Engagement with Tasks

As part of each observation, the study liaison rated the teacher's use of instructional strategies and the level of engagement of students in the class. Instructional strategies ratings were in 11 areas believed to reflect good teaching practices. The nine items on the student engagement scale measured, for example, whether students had opportunities to contribute their own ideas, make choices on instructional content, had opportunities to express themselves, and were exposed to multiple types of literacy. All ratings were on a four-point scale, with zero indicating the behavior was not observed and three meaning it was observed to a high degree.

To describe the use and occurrence of instructional strategies and engagement in instruction, we performed a statistical procedure known as factor analysis to assess the relationships between the 20 items on the two scales and to identify the underlying constructs that the scales measured. The factor analysis identified four factors, or sets of instructional strategies and student engagement practices employed by teachers in the study. We used this information to develop instructional strategy scales, by averaging the ratings of all items comprising the factor for each classroom observation. We called these strategies:

- **Varied Practice and Interaction**, which generally measured the extent to which teachers provided students with the opportunity and time to practice what was learned in multiple ways, and by working with other students in the class;

- **Open communication,** where the classroom environment was characterized by a high level of teacher-student interaction and open (non-scripted) communication;

- **Connection to the "outside,**" where teachers made explicit connections between what was being taught and real-life application, sometimes also using realia or authentic materials in the activity; and

- **Choices and thinking**, where the learners were given some choice in, and time to think about, the task.

Varied practice and interaction. In classrooms characterized by varied practice and interaction, teachers tended to engage in direct teaching and provide students with a variety of activities, opportunities to practice, group work and time to work together, as well as feedback on classroom performance. Teachers in these classrooms did not rush through their lesson plans; instead they allowed students enough time to internalize the point of the lesson. Finally, these teachers engaged in multiple modes of instruction, facilitating different applications of oral and written communication in different contexts. A typical activity using these strategies might include a dialog written and then performed by a student pair, followed by teacher and class feedback.

Open communication. In classes high in open communication, teachers spent more of their time encouraging language creation in a less structured, but still teacher-led atmosphere. These teachers were flexible and responsive to student needs, asking many open-ended questions requiring students to generate free responses. They tended to promote authentic communication in their lessons and encourage students to express themselves and their ideas. Discussions of weekend plans or activities or likes and dislikes about students' employment were common activities using these strategies.

Connection to the outside. In classes centered on tying classroom lessons to the outside world, teachers tended to draw materials and lesson ideas from the daily experience of the learners. They demonstrated how classroom lessons applied to students' everyday lives and activities. Teachers engaged in these strategies used realia as learning aides and tried to show how lessons applied to multiple contexts of students' lives. For example, for an activity designed to teach students how to complete forms, the teacher might demonstrated all of the different contexts in which form-filling skills were necessary and use actual forms (i.e., employment applications, medical forms, school registration forms).

Choices and thinking. In classrooms characterized by choices and thinking, students were empowered to guide the content of the lessons, were explicitly given choices about the subject matter covered and were given opportunities to think critically about the tasks in which they were engaged. Activities often focused on everyday issues relevant to students' lives, and allowed students to decide upon the best approach.

While these strategies characterize how instruction was provided, they were not mutually exclusive or independent of each other. In fact, teachers that used one set of strategies often used others. Exhibit 4.5 summarizes and defines these strategies and provides the mean ratings of how frequently they were observed.

EXHIBIT 4.5:

Observation Based Instructional Strategies

Strategy	Mean Observation Score	Characteristic Practices Associated with Strategy
Varied Practice and Interaction	2.09	Teachers: • engage in direct teaching • keep students involved and engaged • provide feedback on student progress • allow ample opportunities for practice Students have the opportunity to: • work together to solve problems • spend the time it takes on a task to 'get it' • engage in different types of literacy • use multiple modes of learning • learn from each other
Open Communications	1.73	Teachers: • are flexible and respond to student needs as they arise • ask open-ended questions • supports open and authentic communication Students have the opportunity to: • contribute ideas based on their experience • express themselves without immediate correction
Connection to "Outside" World	1.25	Teachers: • share overall lesson goals • links lesson to real life • bring 'outside' into the classroom Students have the opportunity to: • apply class lessons to challenges outside the classroom
Choices and Thinking	.53	Teachers: • provide students with choices Students have the opportunity to: • make choices about the way the learn • think about tasks and decide how to approach it

*Means are the average rating of each of the strategies comprising that scale. The rating scale ranged from 0 to 3, where "0" indicated that strategy was not observed at all, and "3" indicated that the strategy was characteristic of the class to a large extent.

Frequency of Emphasis of Instructional Strategies

We examined how each class scored on each of the four strategies to determine which ones the participating teachers employed with greatest emphasis. For a class to be considered as exemplifying the characteristics of one of the four strategies, that class must have been observed to show "to some extent" all of the instructional strategies defining that scale (i.e., averaged a rating of at least two - indicating that strategy was observed 'to some extent'—across all the variables comprising that scale). This rating means that all the teaching characteristics within the factor had to be observed to some extent across all observations.

Exhibit 4.6 displays the number of classes characterized by use of the instructional strategies. In 11 classes, teachers did not display any of the instructional strategies to some extent. In the 27 other study classes, teachers employed at least one of the strategies to some extent: varied practice and interaction. In 10 of these 27 classes, this strategy was the only one that teachers employed very often. Teachers of the remaining 17 classes employed the strategies in varying combinations. For example, teachers in three classes used all of the strategies to some extent and five additional teachers used at least three of the factors. Only four teachers used the least commonly observed strategy, choices and thinking.

EXHIBIT 4.6:

Number of Classes Characterized by Use of Instructional Strategies

Number of Classes	*Instructional Strategy*			
	Varied Practice and Interaction	Open Communication	Connection to the Outside	Choices and Thinking
1	✓	✓		✓
3	✓	✓	✓	✓
5	✓	✓	✓	-
8	✓	✓	-	-
10	✓	-	-	-
11	-	-	-	-

Use of Students' Native Language

While in elementary and secondary educational settings the use of the student's native language is controversial, it is less so in adult ESL. Some educators believe it is helpful if the native language is used since it allows students to get and give explanations of concepts and ideas that are difficult to understand in English. Others believe that overviews in the native language in the classroom hinder English development, as too many explanations in the native language limit students' opportunities to see what they can understand in English. Use of the native language may also encourage translation, a practice that slows down the development of fluency skills, keeping students from learning to cope with extended discourse in English.

In adult ESL it is often less of a question whether or not to use the native language but how much it is used, for what purposes and to what extent it inhibits or

promotes language and literacy acquisition. Whether the teacher uses the native language depends mostly on whether the teacher is bilingual and if the students share a common language. When both of these factors are present, use of the native language is usually unavoidable, unless teacher and students specifically set and meet expectations for exclusive use of English in the classroom.

In multi-lingual classrooms where students speak different languages and the teacher may or may not share one or more of the languages, explanation by the teacher in the native language is not an option. The teacher may encourage or discourage the use of the native language by students, who may want to discuss things in a small group, ask questions of each other or provide explanations for others who do not understand the teacher.

Classroom observers noted whether native language use by students was encouraged, discouraged, or tolerated by the teacher in the classroom. Forty-five percent of all classroom observations indicated teacher neutrality about student's speaking their native language during class, 23 percent of the observations reported teacher encouragement of students writing and speaking in their native language during class. Only in 9 percent of the observations were teachers observed to discourage students from speaking languages other than English.

As expected, native language use was frequent in classes where all students shared the same common native language, which usually occurred in the predominantly Spanish-speaking sites. In these classes, observers noted that teachers gave directions about class activities (in 26 percent of the observations) and clarified concepts (33 percent) in the students' native language. Student questions were asked and answered in the student's native language (noted in 22 percent of the observations) and written assignments were given and accepted in the native language (6 percent).

To examine further the use of students' native language in instruction, particularly for the statistical analyses relating instruction to outcomes (see Chapters 5 and 6), we developed a rating scale of native language use. To construct the scale, we first conducted a factor analysis of the measures we used of how native language use was incorporated into classes. The factor analysis assessed the relationships among the items to identify the underlying constructs that they measured. The analysis identified the following four items as measuring the underlying construct of native language use in class:

- Teacher used the native language to give directions for class activities;
- Teacher used the native language to clarify concepts as they arose;
- Students asked questions in the native language; and
- Students performed written assignments in the native language.

We combined these four items into a single index representing the average proportion of use of the four native language instructional activities in each class. The scale ranged from zero (use of no activities) to one (use of all four activities).

In nine classes (24 percent), no use of the student's native language in instruction was observed. The majority of these classes were comprised of students with different native languages or had teachers that did not speak the language of the students. In the remaining 29 classes, the average proportion of native language instructional activities per class was .22, meaning that, on average, each class was observed using one of the four activities above.

ADULT ESL LITERACY TEACHERS

Teaching this special group of students is a challenge—a challenge that not all ESL literacy teachers feel adequately prepared or compensated to meet. Factors such as low pay, part-time hourly status, and less than ideal teaching conditions may explain the high rates of teacher burnout and turnover considered typical in the ESL field. Recently attention has been drawn to the need for a greater professionalization of the field in order to attract and retain qualified instructors. What it means to be a qualified adult ESL literacy teacher remains a topic of discussion, with the acknowledged trade-off or balance needed between the desirability of academic credentials and the need to have experience and skill in teaching adult ESL literacy learners. Yet, while states and professional organizations such as TESOL are beginning to outline what ESL teachers should know and be able to do, the skills sets that are necessary to teach language and literacy to adults who are undereducated and do not have strong reading skills in their own language are not often explicitly addressed.

The reality is that adult ESL literacy teachers come to their work with a variety of backgrounds that include combinations of formal and informal training and a wide range of experiences. Some have personal ties to the community of the learners and share a common language with students, while others speak only English and do not share the socio-economic or background characteristics of the adults they teach. This section describes the variety of backgrounds of the 38 teachers who participated in the *What Works Study*, including their gender, racial background, ethnicity, education and certification level, languages spoken and read with proficiency, prior teaching experience, and involvement in professional development.

Characteristics of What Works Study Teachers

Of the 38 teachers who participated in the study, 30 were female (79 percent) and 31 were white (82 percent). Five teachers identified themselves racially as mixed descent, and two teachers were Asian. About half of the teachers identified themselves as of Hispanic or Latino ethnicity.

Just over one-half of the 38 teachers were employed full-time (55 percent) and all but one had earned a bachelors degree or higher. As Exhibit 4.7 shows, about half of

those teachers held a master's or higher degree. Most teachers with Masters degrees had obtained degrees in Linguistics/TESL (21 percent) or in education (18 percent). About a third of teachers held ESL/TESL certification, and an additional third held a regular K-12 state teacher certification, while seven teachers (18 percent) were not certified.

EXHIBIT 4.7:

Teachers' Highest Degree (N=38)

Highest Degree	Percent
High School Diploma	2.6
Bachelor's Degree	34.2
Bachelor's Degree in Education	13.2
Master's Degree (in a field not related to linguistics or education)	5.3
Master's Degree in Education	18.4
Master's Degree in Linguistics/TESL	21.1
Professional Degree	5.3

Languages Spoken

Teachers reported what languages they spoke and described the level of proficiency for each. English was the native language for 82 percent of the *What Works* S*tudy* teachers (Exhibit 4.8). However, all teachers were proficient in the English language, even those for whom it was a second language.

EXHIBIT 4.8:

ESL Teachers' Language Proficiency

Native Language (N=38)		Second Language (N=37)		Third Language (N=20)	
English	81.6	Spanish	62.2	French	30.0
Spanish	15.8	English	18.9	Spanish	15.0
German	2.6	French	10.8	Italian	15.0
Speaking Proficiency		**Speaking Proficiency**		**Speaking Proficiency**	
Fluent	100.0	Fluent	59.5	Fluent	5.0
Moderate	0.0	Moderate	27.0	Moderate	35.0
Little	0.0	Little	13.5	Little	60.0

All but a single teacher spoke at least two languages. The most common second language was Spanish, spoken by nearly two-thirds of all teachers, followed by English and French (7 and 5 teachers, respectively). Nearly two-thirds of all teachers who speak a second language described their speaking ability in that language as fluent. Of the teachers whose second language was Spanish, nearly one-half (48 percent) reported that they speak it fluently, while just over one-third (35 percent) reported moderate Spanish speaking proficiency.

While about one-half of all teachers studied a third language, only two teachers (5%) claimed to be fluent, and 10 teachers (35 percent) reported moderate fluency in that language. The most common languages were French, Spanish and Italian.

We looked for a match between the languages spoken by teachers and their students, as sharing a common language might benefit instruction due to the ability to use students' native language in instruction and the possible cultural connections from a shared language between students and the teacher. The only students in our study to have a teacher proficient in their native language were the Spanish-speaking students. In 22 classes, the students and teacher spoke Spanish.

Teaching Experience and Professional Development

In general, more teachers in the study had formal credentials than in-field experience with our target group. As shown in Exhibit 4.9, study teachers average only 1.7 years teaching adult ESL literacy. Nearly two-thirds (63 percent) had no prior teaching experience at all in adult ESL literacy and 11 percent had only about one year of experience. Only three teachers had more than five years' of experience teaching adult ESL literacy.

Not only did they have little experience with ESL literacy, about half also had no previous experience teaching adult ESL at all. Sixteen percent had taught between one and five years, and 19 percent reported teaching six or more years of adult ESL, with a mean of 4.2 years of experience.

EXHIBIT 4.9:

Type of Teaching Experience in Mean Years (N=38)

Teaching Experience	Average Length (in Years) of Teaching Experience
Adult ESL Literacy	1.7
Adult ESL	4.2
Other Adult Literacy	0.7
K-12 ESL	1.2
Other K-12	1.0

Teachers in the study also had limited formal professional development. Exhibit 4.10 shows that more than half of the teachers in the study (about 55 percent) had no professional development in teaching ESL literacy in the last two years and about three fourths of teachers also had no training in other topics related to ESL instruction. Even the few teachers that had participated in professional development had relatively few hours of training. Most professional development ranged from 1 – 32 hours, although six teachers (15.8 percent) had more than 32 hours professional development on ESL literacy.

EXHIBIT 4.10:

Teachers Participation in Professional Development in Last Two Years by Hours in Training (N=38)

Teacher Involvement in Hours	Teaching Focus of Professional Development (Percent of Teachers)			
	ESL Literacy	Reading or General Literacy Instruction	Oral Communication Skills	English Structure, Vocabulary, Pronunciation
No Participation	**55.3**	**73.7**	**71.1**	**79.0**
1-8 hours	7.9	13.2	10.5	2.6
9-32 hours	21.1	7.9	13.2	13.2
>32 hours	15.8	5.3	5.3	5.3

Chapter Summary

The study's focus on instruction required us to develop a framework to categorize and quantify instructional activities. After reviewing the literature and observing over 75 adult ESL literacy classes in 25 programs, we developed a framework that characterized instructional activities according to their emphasis on literacy development or ESL acquisition. We used this framework to develop an observation guide to document and quantify the relative emphasis of these activities, as well as measures of functional literacy, instructional contexts, instructional strategies, student engagement and use of students' native language in class.

We coded 530 observations of the 38 classes in the *What Works Study* and examined these classes according to the percentage of time instruction emphasized literacy development or ESL acquisition activities. All classes used a combination of these activities, but there was a general preponderance of ESL acquisition activities, observed about 50 percent of the time on average. Twenty classes spent between 40 percent and 60 percent of observed time on ESL acquisition activities, while 11 classes spent more than 60 percent of their time on ESL acquisition. Only seven classes emphasized literacy development a majority of the time. No class in the study had an emphasis on functional literacy to any great extent. We also found that the instructional emphases teachers most often used were on basic literacy skills development, reading comprehension, writing and oral communication.

We identified four instructional strategies, using ratings from the observation guide, which reflected how teachers taught and level of student engagement in class. These strategies were: varied practice and interaction, open communication, connection to the outside and choices and thinking. Teachers most often used the varied practice strategy and rarely used the open communication strategy.

We found that the use of students' native language in instruction was common in classes where the students, or teachers and students, shared a common language. However, we also found that teachers used a very limited group of instruction contexts, our term for how students were engaged in literacy and language during instruction. Teachers used controlled or guided practice about 85 percent of the time and rarely put activities in problem solving or other contexts requiring higher order thinking.

For the most part, teachers in this study were white, female, and educated. All but one had a Bachelor's degree or higher and about half had a Master's degree or higher. While well credentialed, the teachers were not very experienced. The majority of teachers held either ESL/TESL certification or regular/standard state certification. However, many teachers had no previous experience in teaching adult ESL literacy, adult ESL, or other adult literacy classes. Just over half were employed full-time and most spoke at least two languages. The most commonly spoken language (after English) was Spanish. Results suggest that the majority of teachers either did not have access, or did not participate in professional development activities. Over half had not participated in a single professional development activity related to adult ESL in the two years prior to the study.

CHAPTER 5:
ATTENDANCE IN ADULT ESL LITERACY CLASSES

Students enrolled in adult basic literacy and ESL classes typically attend for relatively brief periods of time. Many adult educators fear this brief attendance prevents students for achieving significant improvements in their literacy skills. Although there is no definitive research linking hours of instruction to literacy gains, many practitioners believe adult literacy students need 40 to 150 hours of instruction to demonstrate meaningful skill gains. National data on the federal adult literacy program show that students in program year 2000-2001 attend an average of 104 hours, an increase from the 1998 average of 71 hours. Among ESL students, attendance increased from 66 hours to 136 hours during this same time period (U.S. Department of Education, 2002).

There has been some research on attendance and persistence patterns of the adult ESL student population. For example, a large national study conducted in 1992, the *National Evaluation of Adult Education Programs (NEAEP)*, focused on immigrants in the sample (almost all of whom were enrolled in ESL programs) and calculated the median hours of instruction received by this population to be about 66 hours during a one-year time period (Condelli, Kutner and Garet, 1996). This study also found that ESL students attended for more hours than adult basic education (ABE) students. Other research on the attendance and persistence of adult ESL students has found that:

- Unemployed students persist longer then employed students;
- Students who attend during the day persist longer than students who attend at night;
- Students in larger classes persist longer; and
- Older students and students with more prior education persist longer (Cohen and Condelli, 1996).

There is, however, no research on the attendance and persistence patterns of the type of students in the *What Works Study* sample—adult ESL literacy students. These

students may require even more instructional time than other ESL or ABE students to make gains in their literacy skills. However, frequent attendance is often difficult for these students, since many of them are immigrants and from other transient, hard-to-serve or disadvantaged populations. These students face many barriers to attending regularly or completing a course, including the lack of available childcare, family problems, transportation difficulties, and the trade-off between work and going to class (Chisman et al., 1993). However, while students may eventually leave because of these barriers, they may also leave for positive reasons, such as meeting their educational goals. In addition, some may return to the class at a later time (i.e., "stop out"; Quigley, 1996).

The unpredictability and variance in attendance of students create challenges for teachers, program directors and policymakers who need to organize the duration and intensity of classroom time to maximize the effect of instruction. To help design effective classes, practitioners need to know:

1. How long and how consistently do students attend?

2. How do class arrangements (such as offering classes during the day or night, mandatory classes and hours of instruction offered per week) affect attendance?

3. What student, class and instructional variables affect attendance?

4. What is the relationship between attendance and literacy and language development?

Data from the *What Works Study* allows us to examine these questions for adult ESL literacy students, as we have the attendance history, as well as the other student, assessment, class and instructional data, for the 495 students in the sample. In this chapter we explain the measures of attendance we used to in the *What Works Study* and provide descriptive data on the attendance patterns of adult ESL literacy students using these measures. We address the first three questions above by looking at the relationships of different class arrangements to attendance and present findings from a statistical modeling approach that identified the class and student variables that relate to attendance within the study sample. In Chapter 6 we present findings relating attendance and instructional variables to literacy and language development.

Attendance Measure Definitions

We first developed measures of attendance that would allow us to examine how many hours students attended, how long they attended and how frequently they attended. These measures included the total time students attended, both in total hours of class time and total weeks attended; how regularly or the *rate* students attended; and the amount of attendance within a given time or the *intensity* of attendance. For example, some students attended four hours per week and others went to class about 20 hours per week.

The most direct measures of attendance we used were *total hours* attended by students and *total weeks* attended. We computed these measures for each student by simply summing the total attendance hours recorded and total weeks in which the student attended any portion of a class. We computed rate (or regularity) of attendance by dividing the total hours students actually attended by the possible hours they could have attended. Rate is thus a proportion of how many hours a student attended overall, given the number amount of hours the class was scheduled. Intensity of attendance is the average number of hours attended per week. We computed this measure by simply dividing total hours attended over total weeks attended.[20]

In summary, the attendance variables used in the analyses were:

- *Total hours*—total number of instructional hours attended;
- *Total weeks*—total number of weeks attended;
- *Rate of attendance*—proportion of hours attended out of hours possible to attend; and
- *Intensity*—average number of hours attended per week.

To illustrate these measures, suppose a student is enrolled in a class that meets 9 hours a week for 18 weeks. This student attended class a total of 129 hours, but did not attend at all one week of the 18-week class session. The attendance variables would be computed as:

- *Total hours*— total number of instructional hours attended, or 129;
- *Total weeks*—total number of weeks attended, in this case 17;
- *Rate of attendance*—proportion of hours attended out of hours possible to attend (129/162), or .80; and
- *Intensity*—average number of hours attended per week (129/17) or 7.6.

Differences Among Attendance Measures

Each measure of attendance provides us with different information about student attendance patterns. *Total hours* gives us the amount of time the student was in class and exposed to instruction, regardless of how many hours the class was scheduled or how many weeks the student attended. It also does not adjust for how regularly the student attended. *Total weeks* informs us of the length of time a student attended class, regardless of how many hours per week the class is scheduled, how many hours the student attended or how often the student attends. It is a type of persistence measure.

Rate measures how often the student attended, regardless of how many hours the class was scheduled. It is a measure of how often the student took advantage of the class time offered and may reflect student motivation to attend. Finally, *intensity* is a measure

[20] Since some students in our sample would stop attending for several weeks, then resume coming to class, we developed a fifth measure, *total enrolled weeks*. This measure was a raw count of the number of weeks that a student was enrolled, regardless of how many weeks the student attended, how often the class actually met, or how regularly the student attended. However, since this measure was highly correlated with, and showed no independent effects from, the total weeks measure, it was dropped from the analyses.

of how much attendance the student had in a given time. It is a measure of the dosage or concentration of attendance time. Intensity is dependent on how the class is scheduled—the amount of class time offered. Consequently, besides measuring student attendance behavior, intensity is a good measure for comparing the differences among classes that spread small amounts of instruction over a long period of time to classes that offer large amounts of instruction in shorter time periods.

DESCRIPTIVE ANALYSES OF ATTENDANCE: CLASSROOM AND STUDENT VARIABLES

Exhibit 5.1 shows the descriptive data of the *What Works Study* sample for each of the attendance measures. On average, the ESL literacy students in the study attended their classes for approximately 129 hours during the study period. Their median hours of attendance were 106 hours.[21] As for the number of weeks of attendance during the study, students attended approximately 16 weeks of class, on average. The mean *rate* of attendance (proportion of class hours attended out of the total possible) was 0.64, indicating that students attended close to two-thirds of the hours that the classes in the study met.

The intensity measure of attendance, the average number of hours per week that students attended, shows that students attended a moderate number of hours—just under 7 hours per week. To put this number in context, the average time that classes were scheduled was about 11 hours per week for an average of about 43 weeks.

The high standard deviations shown in Exhibit 5.1 for the measures indicate that there was a high degree of variation in the attendance of adult ESL literacy students in the study sample. Total attendance hours, for example, ranged from 9 hours to 489 hours.

Class Arrangements and Attendance

There were several arrangements of classes in the study that could affect how often and how regularly students attended. One arrangement—whether a class served students whose attendance was mandatory—is particularly relevant for policy reasons. For example, students receiving Temporary Assistance for Needy Families (TANF) may be required to attend and classes serving TANF students often are scheduled 20 hours or more per week. Since these classes usually have more scheduled hours than non-mandatory classes, we would expect to see more attendance and higher rates of attendance among students who attend such classes. In addition, prior research has found that classes meeting during the day have more scheduled hours and students who attend them usually have higher attendance than classes that meet in the evening (Cohen et al., 1996).

[21] Because this measure is not normally distributed, the median is reported in addition to the mean and standard deviation.

EXHIBIT 5.1:

Overall Attendance of Adult ESL Literacy Students (N=495)

	Mean	Median	Standard Deviation
Total Hours of Attendance	128.7	106.0	94.3
Total Weeks of Attendance	16.2	16.0	8.1
Rate (hours attended/possible hours)	0.64	0.66	0.19
Intensity (hours per week)	6.9	6.3	3.3

Another class variable that could be relevant to the attendance of ESL literacy students in particular is whether the class is composed exclusively of ESL literacy students or whether the class also includes students with higher-level literacy abilities. Many practitioners believe that ESL literacy students attend and progress more when they are in classes composed solely of literacy-level students. In classes that include higher-level students, literacy-level students may not be able to keep up with the class or may feel inhibited by the higher-level students.

Classes with Mandatory Attendance

Of the 38 classes in the study, 9 consisted of students who were required to attend under the TANF or displaced worker programs. As shown in Exhibit 5.2, students in the mandatory classes attended on average more hours (203.2), more weeks (19.4) and average more hours per week (10.0) than students in voluntary classes. These findings are not surprising, since the mandatory classes were scheduled an average of 15 hours per week, compared to 10 hours scheduled per week in classes where attendance was voluntary. There was also a significant difference in the mean rate of attendance for students in mandatory and voluntary classes. Students in both types of classes attended about two-thirds of the scheduled time, but those in mandated classes attended at a slightly higher rate.

Day and Night Classes

Students enrolled in classes that met during the day attended more mean hours than students in night classes and received more instruction per week, on average. Day classes were also associated with significantly more total weeks of attendance, on average two more weeks than night classes. However, since the rate of attendance was the same between the classes, this difference is most likely explained by the number of hours the classes met per week. Day classes met for significantly more hours per week, about 12 per week, compared to 7 hours per week for night classes.

EXHIBIT 5.2:

Mean Attendance by Mandated Class Attendance, Time of Day, and Class Composition

	Number of Students	Mean Total Hours	Mean Total Weeks	Rate	Intensity (Hrs/Wk)	Number of Classes	Mean Hours Class Met per Week	Mean Scheduled Class Period in Weeks
Attendance								
Mandated	104	203.2*	19.4*	.68*	10.0*	9	15.3*	42.3
Voluntary	391	108.8*	15.3*	.63*	6.0*	29	9.7*	43.0
Time of Day								
Day	355	152.3*	16.8*	0.65	7.9*	10	12.4*	42.3
Night	140	68.6*	14.4*	0.62	4.2*	28	7.0*	44.3
Class Composition								
Literacy	151	159.4*	16.5	0.66	8.5*	12	12.7*	41.4
Mixed	344	115.1*	16.0	0.64	6.1*	26	10.0*	41.9

Note: Pairs marked with asterisks differ significantly from each other.

Literacy and Mixed-Level Class Composition

We compared the attendance of students in the 12 classes in the study that were composed exclusively of literacy-level students with classes that mixed literacy students with students of higher abilities. We found a similar pattern of results for class composition as we did for the class meeting time: literacy-level classes had a higher mean level of total attendance hours[22] per week than classes with students of mixed ability levels. Again, this finding is at least partially explained by the number of hours the classes met per week. We also found, as with time of day class was held, that the rate of attendance did not differ between class types, averaging around two-thirds of scheduled time.

Attendance by Student Characteristics

Other studies have found differences in attendance among adult ESL students by students' characteristics, such as age and employment status. We examined the attendance patterns of students in the *What Works Study* according to these variables, as well as by students' years of formal education in their home country.[23]

Student Educational Level, Employment Status and Age

Students with zero years of education attended more hours overall, more hours per week and with more intensity, than all other students (see Exhibit 5.3). They also attended more weeks of class than students with six or more years of education, but not

[22] Although in this case, the p-value was just over the critical value (i.e., p = .05).
[23] There were no differences between the sexes on any of the attendance measures.

students with one to five years of education. The rate of attendance did not differ by level of education.

Student attendance also varied by whether students were employed. Students who were employed at any time during the study attended fewer hours overall, attended a smaller proportion of class hours, and attended fewer hours per week, on average, than students who were not employed at any time during the study. They did not significantly differ in the total number of weeks of attendance, as shown in Exhibit 5.3. These differences are partially explained by the class schedules; classes that employed students attended typically met for fewer hours per week, on average (10 hours compared with 12 hours per week). However, employed students still had a lower rate of attendance (hours attended out of total possible), which takes into account the number of hours that the classes met. Attendance also varied by student age, as older students attended for significantly more weeks than did younger students. Older student also attended more total hours and students over 50 attended at a higher rate than younger students, although these differences were just above convention significance levels.

EXHIBIT 5.3:

Mean Attendance by Students' Educational Level and Employment Status

	Number of Students	Total Hours	Rate (Hours)	Intensity (Hrs/Wk)	Total Weeks*
Age					
25 and under	89	109.5	.64	6.6	14.3*
26-35	94	118.1	.63	6.4	15.4*
36-50	197	135.3	.63	7.0	16.8*
Over 50	115	140.8	.68	7.2	17.2*
Years of Education in Home Country					
0 years	162	148.2*	0.63	7.7*	17.1*
1 to 5 years	173	123.1*	0.64	6.4*	16.6
6 or more years	155	117.6*	0.66	6.6*	15.0*
Employment Status					
Employed	203	106.7*	0.62*	5.7*	16.8
Unemployed	252	158.5*	0.68*	8.1*	16.9

Note: Means marked with asterisks differ significantly from each other.

STUDENT, CLASS AND INSTRUCTIONAL VARIABLES RELATED TO ATTENDANCE

The descriptive findings presented so far reveal that there is a substantial variation in how regularly, how intensely and how long adult ESL literacy students attended class. However, while the findings describe attendance patterns of different types of students and within types of classes, they do not inform us of how combinations of student and class variables affect attendance, or how instructional and teacher variables, such as those presented in Chapter 4, are related to attendance. To allow us to examine the inter-relationships among all the factors affecting attendance and identify any specific factors

that contribute to increased student attendance, we needed to use a multivariate statistical modeling technique. This technique allows us analyze the relationships among background characteristics, class and instructional variables and attendance, controlling for all characteristics.

Analytic Approach

The analytic approach we adopted for examining attendance was hierarchical linear modeling (HLM; Bryk and Raudenbush, 1992). This approach is ideal for the *What Works Study* data as it allows use of multiple measures over time and with variables at different levels of analysis, including student-level variables (age, education level) and class-level variables (e.g., mandatory and night classes). We provide further explanation of this approach in Chapter 6, where we use HLM extensively to look at factors associated with student literacy and language learning, and also provide a detailed statistical explanation in the appendix. In the remainder of this chapter, we present the results of the analyses for the attendance measures.

Variables Used in the HLM Attendance Analyses

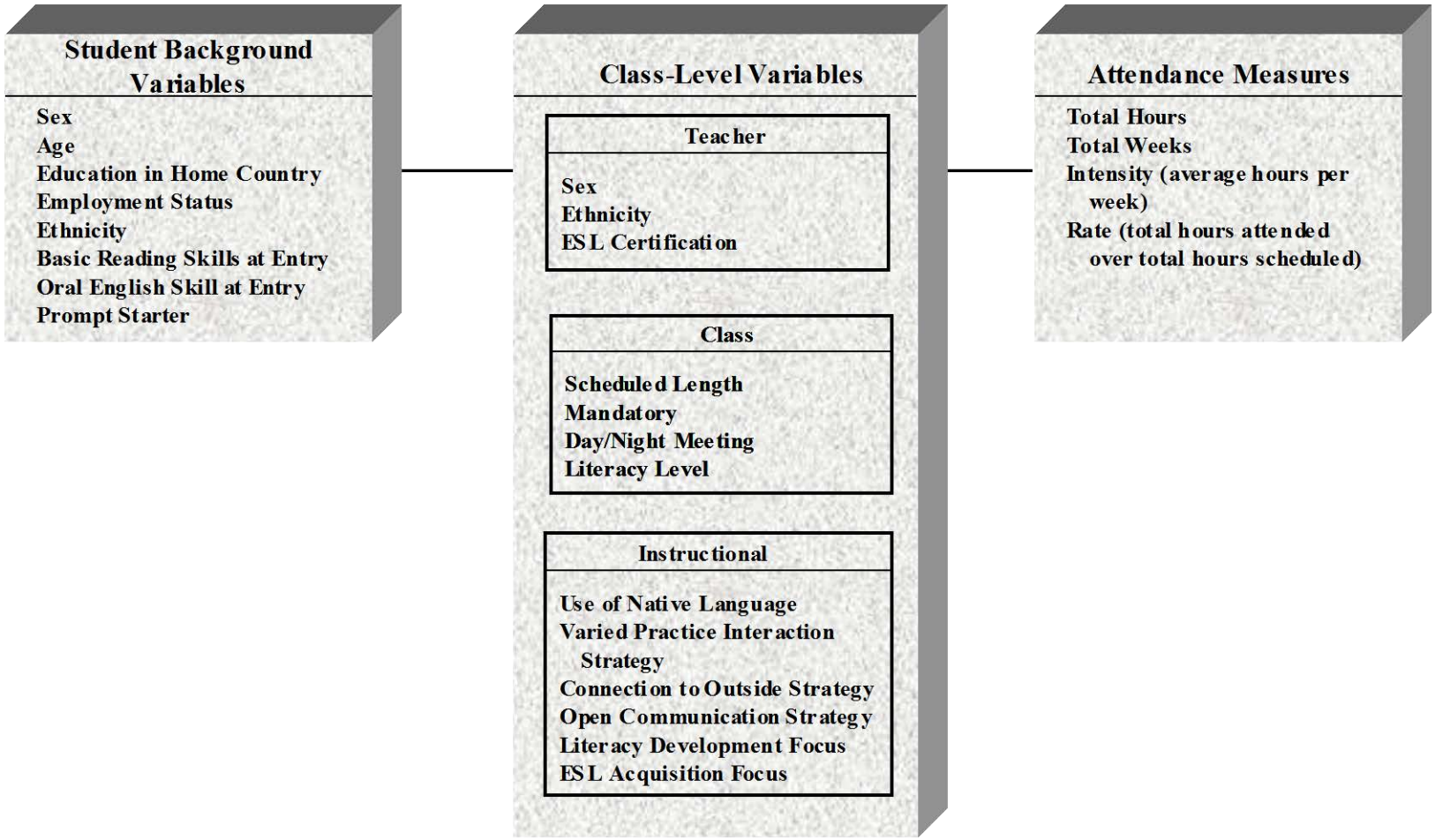
Use of HLM to study student attendance requires that we first identify all of the measures (student, class, teacher and instructional) that we believe might affect attendance. Exhibit 5.4 shows the variables we used in the HLM analysis of each measure of attendance. The student variables include age, sex, years of formal schooling in the home country, employment status, ethnicity, and oral English skills (BEST score) and basic reading skills (WJBRSC score) measured at intake. Prior studies have found that age and employment status relate to attendance, with older and unemployed students attending longer (Solorzano, 1993; Cohen, Condelli and Garet, 1996). We also included a measure of whether the student entered the class within the first three weeks of its scheduled start. We called this variable "prompt start." We found this variable to be positively related to attendance in a previous study (Cohen, Condelli and Garet 1996).

The class-level variables in the analyses included the teacher variables of teacher ethnicity (coded as Hispanic or non-Hispanic), sex and whether the teacher had an ESL certification.[24,25] Classroom variables we used were the scheduled length of class (in hours per week), whether the class met during the day, whether class attendance was mandatory and whether the class had students at mixed levels of literacy. The instructional variables included the instructional strategies (e.g., varied practice and interaction; connection to the outside) and instructional emphasis variables (e.g., literacy development focus and ESL acquisition) and the use of the native language in class.[26] We expected that mandatory classes and day classes to have more attendance. However, no prior study has examined the relationship of types of instruction on attendance.

[24] Since we assumed that there was a one-to-one match between classes and teachers (i.e., one teacher per class), it was not necessary to formulate a model that postulated teachers as nested within classes (i.e., more than two teachers teaching for a class) or vice versa (i.e., teachers teaching more than two classes).
[25] We considered including teachers' years of experience in the model, but there was very little variance in this measure and it was higher correlated with teacher ESL certification. Therefore, we dropped teacher experience from the analysis.
[26] Chapter 4 includes a discussion and definitions of the instructional variables. Chapters 2 and 3 discuss student variables and assessments.

EXHIBIT 5.4

Variables Used in the HLM Attendance Analyses



Findings from HLM Analyses

Using the variables shown in Exhibit 5.4, we conducted HLM analyses on each of the four attendance measures. The results of these analyses tell us the effect of each variable on each attendance measure, adjusting for the effects of all the other variables in the analysis. For example, the analyses revealed the relationship of mandatory classes on attendance measures, regardless of type of student in the class and type of instruction offered in the class.

Rate of Attendance

Attendance rate, a proportion of hours attended to scheduled hours, measures how regularly students attended. Exhibit 5.5 shows the results of HLM analysis using this measure. Only a few variables showed statistically significant effect on students' attendance rate: students' age and employment status, the scheduled length of class, and the interaction between age and mandatory attendance requirement. The coefficients in the exhibit indicate the size and direction (positive or negative) of these effects.

Older adult ESL literacy students had a significantly higher rate of attendance than their younger counterparts. The coefficient of the age effect is 0.16%, which indicates that for every additional year of age, there is an increase of 0.16% in attendance rate. Therefore, other things being equal, the attendance rate of 20-years-old students was 3.2% (20*.16) less than average aged students. Employed students had a lower attendance rate, 4.46% lower than that of their unemployed peers.

Looking at the class variables, only scheduled length of class in hours per week had a significant relationship to attendance rate. Students who were enrolled in longer scheduled classes attended at a lower rate than those who were enrolled in shorter classes. For example, other things being constant, those who are enrolled in the longest scheduled classes (20 hours per week) had on average a 38% (16*-2.43) lower attendance rate than those who are enrolled in shortest, 4 hour long classes.

Finally, the analysis revealed a significant, negative interaction effect of student's age and mandatory attendance requirement. This finding means that when older students were enrolled in mandatory classes where they were required to attend class, they attended at a *lower* rate than younger students in mandatory classes. This interaction effect is noteworthy in that students' age alone was positively related to attendance rate.

EXHIBIT 5.5:

HLM Findings for Rate of Attendance

Variables	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Grand Mean	61.01	12.86	22	4.75	<.0001 ***
Student Variables					
Sex (Female)	-2.58	1.67	361	-1.54	.12 ns
Age	0.16	0.06	361	2.51	.01 *
Formal Schooling in Home Country	0.16	0.31	361	0.52	.60 ns
Employed	-4.56	1.90	361	-2.41	.02 *
Hispanic Student	8.11	7.66	361	1.06	.29 ns
Hmong Student	7.18	5.26	361	1.36	.17 ns
Somali Student	0.54	3.07	361	0.17	.86 ns
Basic Reading Skills at Entry (WJBRSC)	-0.04	0.05	361	-0.78	.44 ns
Oral Communication Skills at Entry (BEST)	-0.02	0.04	361	-0.42	.68 ns
Prompt Start (student started within first 3 weeks that class opened)	-3.04	1.76	361	-1.72	.09 $
Teacher Variables					
Sex (Female)	-3.29	6.93	22	-0.47	.64 ns
Ethnicity (Hispanic)	1.65	8.60	22	0.19	.85 ns
Teacher has ESL Certification	-4.47	6.52	22	-0.68	.50 ns
Class Variables					
Scheduled Length of Class (in hours per week)	-2.43	1.02	22	-2.37	.03 *
Mandatory Class	5.07	7.89	22	0.64	.53 ns
Day Class	15.88	11.22	22	1.42	.17 ns
Mixed Level Class	-2.23	6.67	22	-0.33	.74 ns
Instructional Variables					
Use of Native Language	-8.26	18.49	22	-0.45	.66 ns
Practice Strategy	4.03	7.87	22	0.51	.61 ns
Connection Strategy	10.68	8.17	22	1.31	.21 ns
Open Communications Strategy	-7.50	7.89	22	-0.95	.35 ns
Literacy Focus	34.52	38.03	22	0.91	.37 ns
ESL Focus	28.66	37.77	22	0.76	.46 ns
Class by Student Variables (Interactions)					
Age*Mandatory	-0.30	0.15	361	-2.01	.04 *
Employed*Mandatory	5.61	4.34	361	1.29	.20 ns
Hispanic Student*Day Class	-13.50	8.19	361	-1.65	.10 $

Note 1: se = standard error; df = degrees of freedom; ns = non-significant finding.

$ p<.10; * p<.05; ** p<.01; *** p<.001

Note 2: The grand mean is the estimate of the outcome measure when all the variables in the model take on a base or reference value. In other words, female student=0, age=mean of 40.5, formal schooling=mean of 3.13 years, and so forth.

Intensity of Attendance

Exhibit 5.6 displays the result of HLM estimates on the intensity of students' class attendance, or the average number of hours students attended per week. The findings for this measure are similar to the findings for rate of attendance. Age and employment status were the only student variables related to intensity of attendance. Older and unemployed students attended more average hours per week. For example, 40-year-old students spent on average about 0.4 hour (20*.02) more in class per week than 20-year-old students. Students who are employed tend to attend class an average of about a half an hour per week less than their unemployed peers.

Among the class variables, only scheduled hours per week was related to intensity of attendance. This finding simply means that students enrolled in class with more scheduled hours tend to spend more time in class per week than those who enroll in classes with fewer scheduled hours.

The analyses also found a significant, negative interaction effect of student's age and mandatory attendance requirement, again suggesting that when older students were required to attend class, they spent *less* time in class. As with rate of attendance, this interaction effect is noteworthy in that student's age or mandatory attendance requirement alone tended to be positively related to the intensity of attendance. A second interaction, the negative and statistically significant effect of Hispanic student enrolled in day classes, suggests that Hispanic students, who otherwise tended to attend class marginally more, showed significantly diminished attendance if enrolled in day classes.

Total Hours of Attendance

Exhibit 5.7 shows the result of the HLM analysis on students' total hours of attendance. Two student variables were significantly related to attendance. Students' level of basic reading skills, measured by the WJBRSC at intake, was highly and negatively related to the total attendance hours. This finding means that on average, students with *higher* literacy attended *fewer* hours than students of lower incoming literacy ability, all else being equal. The other student variable significantly related to total attendance hours was "prompt start," students who started within 3 weeks after the beginning of the class. These ESL literacy students attended an average of 53.4 more hours than students who started class later. There was also a tendency for older ESL literacy students to attend more total hours, a finding consistent with our other analyses showing a positive relation of attendance with age. However, this time the finding did not reach conventional significance levels.

One instructional variable, focus on literacy development, was strongly and positively related with the total attendance hours. Students attended more hours when their teacher focused more on literacy development activities. Taken together with the finding that students with lower level basic reading skills on entry attended more hours, it

EXHIBIT 5.6:

HLM Findings for Intensity of Attendance

Variables	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Grand Mean	6.30	1.56	22	4.03	.00 ***
Student Variables					
Sex (Female)	-0.28	0.20	361	-1.41	.16 ns
Age	0.02	0.01	361	2.34	.02 *
Formal Schooling at Home Country	0.03	0.04	361	0.87	.38 ns
Employed	-0.51	0.22	361	-2.27	.02 *
Hispanic Student	1.17	0.91	361	1.29	.20 ns
Hmong Student	1.22	0.62	361	1.95	.06 $
Somali Student	0.12	0.36	361	0.32	.75 ns
Basic Reading Skills at Entry (WJBRSC)	-0.01	0.01	361	-0.89	.37 ns
Oral Communication Skills at Entry (BEST)	0.00	0.00	361	-0.40	.69 ns
Prompt Start (student stared within first three weeks that class opened)	-0.34	0.21	361	-1.64	.10 ns
Teacher Variables					
Sex (Female)	0.03	0.86	22	0.03	.98 ns
Ethnicity (Hispanic)	-0.31	1.06	22	-0.29	.77 ns
Teacher has ESL Certification	-0.51	0.81	22	-0.63	.53 ns
Class Variables					
Scheduled Length of Class (in hours per week)	0.30	0.13	22	2.38	.03 *
Mandatory Class	0.20	0.98	22	0.21	.84 ns
Day Class	2.12	1.36	22	1.56	.13 ns
Mixed Class	-0.42	0.83	22	-0.51	.61 ns
Instructional Variables					
Use of Native Language	-0.51	2.29	22	-0.22	.83 ns
Practice Strategy	0.54	0.98	22	0.55	.59 ns
Connection Strategy	1.87	1.01	22	1.84	.08 $
Open Communications Strategy	-1.14	0.98	22	-1.16	.26 ns
Literacy Focus	6.07	4.71	22	1.29	.21 ns
ESL Focus	5.25	4.68	22	1.12	.27 ns
Class by Student Variables (Interactions)					
Age*Mandatory	-0.05	0.02	361	-2.62	.01 **
Employed*Mandatory	0.77	0.51	361	1.50	.13 ns
Hispanic Student*Day Class	-1.94	0.97	361	-2.00	.05 *

Note 1: se = standard error; df = degrees of freedom; ns = non-significant finding.

$ p<.10; * p<.05; ** p<.01; *** p<.001

Note 2: The grand mean is the estimate of the outcome measure when all the variables in the model take on a base or reference value. In other words, female student=0, age=mean of 40.5, formal schooling=mean of 3.13 years, and so forth.

EXHIBIT 5.7:

HLM Estimate on Total Attendance Hours

Variables	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Grand Mean	153.08	48.74	22	3.14	.00 **
Student Variables					
Sex Student (Female)	-9.13	7.62	360	-1.20	.23 ns
Age of Student	0.50	0.29	360	1.72	.09 $
Formal Schooling at Home Country	-1.50	1.41	360	-1.07	.29 ns
Employed	-9.70	8.61	360	-1.13	.26 ns
Hispanic Student	-9.67	34.03	360	-0.28	.78 ns
Hmong Student	-3.94	22.72	360	-0.17	.86 ns
Somali Student	-19.02	13.81	360	-1.38	.17 ns
Basic Reading Skills at Entry (WJBRSC)	-0.81	0.23	360	-3.51	.00 ***
Oral Communication Skills at Entry (BEST)	0.06	0.17	360	0.33	.74 ns
Prompt Start (student started within the first 3 weeks class opened)	53.42	7.91	360	6.76	<.0001 ***
Teacher Variables					
Sex (Female)	7.92	22.52	22	0.35	.73 ns
Ethnicity (Hispanic)	-24.59	28.43	22	-0.87	.40 ns
Teacher with ESL Certification	-7.98	21.33	22	-0.37	.71 ns
Class Variables					
Scheduled Length of Class (in hours per week)	4.52	3.38	22	1.34	.19 ns
Mandatory Class	33.64	26.28	22	1.28	.21 ns
Day Class	-17.26	43.80	22	-0.39	.70 ns
Mixed Class	-8.63	22.02	22	-0.39	.70 ns
Instructional Variables					
Use of Native Language	51.75	60.41	22	0.86	.40 ns
Practice Strategy	51.89	25.68	22	2.02	.06 $
Connection Strategy	38.76	26.64	22	1.46	.16 ns
Open Communications Strategy	-49.53	25.65	22	-1.93	.07 $
Literacy Focus	357.45	124.66	22	2.87	.01 **
ESL Focus	240.84	124.51	22	1.93	.07 $
Class by Student Variables (Interactions)					
Age*Mandatory	-0.94	0.67	360	-1.40	.16 ns
Employed*Mandatory	6.16	19.48	360	0.32	.75 ns
Hispanic Student*Day Class	5.20	36.52	360	0.14	.89 ns
Age*Practice	-0.46	0.40	360	-1.16	.25 ns

Note 1: se = standard error; df = degrees of freedom; ns = non-significant

$ p<.10; * p<.05; ** p<.01; *** p<.001

Note 2: The grand mean is the estimate of the outcome measure when all the variables in the model take on a base or reference value. In other words, female student=0, age=mean of 40.5, formal schooling=mean of 3.13 years, and so forth.

may be that these students stayed in class longer because teaching focused more on their needs—learning basic literacy skills. However, it also possible that the teacher's instruction became more literacy focused over time, since the lower level students were more likely to attend more.

Putting all the significant factors together, we may infer that students who lack basic reading skills but started the class on time seem to stay in class longer in terms of total hours, especially when classroom instruction focuses on literacy development.

Total Weeks of Attendance

The HLM findings for total weeks of attendance, shown in Exhibit 5.8, are similar to the findings for total hours of attendance. As with the other attendance measures, adult ESL literacy students' age was positively related to total weeks of attendance—older students attended more weeks on average. Students' incoming basic reading skills, as measured by WJBRSC, was highly and negatively related to the total weeks of attendance, as it was for total hours of attendance. On average, those who scored 30 points (about one standard deviation) above the mean in the basic reading test spent about 2.4 fewer weeks (30*0.08) attending than their lower scoring peers. This result means that the more literate students left their classes early, while less literate peers attended more weeks.

Prompt starters, those beginning class within its first three weeks, also attended about 6 more weeks on average than students who joined the class later. This result combined with the similar finding for total hours (Exhibit 5.7) implies that prompt starters not only started early but stayed in class longer, whereas students who enrolled later left the class earlier.

The analysis also revealed that instructional variables were related to total weeks of attendance. Once again, we found that ESL literacy students exposed to instruction that focused on literacy development attended longer. However, unlike the findings for total hours, we also found that students in classes where the teacher used the native language in instruction had a positive and significant effect on students' persistence. Students in the classes where the teacher used the native language more than on other class stayed in class about 2.7 weeks longer (0.26*10.27).

Two additional instructional variables were significantly related to total weeks of attendance, although they had no significant effect in the analyses of the other attendance measures. The use of varied practice and interaction strategy in instruction was positively and significantly associated with students' attendance in weeks. Students stayed when this strategy was used more often. In contrast, the use of open communications strategy in classroom instruction was negatively and significantly associated with students' total attendance weeks.

EXHIBIT 5.8:

HLM Findings for Total Weeks of Attendance

Variables	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Grand Mean	18.57	4.19	22	4.43	.00 ***
Student Variables					
Female Student	0.33	0.79	360	0.41	.68 ns
Age of Student	0.07	0.03	360	2.15	.03 *
Formal Schooling at Home Country	-0.11	0.15	360	-0.72	.47 ns
Employed	-0.33	0.89	360	-0.37	.71 ns
Hispanic Student	-2.81	3.37	360	-0.84	.40 ns
Hmong Student	-0.18	2.13	360	-0.08	.93 ns
Somali Student	-1.08	1.41	360	-0.77	.44 ns
Basic Reading Skills at Entry	-0.08	0.02	360	-3.30	.00 **
Oral Communication Skills at Entry	0.00	0.02	360	-0.19	.85 ns
Prompt Start	5.97	0.79	360	7.53	<.0001 ***
Teacher Variables					
Sex (Female)	3.24	1.51	22	2.14	.04 *
Ethnicity (Hispanic)	-3.24	1.99	22	-1.63	.12 ns
Teacher with ESL Certification	-0.98	1.43	22	-0.68	.50 ns
Class Variables					
Length of Class (in hours per week)	-0.38	0.23	22	-1.64	.12 ns
Mandatory Class	3.72	1.86	22	2.00	.06 $
Day Class	-6.56	3.86	22	-1.70	.10 ns
Mixed Class	0.48	1.53	22	0.31	.76 ns
Instructional Variables					
Use of Native Language	10.27	4.09	22	2.51	.02 *
Practice Strategy	6.15	1.74	22	3.52	.00 **
Connection Strategy	1.88	1.79	22	1.05	.30 ns
Open Communications Strategy	-4.86	1.71	22	-2.85	.01 **
Literacy Focus	27.29	8.57	22	3.18	.00 **
ESL Focus	14.48	8.70	22	1.67	.11 ns
Class by Student Variables (Interactions)					
Age*Mandatory	-0.04	0.07	360	-0.63	.53 ns
Employed*Mandatory	2.60	1.96	360	1.32	.19 ns
Hispanic Student*Day Class	3.78	3.60	360	1.05	.30 ns
Age*Practice	-0.11	0.04	360	-2.66	.01 **

Note: se = standard error; df = degrees of freedom; ns = nonsignificant

$ p<.10; * p<.05; ** p<.01; *** p<.001

Note 2: The grand mean is the estimate of the outcome measure when all the variables in the model take on a base or reference value. In other words, female student=0, age=mean of 40.5, formal schooling=mean of 3.13 years, and so forth.

Finally, we found an intriguing interaction effect between the students' age and the varied practice and interaction strategy. As the significant and negative coefficient of –0.11 implies, older students enrolled in the classes that emphasized the practice strategy stayed in class fewer weeks than their younger counterparts. Note that both the age and the use of practice strategy variable by themselves are positively related with student's total weeks of attendance. These results imply that this instructional strategy relates to longer attendance, especially for younger students.

Other findings from this analysis were that students attended more weeks in classes with female teachers and also attended more weeks when the class was mandatory. This latter finding however, only reached marginal significance. The finding for female teacher defies a clear explanation. It may be a spurious finding.

Putting all the significant factors together, we may infer that older students and students who lack basic reading skills but started the class at its scheduled start time, seem to stay in class longer in terms of total attendance in weeks, especially when the classes make more use of native language and when classroom instruction focuses on students' literacy development. The instructional strategy of varied practice and interaction is also related to more weeks of attendance, but more so for younger students.

Chapter Summary

Attendance of adult ESL literacy students is highly variable, as these students face many barriers to attending class. Programs use different types of class arrangements (e.g., night classes, mandatory classes) to improve attendance, but there is little prior research on how class types or other factors work to improve attendance and no research on attendance patterns of adult ESL literacy students. Data from the *What Works Study* allow us to describe attendance patterns for these students and to identify what combinations of student, class, instruction and teacher variables are related to attendance.

We computed four measures of attendance to conduct descriptive and multivariate statistical analyses: total hours of attendance, total weeks of attendance, intensity of attendance (average hours per week attended) and rate of attendance (proportion of hours per week attended to hours per week scheduled). Overall, students attended an average of about 129 hours during the study period and an average of about 7 hours per week for 16 total weeks. The overall rate, or regularity, of attendance was 0.64, indicating that students attended around two-thirds of the total hours possible.

Class arrangements also were related to ESL literacy student attendance. Students in mandatory classes and day classes attended more total weeks, more total hours, at a higher rate, and more average hours per week. The differences are due at least partly to the fact that these classes had more scheduled hours per week. Students in classes composed only of literacy level students also attended more than students in classes composed of mixed literacy level students. Again, this difference was apparently due in part to the greater number of scheduled hours in the literacy level only classes.

To identify the student, class and instructional variables related to the attendance of adult ESL literacy students, we used a multivariate statistical procedure, HLM, which identified the following relationships.

Total Weeks and Total Hours of Attendance

The HLM analyses revealed that the following student and class characteristics were related to more total hours and more total weeks of attendance:

- Age (older students);
- Students with lower basic reading skills at entry into class;
- Students who started class within the first three weeks; and
- Classes where teachers had more instructional focus on literacy development.

The analysis also suggests that an instructional strategy using varied practice and interaction is also positively related to total hours and total weeks of attendance, especially for younger students.

The joint findings that students with lower level basic reading skills on entry attended more weeks and hours and the two classroom strategies findings of literacy development focus and varied practice and interaction strategy suggest at least two possible explanations. It may be that students with lower basic reading skills stayed in class longer because these teaching strategies met their needs to improve these basic skills. Students with higher incoming basic skills levels may have learned faster and thus stopped attending earlier and those with lower skills continued to attend. However, it is also possible that the teacher's instruction became more literacy focused over time, since the lower level students were more likely to attend and the higher-level students had left.

Rate and Intensity of Attendance

Rate of attendance measured how often or regularly students attended and intensity measured the average hours per week of attendance. The HLM analyses found four relationships to these measures:

- Older students attended at a higher rate and intensity;
- Unemployed students attended and a higher rate and intensity;
- Students in classes with more scheduled instructional hours per week attended at a lower rate and intensity; and
- Older students who were mandated to attend attended at a lower rate and intensity than younger mandated students.

Type of instruction and type of class had no significant effect in the HLM analysis on rate or intensity of attendance.[27] This lack of findings is intriguing, since it means that regardless of the class arrangement or instructional approach, students' attendance rate did not increase significantly from the overall average rate of about 65 percent of the time (see Exhibit 5.2). The data cannot tell us the reason for this finding, but it indicates that students on average attended only about two-thirds of scheduled time, regardless of how teachers taught, whether the class met during the day or night, whether attendance was mandatory or the class was composed only of literacy-level or mixed level students.

Programs often arrange class schedules to make them more convenient to students and thereby improve attendance (such as by offering day and night classes). State and federal the policies of mandated attendance for some students also assume that students will attend more regularly if required. Yet, our findings do not support such assumptions, at least for adult ESL literacy students. Not only did we find that these program and policy arrangements had little or no relationship to rate of attendance, but they can backfire. We found that classes with more scheduled hours have *lower* rates of attendance, implying that if a class is scheduled for too long, students will attend at a lower rate. Mandating attendance also had little relationship to students' attendance rate—indeed it had the opposite effect for older students. We found that older students in mandated classes attended *less* than their younger counterparts in these classes.

These findings suggest that students devote a set proportion of their time to attend class, which is highly difficult to change through schedules or attendance requirements. The lack of effect of these variables on rate of attendance may be due to life circumstances of ESL literacy students, which make it hard for them to attend more frequently, or it may be an implicit decision to spend only a certain amount of time for ESL literacy instruction. The fact that unemployed ESL literacy students attended at a higher rate and intensity may support this explanation, since these students may have more time for class than employed students.

[27] The univariate comparison revealed a small significant effect of about five percent (Exhibit 5.2) on the rate of attendance for mandatory students. The HLM analysis also showed a five percent effect, but it was not statistically significant.

CHAPTER 6:
GROWTH IN LITERACY AND LANGUAGE DEVELOPMENT: WHAT WORKS

In previous chapters we described the approach of the *What Works Study* toward measuring classroom instruction and assessing student literacy and language skills. We have presented detailed descriptions of the background and demographics of the adult ESL literacy students in our sample and used our assessment battery to describe their literacy and language abilities. We also have described the class arrangements and instructional activities within the adult ESL literacy classroom, including basic literacy and ESL development activities and instructional strategies teachers employed. In Chapter 5 we discussed adult ESL literacy students' attendance patterns and the relationship of student, class and instructional variables to attendance. In this chapter, we finally put all of these variables together to try to answer the study's basic research question: what works to improve the literacy and language development of adult ESL literacy students?

Due to the multitude of variables that can affect literacy and language development and the complex nature of the study data, answering this question required the use of a sophisticated and complex statistical model. The model allowed us to accommodate the study's data complexity and also isolate the unique effects of individual variables, given all the other factors that could affect student growth.

Since an understanding of the statistical approach will assist in correctly interpreting findings, we begin this chapter with a discussion of the nature of the study data and the issues it raised for conducting valid statistical analyses. We then briefly describe the statistical analysis approach we employed, latent growth modeling using the hierarchical linear modeling (HLM) framework. Finally, we discuss the student, teacher, class, instructional and teacher variables we used in the HLM modeling and then present the study findings related to growth in literacy and language development.

While an understanding of the data issues and statistical approach discussed below requires only a minimum of technical knowledge of data analysis, readers that prefer to focus directly on study findings may wish to skip the next section and go directly to the discussion of results. On the other hand, readers with a greater technical

interest should consult the appendix for a detailed statistical explanation of the HLM latent growth modeling methodology.

ISSUES IN ANALYZING LITERACY AND LANGUAGE GROWTH IN THE *WHAT WORKS STUDY*

Just as the *What Works Study* posed major challenges for characterizing and measuring instruction and assessing student learning, it also created substantial difficulties for data analysis. The study data are structurally complex and include multiple measures collected or observed on the same students and classes at several times over the two-year data collection period. In this section we discuss the complex nature of the data that affected analyses. Four characteristics of the data complicated our analyses:

- Student attrition, so that fewer students completed the assessments at each time period;
- Unequal time intervals between assessments;
- Variation in student growth within the same classes; and
- The hierarchical structure of the data.

We discuss these issues below and then explain how the statistical analysis approach we adopted, latent growth modeling, addresses this data complexity. We then discuss the variables we used in the modeling analyses.

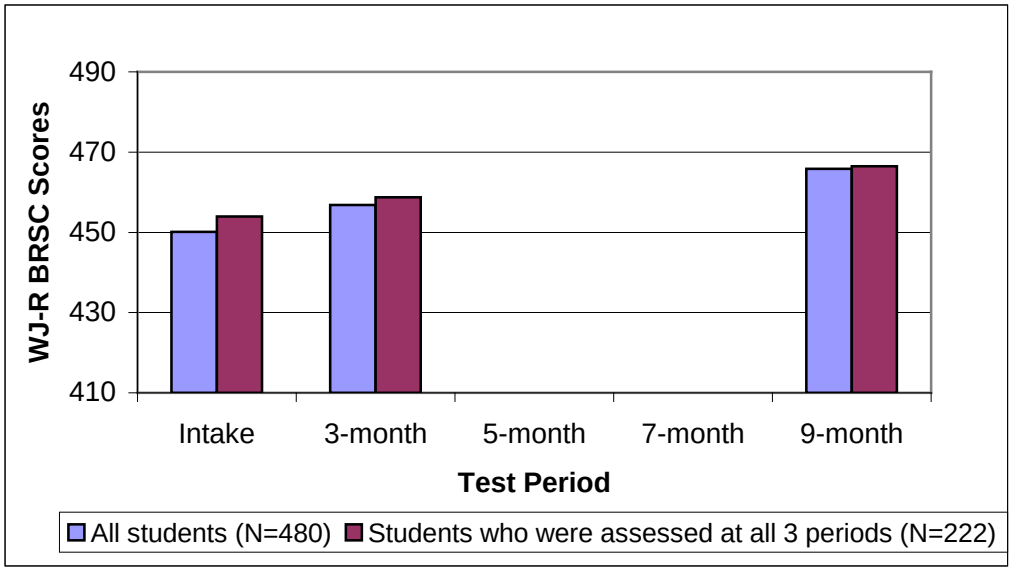
Nature of the *What Works Study* Data

The main goal of the study was to examine the English literacy and language growth of adult ESL literacy students and to identify student, instructional and other program variables related to this growth. As described in Chapter 3, we used a battery of assessments to measure language and literacy growth, including the Woodcock Johnson (WJR) basic reading (BRSC) and reading comprehension (RCC) subtests, the Basic English Skills Test (BEST) and the writing test of the Adult Language Assessment Scales (ALAS). We assessed student on intake into class and approximately three and nine month later.

One way to examine student improvement on these outcomes is to use conventional statistical approaches (e.g., ANOVA) to compare the means over the three periods. For example, Exhibit 6.1 shows the means from the BRSC tests. The pattern of change in these mean scores shows that students' basic reading skills grew just under 20 points over the nine months, a statistically significant effect with a conventional repeated measures ANOVA.

EXHIBIT 6.1:

Mean BRSC Scores for All Students and Students Tested at All 3 Periods



Student Attrition

However, there are many problems with inferring students' literacy growth from such simple mean scores. The biggest problem is that the mean scores computed for the three time periods were not based on the same students, since not all students were tested at all times. Substantial numbers of students dropped out of classes and could not be located for subsequent assessment. Sample size declined from 495, 356, and 263 at intake, 3-month, and 9-month periods, respectively, and only 258 students took all three assessments. If some key characteristic of students who were not assessed differed from those students who took all assessments, then change in mean scores for all students may compound the effect of student growth and the effect of selective attrition.[28]

One way to disentangle the compounded effects is to control for the selective attrition by comparing only those students for whom we have scores for all three testing periods. This comparison, also shown in Exhibit 6.1, shows a slightly smaller rate of growth. Using repeated measures ANOVA, we found that the mean scores over the three periods were significantly different from each other. The result suggests that students improved in their basic reading skills between two consecutive test intervals.

Excluding so many students from the analysis, however, is undesirable since we eliminate students who may have had characteristics that affect general literacy and language growth. In addition, the attrition makes the overall sample size small, reducing statistical power and making comparisons very difficult. Clearly, we prefer an analytic technique that does not require us to discard so much data.

[28] See the appendix for a comparison of students with different patterns of assessment.

Unequal Assessment Time Intervals

Another reason why change in simple mean scores for three testing periods may not accurately represent true growth is that the three study testing periods do not reflect the actual time of testing. The original study design called for each student to be tested at three periods: at intake and three months and nine months after enrollment. Since in practice it was impossible to test all students in all classes at the same time, the actual testing dates at each of the periods varied widely.

Exhibit 6.2 illustrates this point by plotting student BRSC scores against assessment time for each student in one class in the study. All 18 students in this class were assessed at intake (i.e., month 0) and the majority of these students were re-tested at the 3-month period. But the actual test dates varied among students. Most of them were tested at three and four months after enrollment, while a single student tested in month five. A few more students were not assessed at the third testing period. The actual time of the third testing period varied even more widely among students, between 7 and 12 months after enrollment. Due to these discrepancies in test dates, intervals between measurement periods varied accordingly.[29]

Conventional methods for the analysis of change, such as repeated measures ANOVA, assume equal time intervals. Therefore, the test of significance of the mean score differences shown in Exhibit 6.1 is misleading since the assumption of equal time intervals is not true. However, the use of accurate intervals between testing periods is critical for our analyses.

Student Growth Variation Within Classes

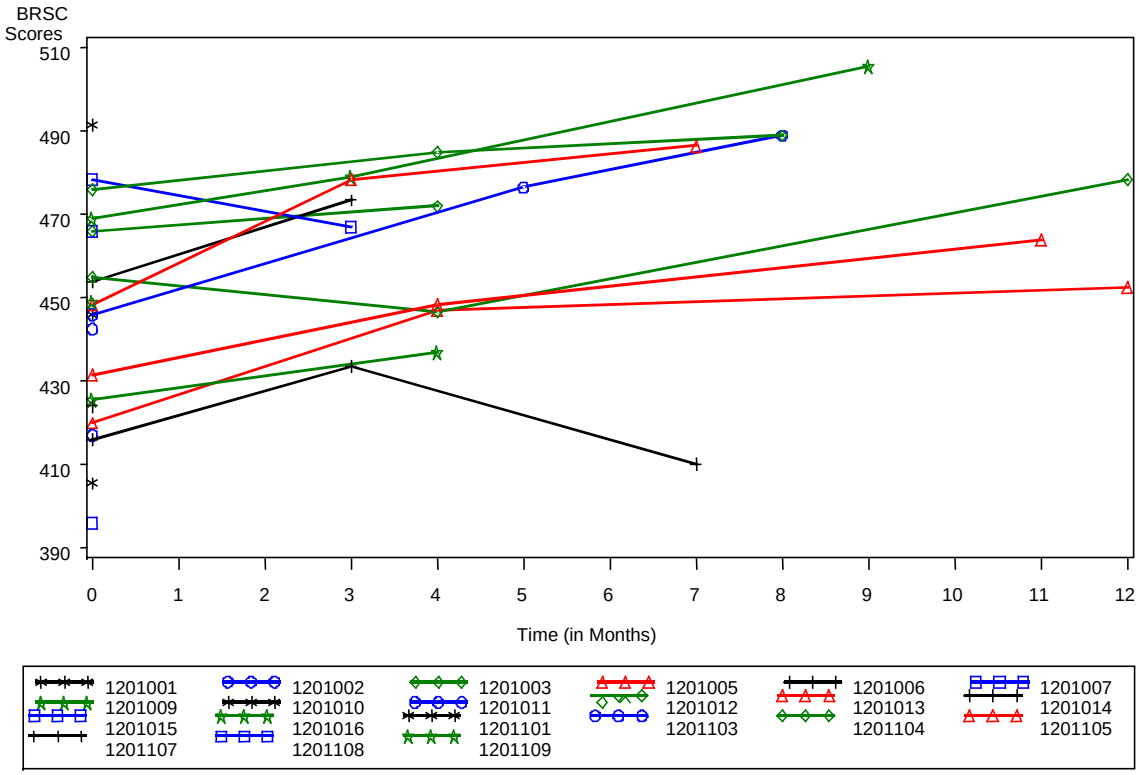
Significant growth variation among students within the same classes is a third reason why change in simple mean scores provides a limited view of growth. As Exhibit 6.2 reveals, students started at different level of basic reading skills at the outset. Over time, some students show growth, while test scores of others decline.[30] Some students grew rapidly, others inclined very slowly and still others did not grow at all. These differences show the random variation that exists in the data, not only in initial status (where students started), but also in the rate of growth (how much they grew per month) among students within classes. Once again, conventional methods for the analysis of change cannot adequately handle these differential growth trajectories among students.

[29] The time variation is even more complicated because there was some variation in intervals between testing points between the first cohort of students who participated in the first and second years of the study. Especially in the year 1, it took a long time to follow up and assess students who had already left the class, so that the interval between the three months and nine months periods was prolonged compared to year 2. However, treating the two cohorts separately runs the risk of failing to detect substantively important relations because of low statistical power in each cohort separately. Our preliminary analysis indicated that there was no systematic difference between the students of the year-1-cohort and their peers of the year-2-cohort. Furthermore, our analytic approach permitted that diverse repeated measure data patterns to be combined into a single analysis. Therefore, two cohorts were combined in the subsequent analyses.

[30] See discussion of the writing growth analysis later in this chapter for an explanation of reasons for declines in scores over time.

EXHIBIT 6.2:

Growth Trajectories in Basic Reading Skills: Class 1201



Hierarchical Data Structure

Yet another issue complicating the analysis, is that there are three structural levels in the data: time, students and classes. Specifically, the data consist of several measures collected on *three time* periods from about 495 *students* enrolled in about 38 adult ESL literacy *classes*. Correspondingly, the data have a three-level hierarchical structure: the repeated observations over *time*, which are nested within the second level of *students*, who in turn are nested within a third level of *classes*. This three-level data structure in the model allowed us to address the individual growth of students over time, the relationship between students' characteristics and their literacy growth, and how these variables, in turn, were influenced by classroom instruction and teacher characteristics.

Analytic Approach

Given the complex nature of the data (e.g., selective attrition of sample, unequal intervals between tests, random variation between students and multiple levels of data), the use of simple mean scores is insufficient to provide us with useful information about true language and literacy growth among all the students in the study. In addition,

conventional methods for the analysis of change are also inadequate to deal with such complex data. To overcome the limitations of conventional methods, we used the hierarchical linear model (HLM) framework to perform latent growth modeling (Bryk & Raudenbush, 1992).

The latent growth modeling technique is designed to capture the underlying trajectory of growth that takes places over time. The technique works by using each individual student's data, such as shown in Exhibit 6.2, to draw a single, underlying growth trajectory that fits a straight line or smooth curve. The statistical parameters underlying the line or curve can then be used to describe students' literacy growth in terms of their initial status, or where they started, and the rates and direction of change. It also allows us to predict the effect of variables in the model that relate to growth. In other words, using this technique, we can estimate where students were on the measures when they enrolled and how fast they grew on the measures over the course of their class participation. We can also relate this growth to specific variables we use in the model to predict which ones relate to faster (or slower) growth.

When there are two time points, only a linear growth rate (or slope) can be estimated. If the value of the linear growth rate is positive, it will show a straight incline over time. The higher the value of the linear growth rate, the faster one grows (or the steeper the slope is). If the value of the linear growth function is negative, it will show a decline. When there are more than two time points, additional rates of growth can be estimated in addition to the linear growth rate. In the *What Works Study*, where there are three time points, a curvilinear growth rate, referred to as a quadratic growth rate (or slope), can be estimated to indicate an accelerated or decelerated growth. If the value of the quadratic slope is positive, it will show an accelerated growth, which means that the rate of growth increases over time. The higher the value of quadratic growth rate, the steeper the slope of the learning curve. If the value of the slope is negative, it will show a decelerated growth, which means that the rate of growth decreases over time.[31]

In sum, the latent growth modeling technique addresses all four of the data issues underlying the study. The procedure accommodates the random student variation within class, the hierarchical structure of the data and the unequal time intervals.[32] In estimating the growth trajectories, the techniques can use all available data from students and classes (even if a student is missing some data, for example) so that students with missing data do not need to be removed from the analyses, minimizing the impact of student attrition.

[31] The appendix shows the HLM formulation we used. Results from preliminary data analysis indicated that a three-parameter model adequately represents the individual growth data collected in this study. The three parameters include initial status, linear growth rate, and quadratic growth rate (i.e., acceleration) in English literacy or language development.

[32] To correct for the varying testing dates, instead of using arbitrary fixed time points such as periods 1, 2, and 3, we used the actual testing dates that were available for the majority of the tests being administered. The time variable was defined as the amount of time in *months* that had elapsed from the first data-collection point (i.e., at intake). Under this specification, the initial time point represents the true ability level of a student at the onset of data collection, or what we call the initial status.

Variables Used in the Model

In previous chapters we presented descriptive information on the substantial number of student, class, teacher and instructional measures that we collected for the *What Works Study*. Besides their descriptive value, one reason we collected so many measures was to enable us, in the absence of prior research, to identify variables related to growth of adult ESL literacy students' English literacy and language skills. However, we had too many variables to use in an HLM analysis, given our sample size of students and classes.

There is very little research on outcomes related to adult literacy students and almost no such research on the study population, adult ESL literacy students, to inform development of our growth model. To identify the set of variables that were the most relevant to study goals and also were statistically sound, we began with the model we used in our study of attendance (see Chapter 5). Results from preliminary analysis suggested that some of the variables that we used to predict students' attendance had no or little impact on literacy development. For this reason and other statistical considerations (e.g., lack of variance on measures, to avoid redundant predictors and to achieve a parsimonious model), we dropped these variables from the literacy and language growth analyses. For specific outcomes measures, we added instructional variables that we believed would be most directly related to the measure. For example, when modeling oral language growth, we included measures of instruction related to oral language development. We also added measures of attendance as predictors of student growth.

Exhibit 6.3 shows the variables used in the model, which include (1) student background variables, (2) teacher characteristics, (3) class types, (4) instructional variables, (5) attendance measures and the English literacy and language test scores we used as outcome measures (see Chapter 3). The student background, attendance and outcomes variables are student-level measures and the remaining variables are class-level measures. Not all the measures in Exhibit 6.3 were used in all analyses. Instead, we had a core set of measures, which served as the basic model and then used additional measures that were appropriate to the outcome under investigation, as described below.[33]

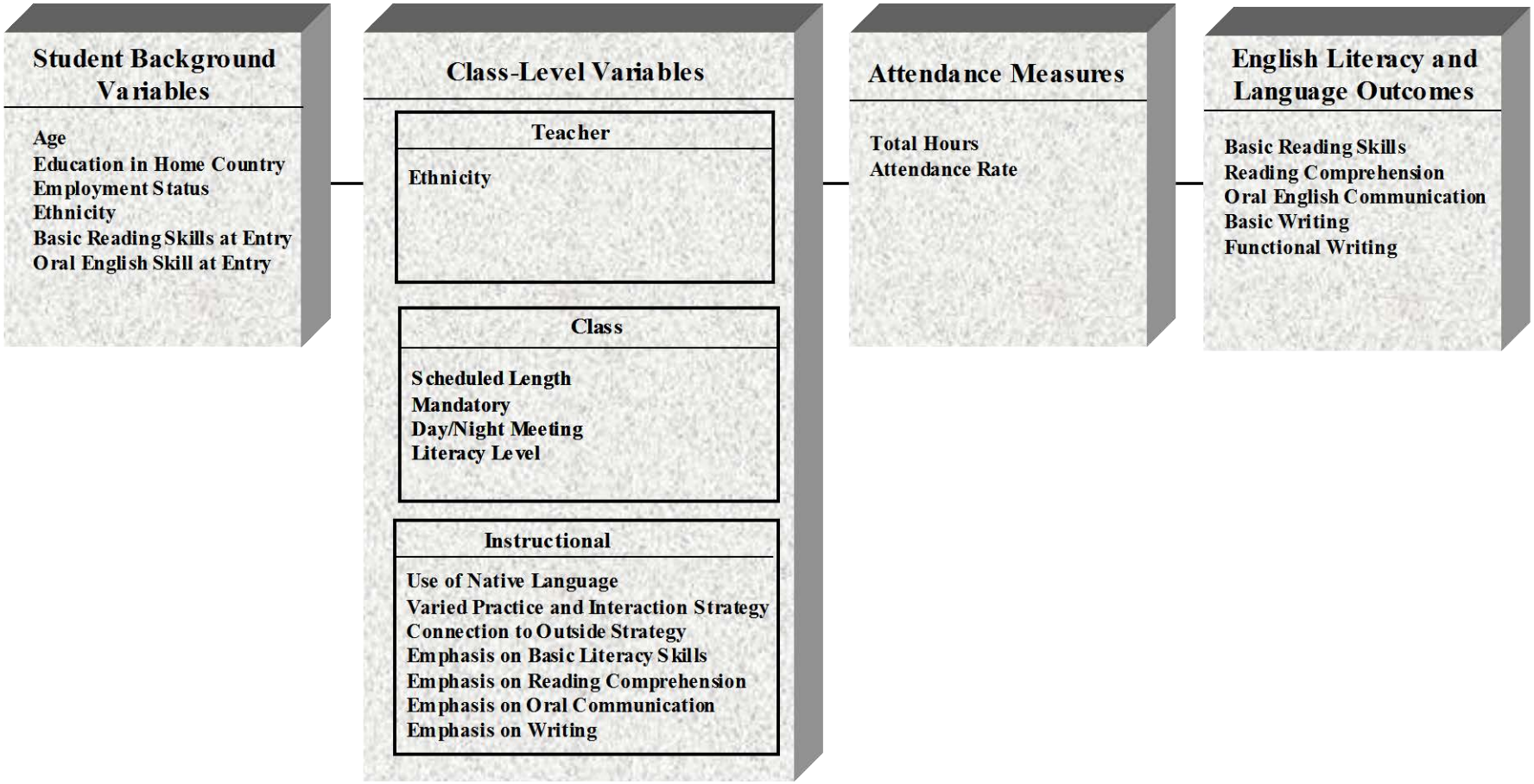
Student Background Variables

The basic model included age, education in home country, employment status and ethnicity. We expected that younger and more educated students would perform better on the outcomes and that students' language background, as reflected in ethnicity, would affect literacy development. For example, we might expect that students who come from a western language background (i.e., Spanish) would acquire English literacy faster that students from a non-western language (e.g. Hmong or Somali).

[33] We also used fewer variables to predict to the linear growth rate than we did to compute initial status and even fewer measures to predict to the quadratic growth rate. This decision was made not only for statistical reasons (only a limited number of variables can be entered into the model), but also because there is no research or theory precise enough to predict quadratic patterns of growth among this student population.

EXHIBIT 6.3

Variables Used in the HLM Growth Modeling of Literacy and Language Development



Since students' basic reading and speaking skills at entry in class could affect their subsequent literacy and language development, we used students' initial scores on the BRSC, RCC and BEST tests as predictors in the model in some analyses. We used BRSC scores in the models for BEST, RCC and analyses of the fluency measures of the reading demonstration task. We used BEST scores in the growth models of reading basic skills (BRSC) and RCC scores in growth models of the comprehension measure of the reading demonstration task.

Teacher and Class Variables

Unfortunately for the analyses, the teachers in the *What Works Study* were very homogeneous. There was not sufficient variation in their education or credentials to include these variables in the analyses (see Chapter 4). We used only teacher ethnicity (Hispanic or not) to see if there was any relationship for Hispanic teachers, particularly when they were teaching a class composed of Spanish-speaking students.

The class types we examined were the length of class (in hours per week), day and night classes, and the mandatory and voluntary classes. We had very little evidence and no prior research to guide us on what relationship these class arrangements would have on the outcomes of adult ESL literacy students, but included them due to their policy relevance.

Instructional Variables

The instructional measures had the greatest interest to us in the analyses, since finding "what works" was the central purpose of the study. Consequently, we used several measures of instruction. These measures included instructional emphasis measures (percent time spent on specific activities) and instructional strategies measures.[34]

We tied the instructional emphasis measures to the specific outcomes in each model. Our simple hypothesis was instruction would have the greatest effect when it was most directly aligned with the outcome being assessed. Consequently, when examining students' growth in basic reading skills, we used a measure of the percent of time of instruction the students' class focused on teaching these skills. Similarly, when modeling reading comprehension growth, we used a measure of instructional time on activities designed to foster reading comprehension. We used measures of oral communication instructional emphasis and writing skills emphasis when modeling BEST scores and writing assessment scores, respectively.

As presented in Chapter 4, our instructional measures also included teachers' use of what we called instructional strategies. The strategies we used in growth modeling were:[35]

[34] See Chapter 4 for an explanation of the measurement and computation of these measures.
[35] We could not use the open communications strategy in the analyses because it was rarely used.

- **Connection to the outside,** the extent teachers used real life materials and made explicit connections to real life activities;

- **Varied practice and interaction**, the extent teachers provided students with the opportunity to practice what is learned in multiple ways and modalities (e.g., speaking, writing, reading) and by having students interact with each other; and

- **Use of the students' native language** for clarification in instruction, an index of whether the teacher used the students' first language in such ways as to clarify concepts and answers questions. Since with very few exceptions, the only language students and teachers in the *What Works Study* shared was Spanish, this strategy was used exclusively in Spanish speaking classes.

A recent study by Purcell-Gates (2000) found that adult ESL students in classes where teachers used real-life materials reported improvement in their literacy practices. The connection to the outside strategy is conceptually similar to Purcell-Gates's instructional measure, so we expected to see a positive relationship between it and literacy growth in our students. However, there was very little other research to guide us on which, if any, of these strategies would be related to literacy growth, and no prior research of the effect of these instructional strategies on literacy and language development of adult ESL literacy students.

Attendance measures. While it seems it should be a truism that more attendance is related to more learning in students, prior research has found it very difficult to demonstrate this relationship empirically. In fact among adult literacy students, no study has shown a statistically significant relationship between amount of attendance and literacy or language outcomes (Cohen, Condelli and Garet, 1996). The reason for this lack of relationship is unclear, but we decided to include measures of attendance in our model to study this issue further.

We examined the relationship of student attendance to literacy development, using two of the four attendance measures discussed in Chapter 5: total student attendance in hours and students' rate of attendance (proportion of total hours attend to total scheduled hours). We did not use the other attendance measures—intensity of attendance and total weeks of attendance—because these measures were highly correlated with the other two attendance measures, thereby offering no additional predictive value.

WHAT WORKS: FINDINGS FROM LATENT GROWTH MODELING

Using the variables in Exhibit 6.3, we used latent growth modeling to identify the student, class, teacher, instructional and attendance variables related to each of the student outcome measures: the reading assessments (Woodcock Johnson), oral English assessment (BEST) the writing assessments (ALAS and CASAS) and the reading

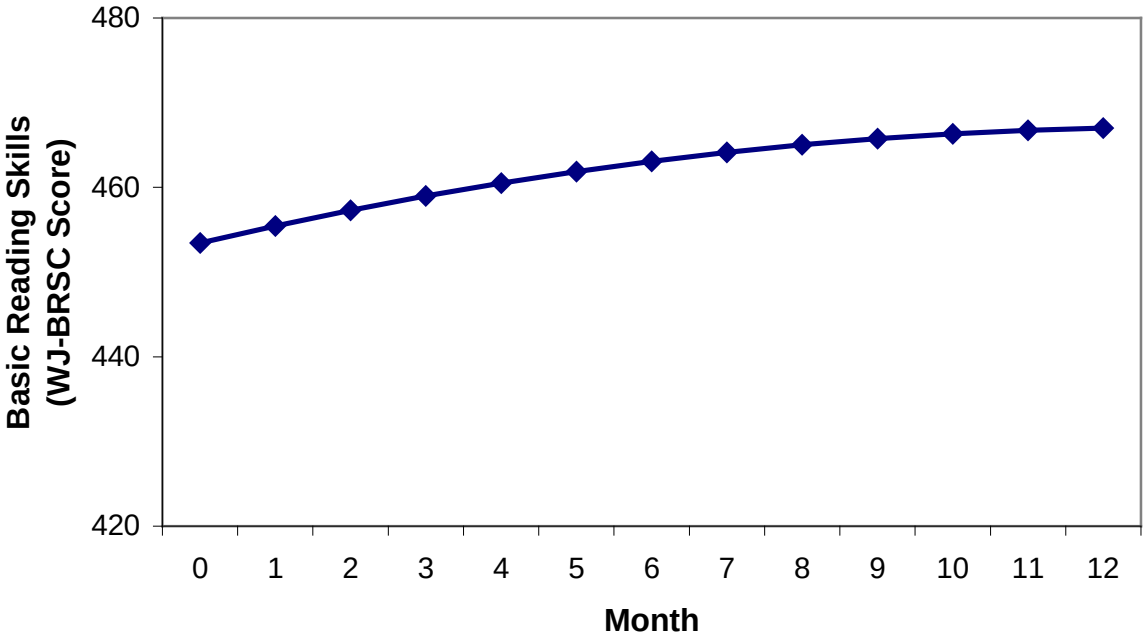
demonstration alternative assessment.[36] In discussing each measure, we first examine the overall growth among adult ESL literacy students, then present the findings from the analysis that are related to the growth. We then illustrate what the growth trajectory looks like using the factors found to be statistically significant in the analysis.

Growth in Basic Reading Skills (Woodcock Johnson BRSC)

The Woodcock Johnson Basic Reading Skills Cluster (BRSC) assessed students' basic reading skills, including letter-word identification and knowledge of phonics. Exhibit 6.4 illustrates the results of the growth modeling for all students in all classes in the study. The growth curve shows that students overall experienced some linear growth in basic reading skills over the course of program, an average of 2.1 points on the BRSC per month. Even though this amount of linear increase was relatively small, it was statistically highly significant given the size of standard error.[37]

EXHIBIT 6.4:

Overall Growth in Basic Reading Skills



However, the analysis also shows a marginally significant, negative quadratic growth rate, indicated by the flattening and slight drop of the growth line. The negative quadratic growth rate means that the growth in students' BRSC scores showed some sign

[36] Chapter 3 describes these assessments and provides descriptive data on students' performance on them.
[37] By formulating an unconditional model, we estimated the parameters of initial status (intercept) as well as linear and quadratic growth rates (or slopes) or what are called the fixed effects in HLM terminology. The appendix shows the results of this and all other estimations in this chapter and the tests of significance of the fixed effects.

of deceleration over time, so that on average, the initial growth in basic skills learned slows down (and results in a slight drop in the average score).

Predictors of Growth

The latent growth analysis used the student, class, teacher and instructional variables to explore the linear and quadratic growth in BRSC scores, as well as students' initial status, or where the students were on each measure when class started. As shown in Exhibit 6.5, the initial status analysis revealed that when class started, older students and Hispanic students had higher basic reading scores.[38] The analysis also identified several student, class and instructional variables that were significantly related to linear growth, as well as an explanation for the quadratic effect discussed above.

Student variables. Two student variables, age, and years of formal schooling, were significantly related to growth in basic reading skills. Age was negatively related to linear growth rate, meaning that older students acquired these skills more slowly. For example, the model estimates the difference in the linear rate of growth in basic reading skills between 20 olds and 40 olds was 0.6 point per month (-.03*20). Even though younger students started lower on this measure (as shown by the initial status), they made up for their initial disadvantage in basic reading skills by learning faster.

Students' years of formal schooling in the home country was also positively associated with linear growth rate. Students with more education both started at a higher level and learned faster than their less educated peers. Since years of education may reflect students' native language literacy, this result seems to support the hypothesis that students' literacy skills in their native language assist them in developing English literacy. However, students' years of formal schooling in the home country became less important over time, as shown by the negative quadratic growth rate in Exhibit 6.5. This means that the initial positive effect of formal schooling in the native country on linear growth fades over time. While prior education initially helps ESL literacy students acquire basic reading skills, this initial advantage does not help later.

Students' oral English skills, as measured by the BEST, were also positively—if marginally significant—related with the linear growth in basic reading skills. This finding may indicate that some proficiency in oral English language skills may work to assist learning of basic reading skills.

Class variables. The only class variable related to growth in basic reading skills was the length of the scheduled hours per week of class meeting time. Students in classes with longer scheduled hours showed less growth than students in classes with fewer scheduled hours. Other things being equal, including students' attendance and persistence, the longer the class's weekly scheduled meeting hours, the slower the rate of students' learning in basic reading skills.

[38] The appendix shows an example of the final three-level HLM model that we used to predict student growth and an illustration of the effects of predictors on initial status.

EXHIBIT 6.5:

Result of Modeling on Growth in Basic Reading Skills: Predictors of Initial Status and Linear and Quadratic Growth Rates

Parameter	*Predictor*	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Initial Status	Intercept (Base Level)	425.95	6.39	27	66.62	<.001***
	Student Variables					
	Age	0.15	0.07	855	2.01	.04*
	Formal Schooling at Home Country	2.76	0.39	855	7.14	<.001***
	Employed	0.71	2.17	855	0.33	.74ns
	Hispanic Student	13.97	3.94	855	3.54	.00***
	Hmong Student	-2.12	5.00	855	-0.42	.67ns
	Somali Student	7.16	3.56	855	2.01	.04*
	Basic Oral English Skills (BEST)	0.49	0.06	855	8.68	<.001***
	Attendance Variables					
	Attendance Rate	0.01	0.07	855	0.15	.88ns
	Total Attendance Time (in hours)	0.01	0.02	855	0.92	.36ns
	Teacher Variables					
	Hispanic Teacher	15.41	7.24	27	2.13	.04*
	Class Variables					
	Length of Class (in hours per week)	0.22	0.75	27	0.29	.78ns
	Mandatory Class	-1.30	5.29	27	-0.25	.81ns
	Day Class	4.67	5.78	27	0.81	.43ns
	Mixed Class	6.56	4.60	27	1.42	.17ns
	Instructional Variables					
	Use of Native Language	11.13	14.62	27	0.76	.45ns
	Practice Strategy	12.72	6.46	27	1.97	.06$
	Connection Strategy	-0.40	4.79	27	-0.08	.93ns
	Emphasis on Basic Literacy Skills	2.57	20.69	27	0.12	.90ns
Linear Growth Rates	Intercept (Base Level)	-0.14	0.51	855	-0.28	.78ns
	Student Variables					
	Age	-0.03	0.01	855	-2.52	.01**
	Formal Schooling in Home Country	0.32	0.15	855	2.17	.03*
	Employed	0.39	0.30	855	1.32	.19ns
	Basic Oral English Skills (BEST)	0.04	0.02	855	1.78	.08$
	Attendance Variables					
	Attendance Rate	0.00	0.01	855	-0.37	.71ns
	Total Attendance Time (in hours)	0.00	0.00	855	0.63	.53ns
	Teacher Variable					
	Hispanic Teacher	0.09	0.46	855	0.20	.84ns
	Class Variable					
	Length of Class (in hours per week)	-0.14	0.05	855	-2.58	.01**
	Instructional Variables					
	Use of Native Language	-0.83	0.99	855	-0.84	.40Ns
	Varied Practice Strategy	-0.42	0.41	855	-1.03	.30Ns
	Connection to Outside Strategy	0.62	0.32	855	1.95	.05*
	Emphasis on Basic Literacy Skills	-1.92	1.45	855	-1.32	.19Ns

EXHIBIT 6.5 (Continued)

Result of Modeling on Growth in Basic Reading Skills: Predictors of Initial Status and Linear and Quadratic Growth Rates

Parameter	*Predictor*	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Quadratic Growth Rates	Intercept (Base Level)	0.07	0.05	855	1.60	.11Ns
	Formal Schooling at Home Country	-0.05	0.02	855	-2.98	.01**
	Basic Oral English Skills (BEST)	0.00	0.00	855	-1.50	.13Ns

Note 1: se = standard error; df = degrees of freedom; ns = non-significant finding.

$ p<.10; * p<.05; ** p<.01; *** p<.001

Note 2: The intercept is the estimate of the outcome measure when all the variables in the model take on a base or reference value. In other words, age=mean of 40.5, formal schooling=mean of 3.13 years, and so forth.

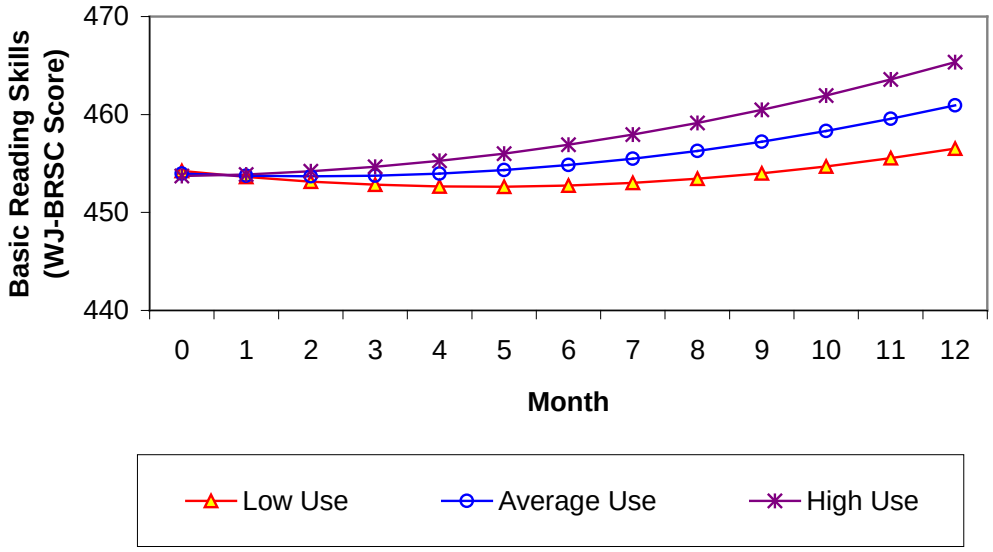
Instructional variables. The use of the instruction strategy we called "connection to the outside," where teachers brought real world materials and examples into their instruction, had a positive effect on the linear growth in basic reading skills. The use of this strategy was effective in raising the level of students' mastery in basic reading skills.

Exhibit 6.6 graphically demonstrates the effect of the connection to the outside strategy on adult ESL literacy students' growth in basic reading skills. For this illustration, we held the other variables constant, using their mean value. The top line illustrates a high use of the strategy and the bottom line shows low use. The increasing steepness, or slope, of the curves illustrates the effect of this instructional variable. As can be seen, the model predicts that all else being equal, the use of the connection to the outside strategy results in a dramatic increase in basic skills development over time.

Summary. The HLM growth modeling revealed that for adult ESL literacy students, greater use of an instructional strategy that stresses connection to the outside was positively related to growth in students' basic reading skill level. The results also show that older students grew at a slower rate and students with more formal schooling grew faster, at least initially. However, this advantage of formal education disappears over time. The results also suggest that students in classes with more scheduled hours acquired basic reading skills at a slower rate, and students with higher oral English skills acquired basic skills at a slightly faster rate.

EXHIBIT 6.6:

Effect of the Use of the "Connection to the Outside" Strategy on Growth in Basic Reading Skills



Growth in Reading Comprehension (Woodcock Johnson RCC)

Exhibit 6.7 shows the growth curve for all students and classes combined for the scores on the Woodcock Johnson Reading Comprehension Cluster (RCC). This test measured adult ESL literacy students' vocabulary and general reading comprehension. As illustrated in the chart, the model shows a small, but steady linear growth over time of about 1.2 points per month. This growth was statistically significant.

Predictors of Growth

Exhibit 6.8 displays the results of the latent growth modeling analysis for the reading comprehension measure, showing variables related to linear and quadratic growth and to students' initial status at enrollment in class. The initial status analysis showed, for example, that younger students had slightly better reading comprehension when class started, while Hmong students had the poorest comprehension at that time. The model also identified significant student, class, attendance and instructional measures related to growth in reading comprehension.

Student variables. We examined within the model the relationship of students' basic reading skills at entry in class on growth in reading comprehension. The analysis revealed both a significant negative linear growth and a positive quadratic growth curve. We interpret this finding to mean that the reading comprehension of students with higher

EXHIBIT 6.7:

Overall Growth in Reading Comprehension

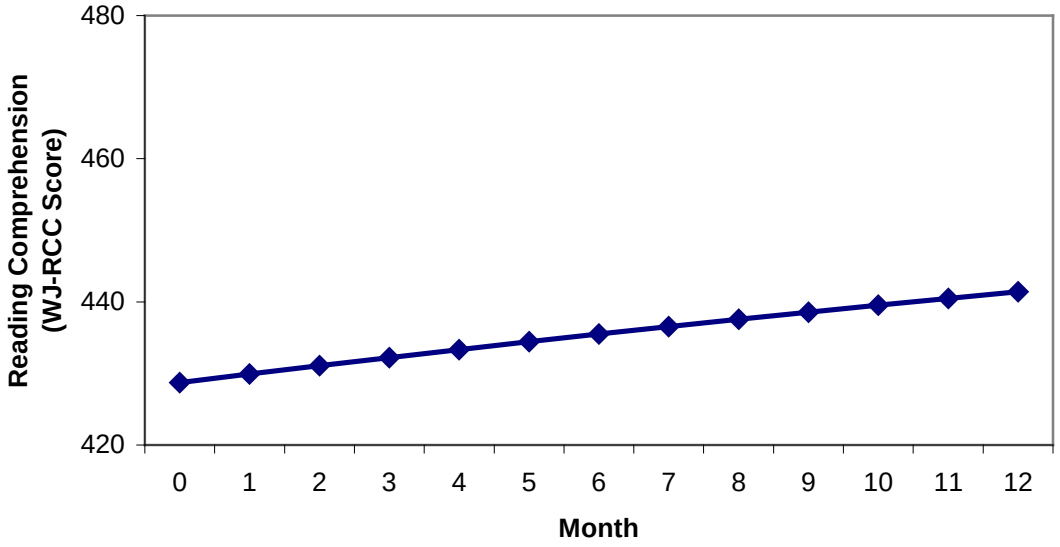


EXHIBIT 6.8:

Growth in Reading Comprehension: Predictors of Initial Status, Linear and Quadratic Growth Rates

Parameter	*Predictor*	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Initial Status	Intercept (Base Level)	430.83	3.54	27	121.62	<.001***
	Student Variables					
	Age	-0.02	0.05	951	-0.34	.73ns
	Formal Schooling in Home Country	0.59	0.24	951	2.49	.01**
	Employed	-0.62	1.32	951	-0.47	.64ns
	Hispanic Student	-5.75	2.39	951	-2.40	.02*
	Hmong Student	-9.25	3.04	951	-3.05	.01**
	Somali Student	-1.45	2.29	951	-0.63	.53ns
	Basic Reading Skills (BRSC)	0.35	0.02	951	15.71	<.001***
	Attendance Variables					
	Attendance Rate	-0.02	0.04	951	-0.49	.62ns
	Total Attendance Time (in hours)	-0.02	0.01	951	-2.19	.03*
	Teacher Variable					
	Hispanic Teacher	-2.02	3.51	27	-0.58	.57ns
	Class Variables					
	Length of Class (in hours per week)	-0.57	0.41	27	-1.39	.17ns
	Mandatory Class	-2.36	2.73	27	-0.87	.39ns
	Day Class	2.63	2.89	27	0.91	.37ns

EXHIBIT 6.8 (Continued):

Growth in Reading Comprehension: Predictors of Initial Status, Linear and Quadratic Growth Rates

Parameter	*Predictor*	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
	Mixed Class	2.83	2.36	27	1.20	.24ns
	Instructional Variables					
	Use of Native Language	-1.71	6.90	27	-0.25	.81ns
	Varied Practice Strategy	-3.59	3.15	27	-1.14	.26ns
	Connection to Outside Strategy	-1.76	2.25	27	-0.78	.44ns
	Emphasis on Comprehension	35.46	11.62	27	3.05	.01**
Linear Growth Rates	Intercept (Base Rate)	0.80	0.31	951	2.57	.01**
	Student Variables					
	Age	-0.01	0.01	951	-1.54	.12ns
	Formal Schooling in Home Country	0.03	0.04	951	0.88	.38ns
	Employed	0.08	0.19	951	0.44	.66ns
	Basic Reading Skills (BRSC)	-0.02	0.01	951	-2.00	.05*
	Attendance Variables					
	Attendance Rate	0.02	0.01	951	2.85	.01**
	Total Attendance Time (in Hours)	0.00	0.00	951	-0.62	.53ns
	Teacher Variable					
	Hispanic Teacher	-0.41	0.33	951	-1.24	.21ns
	Class Variable					
	Length of Class (in hours per week)	0.07	0.04	951	1.97	.05*
	Instructional Variables					
	Use of Native Language	3.44	1.07	951	3.22	.001**
	Varied Practice Strategy	0.16	0.30	951	0.52	.60ns
	Connection to Outside Strategy	-0.01	0.22	951	-0.05	.96ns
	Emphasis on Comprehension	-1.27	1.15	951	-1.10	.27ns
Quadratic Growth Rates	Intercept (Base Rate)	-0.02	0.03	951	-0.86	.39ns
	Basic Reading Skills (BRSC)	0.002	0.00	951	2.71	.01**
	Use of Native Language	-0.13	0.10	951	-1.34	.18ns

Note 1: se = standard error; df = degrees of freedom; ns = non-significant finding.
$ p<.10; * p<.05; ** p<.01; *** p<.001
Note 2: The intercept is the estimate of the outcome measure when all the variables in the model take on a base or reference value. In other words, age=mean of 40.5, formal schooling=mean of 3.13 years, and so forth.

BRSC scores at class entry grew very little at first, but over time this growth accelerated more dramatically. In contrast, students with little or no basic reading skills at entry showed a small amount of growth initially, but then failed to improve their reading comprehension skills over time. In other words, adult ESL literacy students who entered class with some basic reading skills showed significant growth in reading comprehension compared to students who had little or no basic reading skills, but this took time to appear. Initially, students with low basic reading skills improved slightly, but then later showed no growth in their reading comprehension skills.

Attendance and class variables. The model identified the rate of attendance (proportion of hours actually attended to scheduled hours) as positively related to linear growth in reading comprehension. The coefficient of 0.02 for the attendance rate means that there was a 0.2-point increase per month with each 10 percent increase in attendance rate. Note that this positive relationship was significant even after controlling for the total attendance time. Thus, students who attended more regularly improved their reading comprehension skills, no matter how many hours they attended. The scheduled length of class in hours per week was also related to positive growth in reading comprehension. Students in class with more scheduled hours per week had more growth in reading comprehension.

Instructional variables. The use of a native language in class, a measure of how teachers used the students' native language for clarification during instruction (see Chapter 4), had a positive effect on the linear growth in reading comprehension. In other words, the more teachers used students' native language to do such things as give directions about class activities or to clarify concepts, the faster students' reading comprehension grew. The coefficient of 3.44 for the variable can be translated to a gain of 8.2 points over a year with a 20 percent more use of native language.

To illustrate our findings from the growth model, we created three pairs of growth lines, shown in Exhibit 6.9: high and low level of incoming basic reading skills, high and low rate of attendance and high and low use of native language in the class. For each, pair, we held other variables in the model constant. The differences in the slope or steepness of the lines indicate the strength of each variable's relationship to reading comprehension growth. For example, the effect of low and high attendance rates, all else being equal, can be clearly seen from the sharp divergence in the two attendance rate lines that begins after about three months. We also combined high levels of all three variables (the top line in Exhibit 6.9) to demonstrate their combined effects. As can be seen, the rate of growth in reading comprehension is very steep when students enter with higher basic reading skills, attend at a high rate and when the teacher enhances instruction with the students' native language at a relatively high rate.

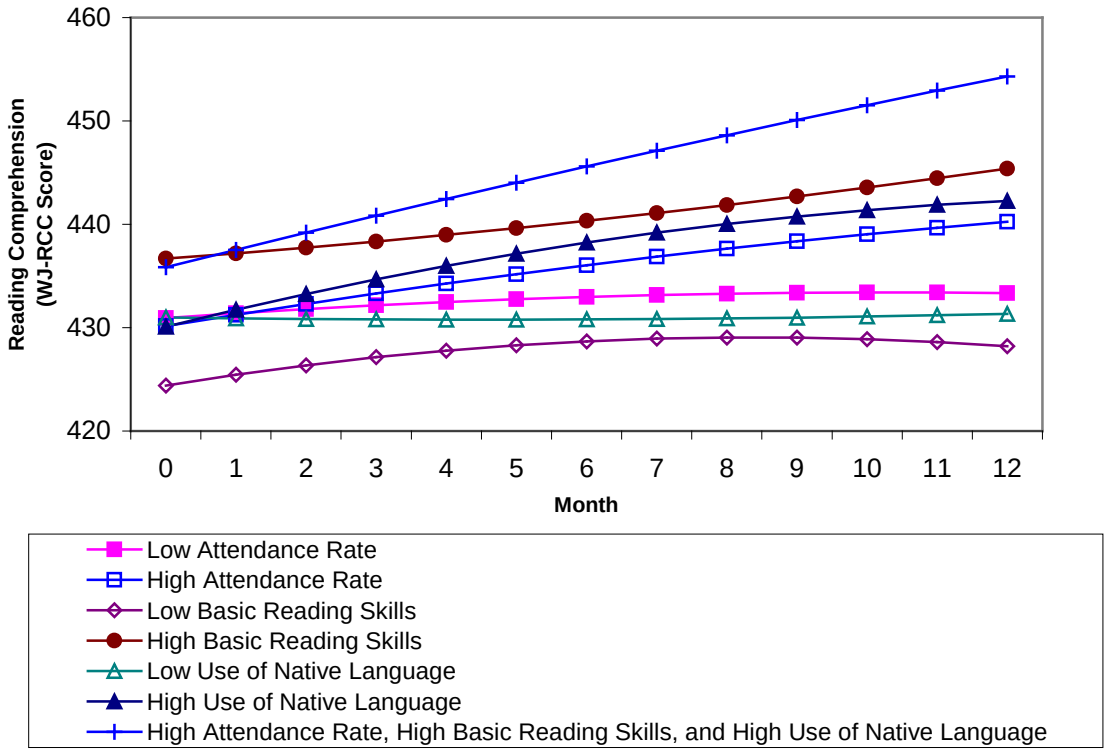
Summary. The HLM growth model found four variables related to growth in reading comprehension among adult ESL literacy students. Students' with a higher level of basic reading skills at entry into class developed reading comprehension skills at a faster rate than students with lower basic skills, although this growth developed slowly and was not initially apparent. In addition, students with a higher rate of attendance developed reading comprehension skills at a faster pace regardless of how many hours or weeks they attended. Students in longer classes, as measured in scheduled hours of instruction per week, also had more reading comprehension growth. Among instructional factors, the model identified the use of native language in instruction as positively related to higher growth of adult ESL literacy students' reading comprehension skills.

Growth in Oral English Skills

We measured adult ESL literacy students' oral language skills with the BEST. The growth curve model for this test for all students in the study combined, shown in Exhibit 6.10, is similar to the growth we found for basic reading skills. There is an initial linear growth that tapers off over time. The mean BEST total scores started at 23.7 and increased at a rate of about 2.2 points per month for the first three months, or about 6.6 points. However, due to the growth deceleration, the model shows it would take the next six months (or the time between the second and final assessments) to achieve the same amount of gain.

EXHIBIT 6.9:

Effects of Attendance Rate, Basic Reading Skills, and Use of Native Language on Growth in Reading Comprehension

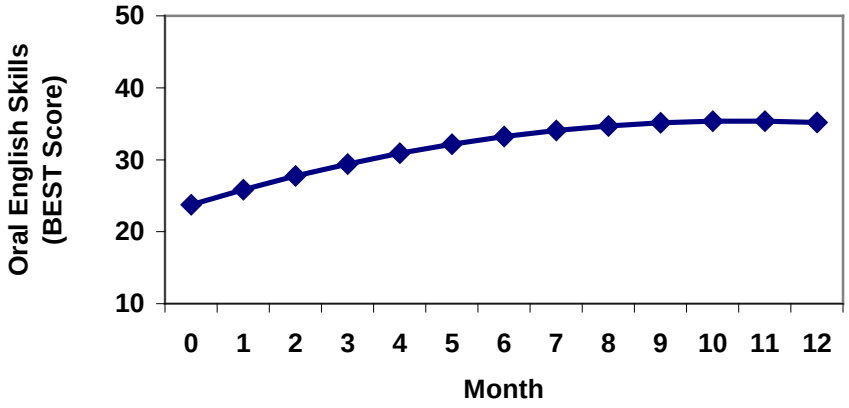


Predictors of Growth

The growth curve modeling using our predictor variables explains this pattern of growth in oral English development. While the initial status analysis revealed few differences among students upon entry into class, Exhibit 6.11 shows that many student, class attendance and instructional measures were significantly related to linear growth and quadratic trend in oral English communication skills.

EXHIBIT 6.10:

Overall Growth in Oral English Communication



Student variables. Students' age had a small negative relationship to linear growth in oral English skills, as measured by the BEST. Younger adult ESL literacy students acquired English speaking and listening skills at a slightly faster rate than their older counterparts. The model predicts that a 20-year-old student would gain 0.4 more points more per month on the BEST compared to a 40-year-old student, all other variables being equal. Since younger students also tended to have slightly better oral English skills at the start of class, this age gap only widens over time.

Students' with higher basic reading skills when class began, as measured by the Woodcock Johnson BRSC, were positively related to BEST scores initially (i.e., initial status) and were positively related with linear growth in oral English skills. This finding means that the better basic readers started higher and learned English oral skills faster than their less reading-skilled peers.

Attendance and class variables. As with the reading comprehension measure, rate of attendance was significantly related to positive growth in oral English. Other things being equal, including the length of class and the total amount of attendance time, students who attended more regularly (i.e., with higher attendance rate) learned oral English at a faster rate than students who attended less regularly. The model also showed that the scheduled length of class in hours per week was positively associated with linear growth rate. In other words, the longer classes promoted faster growth in oral English acquisition.

Instructional variables. The growth model revealed three instructional factors that were positively related to improvement in oral English. Students in classes where more time in instruction was spent on oral communication development activities (such as pronunciation practice, conversation practice and dialogue drills) grew faster than

EXHIBIT 6.11:

Result of Modeling on Growth in Oral English Skills: Predictors of Initial Status and Linear and Quadratic Growth Rates

Parameter	*Predictor*	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Initial Status	Intercept (Base Level)	30.37	4.92	26	6.17	<.001***
	Student Variables					
	Age	-0.09	0.06	832	-1.67	.09$
	Formal Schooling in Home Country	-0.37	0.29	832	-1.28	.20ns
	Employed	-0.42	1.59	832	-0.26	.79ns
	Hispanic Student	-5.09	3.04	832	-1.67	.09$
	Hmong Student	-3.83	3.84	832	-1.00	.32ns
	Somali Student	-1.93	2.75	832	-0.70	.48ns
	Basic Reading Skills (BRSC)	0.15	0.02	832	6.41	<.001***
	Attendance Variables					
	Attendance Rate	0.04	0.05	832	0.87	.39ns
	Total Attendance Time (in hours)	-0.05	0.01	832	-4.26	<.001***
	Teacher Variable					
	Hispanic Teacher	-7.81	4.70	26	-1.66	.11ns
	Class Variables					
	Length of Class (in hours per week)	-0.12	0.51	26	-0.24	.81ns
	Mandatory Class	3.57	3.87	26	0.92	.36ns
	Day Class	3.50	4.12	26	0.85	.40ns
	Mixed Class	-4.13	3.31	26	-1.25	.22ns
	Instructional Variables					
	Use of Native Language	-6.19	9.82	26	-0.63	.53ns
	Varied Practice Strategy	-0.18	4.28	26	-0.04	.97ns
	Connection to Outside Strategy	-3.98	3.11	26	-1.28	.21ns
	Emphasis on Oral Communication	-63.20	16.40	26	-3.85	.001***
Linear Growth Rates	Intercept (Base Level)	1.92	0.27	832	7.21	<.001***
	Student Variables					
	Age	-0.02	0.01	832	-2.59	.01**
	Formal Schooling in Home Country	0.04	0.04	832	1.00	.32ns
	Employed	0.01	0.18	832	0.06	.96ns
	Basic Reading Skills (BSRC)	0.01	0.00	832	2.11	.04*
	Attendance Variables					
	Attendance Rate	0.01	0.01	832	2.24	.02*
	Total Attendance Time (in Hours)	0.00	0.00	832	0.91	.36ns
	Teacher Variable					
	Hispanic Teacher	-0.21	0.29	832	-0.72	.47ns
	Class Variable					
	Length of Class (in hours per week)	0.21	0.06	832	3.34	.001***
	Instructional Variables					
	Use of Native Language	2.79	1.11	832	2.52	.01**
	Varied Practice Strategy	0.56	0.26	832	2.13	.03*
	Connection to Outside Strategy	-0.08	0.19	832	-0.41	.68ns
	Emphasis on Oral Communication	4.50	1.02	832	4.41	<.001***

EXHIBIT 6.11 (Continued):

Result of Modeling on Growth in Oral English Skills: Predictors of Initial Status and Linear and Quadratic Growth Rates

Parameter	*Predictor*	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Quadratic Growth Rate	Intercept (Base Level)	-0.11	0.02	832	-4.82	<.001***

Note 1: se = standard error; df = degrees of freedom; ns = non-significant finding.

$ p<.10; * p<.05; ** p<.01; *** p<.001
Note 2: The intercept is the estimate of the outcome measure when all the variables in the model take on a base or reference value. In other words, age=mean of 40.5, formal schooling=mean of 3.13 years, and so forth.

students in classes where this type of instruction was provided less often.[39] The uses of native language as instructional support also helped students learn oral English faster, as did increased use of the varied practice and interaction strategy.

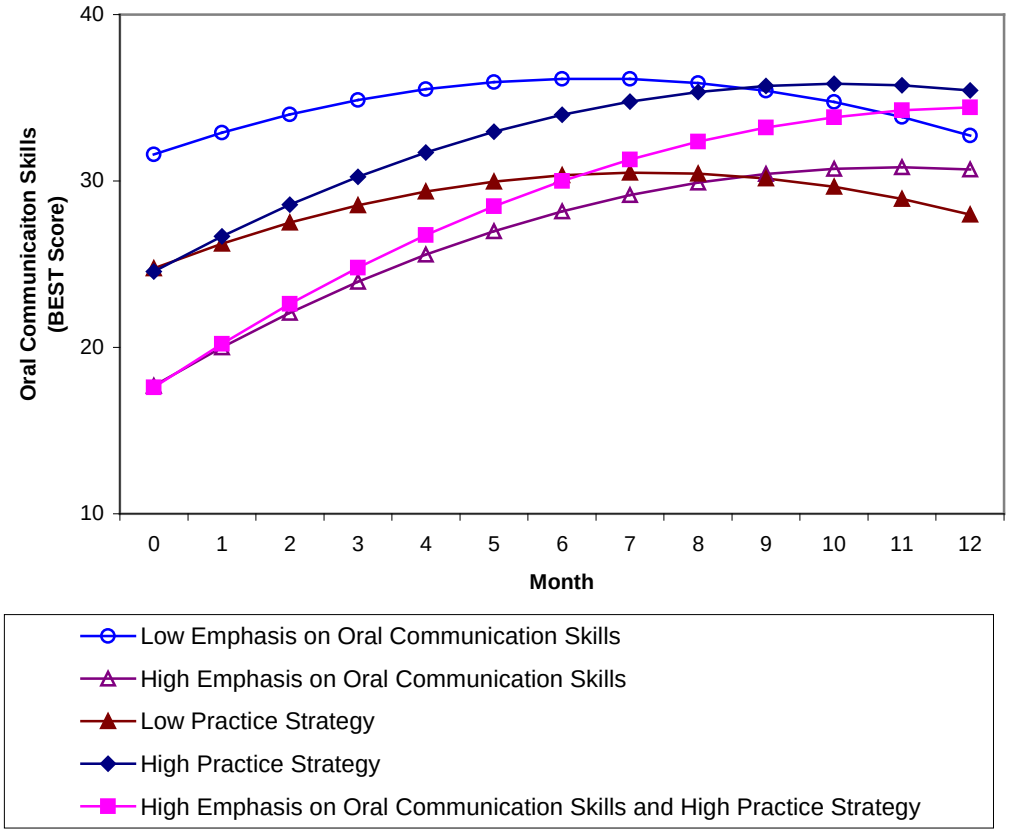
In Exhibit 6.12, we illustrate the growth curve model predictions for two of the instructional variables. Holding other variables constant, we compared the growth lines for low and high emphasis on oral communication instructional activities and low and high emphasis on the varied practice and feedback strategy. We also show the projected growth when both strategies are used at a high level, all else being equal. The slope or steepness of the line indicates the relative effects of these instructions emphases.

Summary. The growth model for oral English development for adult ESL literacy students indicates that the amount of exposure to instruction using activities related to oral language development does in fact result in greater growth in English oral skills. Growth along this dimension is further enhanced if the instruction also includes a strategy of varied practice and feedback from the teacher and other students in the class – that is, when students have a chance to practice what is being taught in multiple ways, in multiple modalities and can interact with others in class about what is being taught. The additional finding that rate of attendance is positively related to growth reinforces this class exposure explanation. Students who attend class more regularly have more ongoing exposure to these instructional activities and more chance to practice and interact with others in class. Finally, the analysis also showed that younger students have a small advantage to acquiring oral English skills compared to older students.

[39] Students in such classes not only grew faster on this measure, but also started at a lower level, as indicated by the significant effect for initial status. Students with lower oral skills were more likely to be in classes with an oral communication emphasis, probably due to placement procedures of programs.

EXHIBIT 6.12:

Effects of Instructional Emphasis on Oral Communication Skills and Practice Strategy on Growth in Oral Communication Skills



Growth in Writing

As described in chapter 3, the *What Works Study* used two assessments to measure adult ESL literacy students' writing skills. The ALAS measured students' ability to write sentences and free write to prompts and the CASAS Functional Writing test used a simulated employment application that students completed.

The overall growth curve for all students on the ALAS was almost flat, showing only a very slight increase of about 0.2 points per month. However, this trend was not statistically significant, indicating students writing skills, as measured by the test, did not change over time. Further growth analyses revealed that the only variables statistically related to ALAS score increases were age and students' basic reading skills (BRSC) at intake. Younger students and students with higher initial basic reading skills scores scored slightly higher on the ALAS over time.

There are several possible reasons why we found a general lack of gain in writing skills. Learning to write may simply be too difficult and emerge too slowly to be detected in the study, given the limited time we followed students. Another possible reason for the lack of growth may that the assessment was too difficult for students and was not sensitive enough to measure subtle gains in writing ability. The scoring rubric may also have been too general or too subjective to measure changes.

When we examined the growth curve for the CASAS test, we found an unusual pattern of growth. As shown in Exhibit 6.13, there was some improvement between the initial and second assessment times (at intake and 3-month), but strong *negative* growth between the second and third assessment (3-month and 9-month), resulting in an inverse-U shaped growth curve. This pattern of trend, where a majority of students actually performed substantially worse over time, does not seem possible as a true picture of the change in students' skills, unless one hypothesizes that the students have the underlying skills at one time and then do not have them at another administration. It seems more likely that test reliability or scoring inconsistencies are the underlying problem. For these reasons, further analyses using CASAS scores would be misleading, so we did not conduct them.[40]

Growth Analysis of the Reading Demonstration Task

In Chapter 3 we described an alternative reading assessment that we developed and used in the *What Works Study*. This assessment had students select and read aloud from a variety of real life materials that were at different difficulty levels. The study liaison rated students on several dimensions, including what we called *fluency* (how well the student read), and *comprehension*, whether the student understood what was read. We used a statistical analysis (IRT) that converted these ratings into more reliable scores for growth modeling analysis.[41]

Exhibit 6.14 shows the latent growth curve using the IRT-derived fluency scores for all students. The growth curve for this measure is very similar to the curve for students' oral English skills (BEST score). Adult ESL literacy students' reading fluency first shows significant linear growth, but this growth later tapers off with a slight deceleration. In other words, students first show gains in fluency on the reading demonstration tasks, but this growth later stops and there is no further improvement.

[40] We found some decline in test scores between administrations for all the other assessments as well. However, the proportion of students whose scores dropped, and the amount of decline, was much smaller on the other tests than it was for CASAS test takers, where over 40 percent declined between the second and third assessments and scores dropped dramatically. While these errors were small enough to be absorbed in the analyses of the other tests, the size and incidence of the CASAS score declines caused us to doubt the validity of these data.

[41] See the technical appendix for further explanation of the IRT analysis.

EXHIBIT 6.13:

Overall Growth in Functional Writing Skills

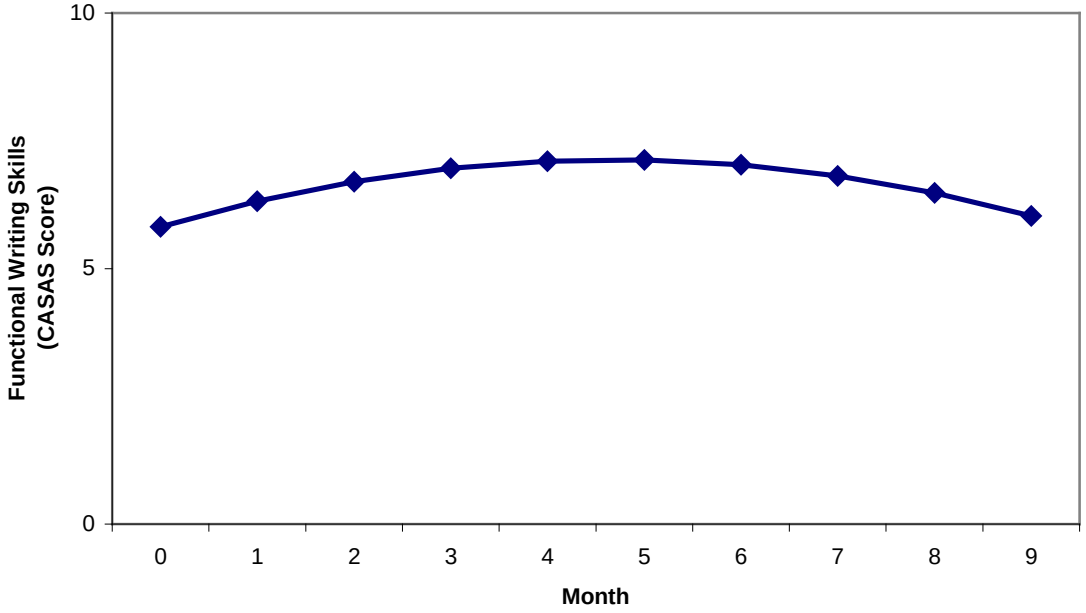
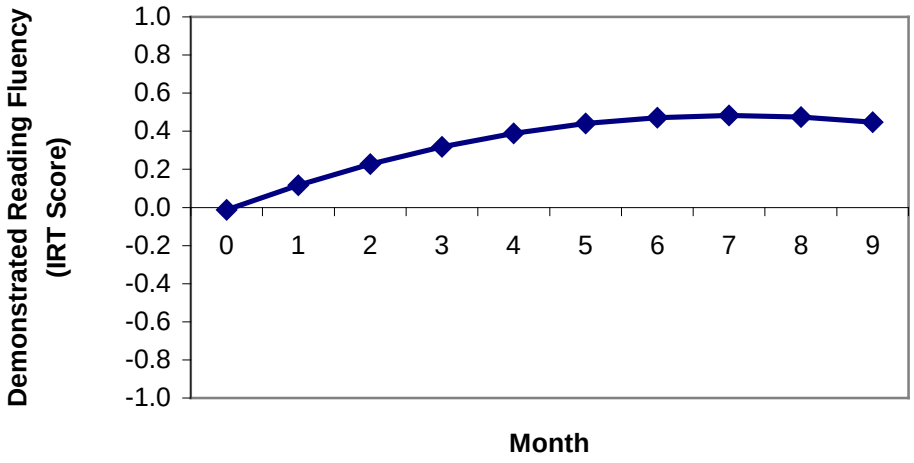


EXHIBIT 6.14:

Overall Growth in Demonstrated Reading Fluency



Further latent growth analyses for this measure found only that:

- Older students grew significantly faster on reading fluency over time; and
- Students' with higher basic reading skills at enrollment (initial BSRC score) showed little growth initially, but steeper growth later. However, this finding was only marginally significant.
- Students in classes where teachers emphasized basic literacy development grew faster on the fluency measure.

A growth analysis using the reading comprehension score on the reading demonstration task showed a growth line similar to the one for reading fluency of initial growth, decreasing over time. There was also a positive relationship of this measure to students' scores on the study's other reading comprehension measure, the students' initial Woodcock Johnson reading comprehension scores (RCC).

The only factors significantly related to growth on the reading demonstration comprehension measure were teacher's ethnicity (Hispanic) and an instructional emphasis on reading comprehension. In other words, students in classes with a Hispanic teacher or with more of an instructional emphasis on comprehension, showed improvements in reading comprehension of the real-life items of the reading demonstration. This growth was small, however, and decelerated over time. There was also a very small relationship of growth with the connection to the outside instructional strategy, though this relationship was below conventional significance levels ($p < .09$).

We can only speculate as to the reasons for the weak findings for scores from the reading demonstration task. One reason may be that this assessment was unstandardized and consequently the scoring and administration by study liaisons probably varied substantially. This lack of standardization may have created too much variance in the measures, making it impossible to show effects. However the correlation of the reading demonstration scores with the standardized reading measures from the WJR – fluency with initial BSRC scores and comprehension with RCC scores—suggests some construct validity to the reading demonstration measures.

Another possible reason for the near lack of relationship of the reading demonstration to instructional variables may be that instruction in the study classes did not often focus on reading real-life materials. Reading was generally taught using approaches that stress basic skill development or general comprehension strategies. Consequently, students had little opportunity in their classes to practice reading authentic materials, such as those used in the reading demonstration. Although weak and only marginally significant, the finding that students in classes where reading comprehension was emphasized and where teachers made connections to the outside showed some gain on the comprehension measure suggest that had teachers used more real-life materials and focused instruction on interpreting them, students would have improved more on this measure.

Literacy Practice Interview and Teacher Ratings

As discussed in Chapter 3, we also collected measures of students' literacy practices through individual interviews with learners. Through the interviews, we hoped to identify changes in literacy practices over the study period, as students' literacy and language skills improved. For these analyses, we constructed literacy practice scales using IRT statistical techniques and then used these scales as outcome measures in latent growth modeling analyses. Unfortunately, these analyses revealed no statistically significant growth in literacy practices for the IRT-derived scales. While there were changes in students' literacy practices (described in Chapter 3), we were unable to relate these changes to class, instructional or student variables using the statistical model. Our inability to identify these relationships is probably due to the qualitative nature of the interview, where students rated their own practices. Another problem was that not all students completed the entire interview. As a result, we had a relatively small number of completed interviews, especially from the third assessment (as few as 127 for some items) to construct stable scales with the IRT technique.[42]

As another assessment, we asked teachers to rate each student's abilities in reading, writing, speaking and listening, using a project-developed form. Teachers were to rate students when they enrolled and at the same time we conducted the assessments. We instructed teachers to rate students only in areas in which they had knowledge of student abilities and only while the student attended class. Due to large class sizes in some sites, student attrition from classes, and teachers lack of knowledge students' skills in many content areas, we ended up with an insufficient number of student ratings to conduct meaningful analyses of these data.

Chapter Summary

The main goal of the study was to identify the student, teacher, class and instructional variables related to literacy and language development for adult ESL literacy students. To address the goal, we brought together the key study measures and related them to the student outcome measures using a complex, multivariate statistical method, latent growth modeling within the HLM framework. This statistical technique allowed us to address the structural complexities of the data, which included repeated measures on the same students and classes over time; student attrition, so that fewer students completed the assessments at each time period; unequal time intervals between each of the three assessments; variation in student growth within the same classes; and a hierarchical data structure, which included both class level and student-level data.

The latent growth modeling technique allowed us to isolate the key variables related to the growth of the adult ESL literacy students in our sample on each of the study's outcome measures: basic reading skills, reading comprehension, oral English communication and writing skills. We found statistically significant findings for three of the study's main student outcome measures: basic reading skills, as measured by the Woodcock Johnson BSRC test; reading comprehension, as measured by the Woodcock

[42] Many students were reluctant to complete the interview a third time, stating their practices had not changed.

Johnson RCC test; and oral English communication skills, as measured by the BEST assessment.

For basic reading skills development, the latent growth analysis found that students in classes where teachers connected what was taught to real-life, showed more development in their basic reading skills. Students who entered class with more education in their home countries and better oral English skills, also developed faster on this measure, although the effect of prior education faded over time.

Among the variables affecting students' growth in reading comprehension was the teacher's use of native language as an aid to instruction. Students in classes where the teacher used the native language in such ways as to explain concepts and answer questions, showed a higher rate of growth in reading comprehension. Students with a higher rate of attendance and with better basic reading skills on entry into class also grew faster on this measure.

Several variables related to oral communication development among adult ESL literacy students. Students in classes where instruction included strategies of varied practice and interaction, that emphasized oral English communication activities and used the students' native language in instruction showed more growth in oral English communication skills. Younger students, students who attended at a higher rate and students with higher initial reading scores at class entry also developed oral communication skills faster.

The *What Works Study* student sample showed no significant growth in writing skills, as measured by the study assessments, the ALAS and CASAS writing tests. This lack of demonstrable growth may have been due to the fact that learning to write is a difficult ability that slowly emerges. Our time period for following students may have been too short and our assessments may have been too insensitive, to detect growth in students' writing ability.

The study also used an alternative reading demonstration assessment to measure students' growth in ability to read authentic, real-life materials. While students showed a small amount of growth on these measures, the latent growth analysis for instructional variables showed only that instructional emphasis on basic literacy development and reading comprehension had a weak relationship to growth. The weak relationships may be due to the unstandardized nature of the assessment test or to the fact that instruction in the classes in our study did not often focus on reading real-life materials, such as those used in the reading demonstration.

CHAPTER 7:
SUMMARY AND IMPLICATIONS

As the first national study to examine instruction and programs for adult ESL literacy learners, the *What Works Study* provides a wealth of descriptive and analytic information. We described the characteristics of these students and their education and skills when they entered adult ESL literacy programs; the type of instruction offered to them, including its literacy and language content and how it is delivered; their attendance patterns; and the types of instruction found to be related to growth in literacy and language development. The *What Works Study* is also the first study ever conducted to have linked instruction to outcomes for adult ESL literacy students. These descriptive and relational findings make the study a valuable resource for program directors, policymaker and teachers involved in these instructional programs.

In this concluding chapter we summarize both the descriptive findings on students and classes and the findings from our statistical modeling of attendance and student outcomes. We conclude with a discussion of the implications of the findings for policy and practice and suggest future research that can build on the study.

SUMMARY OF FINDINGS

Descriptive Findings

In chapters 2, 3 and 4 we presented descriptions of the ESL literacy students, classes, teachers and instruction in the study. Knowledge of the needs and instructional opportunities of ESL literacy students can help program staff design instruction targeted to this group of students to help ensure their success. Exhibit 7.1 summarizes the descriptive findings.

Characteristics of the "What Works" ESL Literacy Students

The student sample included 495 students representing over 30 language groups. They spanned 38 classes in13 sites across seven states. Approximately 68 percent of the students reported Spanish as their primary language. The largest student groups were from Mexico (59 percent) and other Spanish-speaking countries (8 percent), Somalia (10 percent) and Hmong speakers from Laos (8 percent). The remaining students were from countries in Africa and Asia.

EXHIBIT 7.1:

Summary of Descriptive Findings

Description of ESL Literacy Students

- The student sample of 495 students represented over 30 language groups, but most students were Spanish-speaking from Mexico (59 percent), other Spanish-speaking countries (8 percent), Somalia (10 percent) and Laos (Hmong speakers, 8 percent).
- Students were mostly female (72 percent) and ages ranged from 15 to 82, with a mean age of 40. Nearly half of the students were employed at some point during their participation in the study.
- Students reported very general reasons for attending ESL class: to speak and understand English (37 percent); to improve job, home, or life conditions (22 percent); gain literacy (12 percent); to complete forms (11 percent) and to help children with schoolwork (7 percent).
- On average, students had received about three years of education in their home countries, but approximately 33 percent of them received no formal education in their home countries. Among language groups, Spanish-speaking Mexican students reported an average of 4 years of schooling, while Hmong speakers reported 0.3 years.

Assessing ESL Literacy Students

- The study employed standardized tests -- the CASAS Functional Writing Assessment, ALAS Writing Assessment, BEST Oral Interview and reading subscales from the Woodcock Johnson (WJR) -- to measure students' speaking and listening, reading and writing skills. Alternative assessments included a reading demonstration task and a literacy practices interview.
- There were three test administrations over about nine months. All 495 students took the first assessment, 356 students (72 percent) took the second assessment and 263 students (53 percent) took the final assessment.
- Reading abilities at class entry averaged between a first and second grade level and nearly a third of students scored at or below kindergarten level. Students could write very little, averaging at levels 0 and 1 on the CASAS and at the low beginner level of the ALAS. Many students, particularly Hmong and Somali students, could write nothing at all.
- Students demonstrated very limited oral English communication skills according to the BEST Oral Interview. About 70 percent of students scored at SPL 2 or lower and over 80 percent scored at SPL 3 or lower.
- Students showed small but significant increases on all assessments except the writing tests and Spanish speakers consistently scored higher on the assessment than students from other language groups. The Somali and Hmong students had the most difficulty.

EXHIBIT 7.1 (Continued):

Summary of Descriptive Findings

Assessing ESL Literacy Students (Continued)

- On the reading demonstration, nearly a third of students were unable to read any of the items on the reading demonstration fluently or haltingly, and a quarter could read nothing but the easiest items. However, student reading and comprehension on this assessment improved greatly during the course of the study.
- According to the literacy practices interview, students in the study typically read only the simplest English texts and wrote very little outside of class. Students also reported having a great deal of difficulty understanding people talking to one another in English and reported rarely or never speaking English outside of class.
- Literacy practices improved over the course of the study and most students reported that what they learned in class was "a lot of help" or "some help" doing everyday activities requiring general communication skills.

Adult Literacy ESL Instruction and Teachers

- We coded 530 class observations of the 38 study classes (average of nine observations per class) using a project-developed observation guide, which allowed us to quantify instruction according to emphasis on literacy or language acquisition and use of instructional strategies.
- All classes had a mix of ESL acquisition and literacy development activities, with a predominance of the former. Twenty classes spent between 40 and 60 percent of observed time on ESL acquisition skills and only 7 classes spent a majority of observed time on basic literacy development activities.
- We identified four instructional strategies: varied practice and interaction, open communication, connection to the outside, and choices and thinking. Teachers most often used the varied practice strategy and rarely used the open communication strategy.
- The use of students' native language in instruction as a means of clarification was common in classes where the students, or teachers and students, shared a common language.
- Teachers were mostly white, female, and educated, with half having at least a Master's degree and some type of teaching certification. Many teachers had no previous experience in teaching adult ESL or literacy classes and the majority either did not have access to, or participate in, professional development activities.

Attendance in Adult ESL Literacy Classes

- Attendance measures used in the study were total hours and total weeks of attendance, the intensity of attendance (average hours per week attended) and rate or regularity of attendance (total hours attended over total possible).
- Students attended an average of 128 total hours over 16 weeks, with an average attendance of about seven hours per week. The overall rate of attendance was 0.64, indicating that students attended around two-thirds of the total hours possible.

EXHIBIT 7.1 (Continued):

Summary of Descriptive Findings

Attendance in Adult ESL Literacy Classes (Continued)

- Older students, unemployed students and students with no formal education were likely to attend longer than their counterparts.
- Students in mandatory classes, in day classes and in classes composed only of literacy level students attended more than students in voluntary, night and mixed level classes, respectively. These differences were apparently due at least partly to the greater number of scheduled hours in these classes.

Although the average age of students was about 40, ages ranged from 15 to 82 years. Most students were female (72 percent), but the gender proportions varied slightly across language groups. For instance, 67 percent of the Spanish-speakers from Mexico were female, while 87 percent of the Hmong speakers were female.

The majority of students in the study had very little education – approximately 33 percent of them received no formal education in their home countries. On average, students received about three years of education in their home countries and 61 percent received six or less years of formal education. Among language groups, Spanish-speaking Mexican students reported an average of four years of schooling, while Hmong speakers reported only a few months of schooling, if any.

Nearly half of the students were employed at some point during their participation in the study. Eighty-one percent of the non-Mexican Spanish speakers were employed, while only 49 percent of the Mexican students, and 43 percent of the Somali students were employed.

Most students reported very general reasons for attending ESL class: to speak and understand English (37 percent); to improve job, home, or life conditions (22 percent); gain literacy (12 percent); to complete forms (11 percent); and to help children with schoolwork (7 percent).

Assessing ESL Literacy Students

In our attempts to define and identify learners for the study, we found that many programs do not have effective ways of identifying ESL literacy students. Most programs we analyzed did not attempt to measure the native language or English literacy levels of their students, but rather used measures of oral proficiency in English to determine placement their class placement.

The study employed standardized tests and alternative assessments to measure the speaking and listening, reading and writing skills. The standardized tests included the

CASAS Functional Writing Assessment, ALAS Writing Assessment, BEST Oral Interview and reading subscales of the Woodcock Johnson Tests (WJR). Alternative assessments included a reading demonstration task and a literacy practices interview. We had initial assessment data from all 495 students in the study, second month assessment data for 356 students (72 percent), and final assessment data for 263 students (53 percent). The assessment scores reflect the generally low levels of literacy of the students in the study.

Reading abilities, measured by the WJR, averaged between a first and second grade level, although initially nearly a third of students scored at or below kindergarten level. Performance on the reading demonstration task further illustrated the low level of reading abilities. Nearly a third were unable to read any of the items on the reading demonstration fluently or haltingly, and a quarter could read nothing but the easiest items. However, student reading comprehension on this assessment greatly improved during the course of the study – and by the end of the study nearly half were able to read the items without any assistance.

Students could write very little. Average scores on all scoring dimensions of the CASAS fell between levels 0 and 1 indicating that students were able to fill out basic information (name, address, and date of birth). Similarly, over half the students scored at the low beginner level of the ALAS. Many students, particularly Hmong and Somali students, could write nothing at all.

In terms of oral language skills, the students demonstrated very limited comprehension and responses. The BEST Oral Interview showed that 70 percent of students scored at student proficiency level (SPL) 2 or lower (functions minimally in English) and over 80 percent scored at SPL 3 or lower (functions with some difficulty in situations related to immediate needs).

Students showed small, but significant increases over the course of the study on all assessments except the writing tests. Spanish speakers consistently scored higher on all assessments than students from other language groups (they also had the most years of education). The Somali and Hmong groups had the most difficulty with the assessments as expected, given their comparative inexperience with written text.

According to the literacy practices interview, students in the study typically read only the simplest English texts outside of class. The most commonly read English language items included billboards, labels, dictionaries or phone books, transportation schedules, and advertisements. Nearly half of students never read newspapers, magazines, books or letters in English, and of those that did, nearly all reported that it was very difficult for them to do so. Students also wrote very little outside of class and about half of the students reported that they “never” wrote many common items (e.g., lists, short messages). Students also reported having a great deal of difficulty understanding people talking to one another in English and reported rarely or never speaking English outside of class.

Literacy practices improved over the course of the study. For example, students reported that they read more in their daily lives, spoke more English and reported that what they learned in class was "a lot of help" or "some help" doing everyday activities requiring general communication skills.

Adult Literacy ESL Instruction and Teachers

In the planning phase of the study, we observed over 75 adult ESL literacy classes in 25 programs. Using data from these preliminary observations, we developed a framework for coding and quantifying instructional activities in the adult ESL classroom. The framework characterized instructional activities according to their emphasis on literacy development, second language acquisition and functional skills. It also allowed for ratings of instructional strategies and materials teachers used. We coded 530 observations of the 38 classes (a average of 9 observations per class).

We examined classes according to the percentage of time instruction emphasized literacy development or ESL acquisition activities. All classes had a mix of ESL acquisition and literacy development activities – but there was a predominance of the former. Twenty classes spent between 40 and 60 percent of observed time on ESL acquisition skills, while 11 classes spent more than 60 percent of their time on ESL acquisition.

Only seven classes spent a majority of observed time on basic literacy development activities. No class in the study had an emphasis on functional literacy to any extent. We also found that the instructional emphases most teachers focused on were oral communication, basic literacy skills development, reading comprehension and writing.

We identified four instructional strategies, using ratings from the observation guide, which reflected how teachers taught and level of student engagement in class. These strategies were: varied practice and interaction, open communication, connection to the outside and choices and thinking. Teachers most often used the varied practice strategy and rarely used the open communication strategy.

The use of students' native language as a means of clarification in instruction was common in classes where the students, or teachers and students, shared a common language. Also, the teachers used a very limited group of instruction contexts, our term for how students were engaged in literacy and language during instruction. Teachers used controlled or guided practice about 85 percent of the time and rarely put activities in problem solving or other contexts.

Teachers in this study were mostly white, female, and educated. All but one had a Bachelor's degree and about half had a Master's degree or higher. The majority of teachers held either ESL/TESL certification or standard state certification. However,

many teachers had no previous experience in teaching adult ESL literacy, adult ESL, or other adult literacy classes. The majority of teachers either did not have access to, or did not participate in, professional development activities. Over half had not participated in a single professional development activity in the two years prior to the study.

Attendance in Adult ESL Literacy Classes

We examined the attendance of adult ESL literacy students by recording the total hours and total weeks of attendance, the intensity of attendance (average hours per week attended) and their rate or regularity of attendance (total hours attended over total possible). Students attended an average of 128 total hours over 16 weeks, with an average attendance of about seven hours per week. The overall rate of attendance was 0.64, indicating that students attended around two-thirds of the total hours possible.

We also examined the effect of class arrangements on attendance. Students in mandatory classes and day classes attended more total weeks, more total hours and more average hours per week. Students in classes composed only of literacy level students also attended more than students in classes composed of mixed literacy level students. Both differences were apparently due in part to the greater number of scheduled hours in the mandatory, day and literacy level classes.

Students with zero years of education attended more hours overall, more hours per week and with more intensity than all other students. Student attendance was varied by whether the student was employed. Students who were employed at any time during the study were more likely to attend fewer hours per weeks, on average, than students who were not employed during the study. Older students were more likely to attend more weeks than younger students. Older students were also more likely to attend more total hours, and students over 50 years had a higher rate of attendance than younger students.

Findings Related to Literacy and Language Development

While the descriptive information is valuable and informative, the main focus of the *What Works Study* was to identify instructional and program variables related to literacy and language development among adult ESL literacy students. To identify these variables, we combined student, teacher, class and instructional measures using growth curve statistical models. Exhibit 7.2 shows the study's key findings related to effective instruction, program practice and student factors, based on these analyses. Taken together, these findings give us some guidance on the type of instruction and program practices that promote literacy and language growth in adult ESL literacy students.

Instructional Practices and Strategies

The study achieved its main goal of relating instructional strategies to student learning. Our latent growth modeling analyses found that types of instruction were related to growth in basic reading skills, reading comprehension and oral communication development.

The instructional strategy we called "bringing in the outside" was related to growth in students' basic reading skills. Teachers who used bringing in the outside strategies drew materials and lessons from the daily experience of learners and demonstrated how classroom activities applied to students' everyday lives and activities. Teachers engaging in these strategies often use realia as learning aides. We found that all else being equal, students' basic reading skills increased more when they were in classes where teachers used this strategy often.

This finding seems to indicate the importance of making instruction meaningful to learners. Students apparently become more engaged and learn more when teachers make explicit the connection between what they are teaching and the real world of learners. Such connections may be particularly important to adult students who unlike children, attend voluntarily, have limited time for class and often have more instrumental reasons for taking classes.

EXHIBIT 7.2:

Key Findings Related to Instruction, Program Practices and Attendance

Instructional Practices

- **"Bringing in the outside" —** students in classes where teachers made connections to the "outside" or real world, had more growth in reading basic skills development.
- **Use of the students' native language for clarification —** students in classes where teachers used students' native language for clarification during instruction (e.g., to explain concepts and provide instructions on class work) had faster growth in reading comprehension and oral communication skills.
- **Varied practice and interaction strategy —** use of this strategy, where the teacher taught concepts in a variety of modalities and allowed student interaction, resulted in faster growth in oral communication skills.
- **Emphasis on oral communication** — students in classes where the teacher explicitly emphasized oral English communication skills in instruction had more growth in this area.

Program Practices

- **Scheduled class length** (in hours per week) — longer scheduled classes resulted in more growth in reading comprehension and oral communication skills, but *less* growth in basic reading skills. This suggests that teachers should not overemphasize basic reading skills for too long of a time, but move on to higher level reading skills or other language skills.
- **Mandatory enrollment** – students required to attend did not attend at a higher rate than students attending voluntarily – both groups attended about 64 percent of scheduled hours. Older, mandatory students attended less frequently than younger mandatory students.

EXHIBIT 7.2:

Key Findings Related to Instruction, Program Practices and Attendance (Continued)

Program Practices

- **Student entry into class** – students who entered a class within three weeks of its scheduled start date attended longer (more hours and weeks), suggesting a managed enrollment period will result in a more regular attendance.

Student Factors

- **Rate of attendance** — students who attended a higher proportion of scheduled time (in hours) had more growth in reading comprehension and oral communication skills.
- **Prior education and skills** — students with more years of education and higher incoming English language and literacy skills had more growth, although the effect of years of schooling was limited to growth in basic reading skills development.
- **Age —** younger students tended to learn basic reading and oral English skills faster.

Another teaching strategy the study found to be effective was the teacher's use of the students' native language for clarification during instruction. Students in classes where the teacher used the native language to assist in understanding – such as to clarify concepts, ask questions and give directions for class activities – had greater growth in reading comprehension and oral communication development. Apparently the use of the native language in this way helped students better understand difficult concepts and what they were to do in class, thereby allowing them to progress.

When a student encounters an unknown concept, idea or word, or cannot understand a class assignment, learning can stop or be impeded. Likewise students' learning can be slowed when, due to lack of knowledge of English, they are unable to ask questions or cannot understand what is expected of them. By providing this information in the students' native language, teachers can remove these barriers and learning can go forward. Note that this finding does not address bilingual instruction – we did not examine bilingual classes in the study – but is limited to the use of the native language as a tool to clarify activities and concepts addressed in class.

When teachers used instructional strategies characterized by what we called "varied practice and interaction," they engaged in direct teaching and provided students with a variety of activities, opportunities to practice, group work and feedback on classroom performance. These teachers also engaged in multiple modes of instruction, facilitating different applications of oral and written communication in different contexts. The use of this strategy was related to oral communication development. All else being

equal, the more teachers used this strategy, the more their students' oral English skills increased.

Through varied practice and interaction strategies, teachers can engage learners, by giving them the opportunity to practice what they are learning and to learn with, and from, fellow students. This strategy may also reinforce what is being taught through the use of multiple modes of instruction (e.g., by reading, writing and saying words or sentences) and by allowing the student the chance to use language in meaningful ways. The success of this strategy may be related to making the student an active participant in his or her learning.

Teachers who spent more instructional time explicitly on activities emphasizing oral language developed also promoted more development of their students' oral communication skills. The instructional activities that teachers used included listening to and repeating phrases, such as from dialogues; practicing pronunciation with oral drills; repeated listening activities; and listening games (e.g., bingo with non-verbal response or total physical response-type activities).

Since it makes intuitive sense that instructional activities tied closely to the measured outcome should affect that outcome, we found it surprising that we did *not* find a relationship between explicit instructional emphasis on reading skills and growth in reading measures. However, the lack of these findings for reading may say more about our measures and assessments than instruction. Since learning to read is an extremely complex process, the basic reading skills and reading comprehension strategies taught in class may not have matched the skills measured in the reading assessments. In addition, since our reading assessment, the WJR, was not designed for use with ESL students, there may have been language and cultural issues affecting performance on the assessment. For example, one of the subtests for reading comprehension was a synonym-antonym task – an activity that is heavily school-based and was decidedly difficult for the unschooled adult ESL students in our study. In contrast the speaking and listening measures in the study's oral assessment, the BEST, matched they type of activities typically taught in ESL class.

Students and Teachers

In examining the relationship of student background characteristics to English literacy and language development, we found that students' amount of formal education was related to growth in basic reading skills. While all of the students in the study had very little formal schooling, the more schooling they did have, the greater their development of basic reading skills – at least at first. This initial advantage of schooling faded over time. It may be that students with more prior schooling in their native language had some knowledge of basic reading that they were able to transfer to English, enabling them to learn faster. Students with less schooling struggled initially, but eventually caught up to their more educated peers.

Students' English language and literacy skills when they started class also were related to their subsequent learning. Students with higher basic reading skills (as measured by the WJR pretest) developed reading comprehension and oral communication skills faster than their peers. Similarly, students with higher initial English oral communication skills (as assessed by the BEST pretest) improved their basic reading skills faster.

Students' age was also an advantage to developing English oral communication and basic reading skills. Younger students developed these skills faster than older students. However, there was one assessment where older students had the advantage: the reading demonstration task. Older students tended to perform better over time reading the real-life, authentic materials (e.g., bill, labels, signs) used in this assessment than younger students. This intriguing finding may be due to the greater experience older students may have with these materials.

We also looked at whether teacher background and training had an effect on adult ESL literacy student learning. We found that no teacher variables were related to any of the student outcome measures used in the study. However, the 38 teachers in the study were relatively homogeneous. They were generally new, inexperienced teachers and although well credentialed, had little training or professional development in teaching adult ESL or ESL literacy. These factors made it very difficult to find statistically significant effects for teacher characteristics.

Class Organization

Our analyses examined the relationship of four types of classes to student literacy and language growth. We compared day and night classes, mandatory and voluntary classes, whether the class had only literacy level students or a mix of literacy level and more literate students, and the scheduled length of the class, measured in hours per week offered.

Only the scheduled length of the class (hours per week) had a relationship to student outcomes. Students in classes with more scheduled hours developed their reading comprehension and oral communication skills faster than students in shorter classes. However, for development of reading basic skills the reverse was found: students in classes with fewer scheduled hours per week did better. Longer classes did not produce more gains in basic reading skills.

While we have no definitive data to understand the negative relationship of scheduled hours per week on reading basic skills development, it may be that students can absorb only a limited amount of exposure at a time to such concepts. Repeated exposure of these concepts at a given time may not be effective. For example, many instructional activities on reading basic skills involve drills and worksheets (e.g., alphabetic practice, phonics worksheets), which students may find boring and unappealing. If such activities go on too long, students may tune them out and may not further benefit from them.

Another explanation may be that the longer classes in the study may have focused on a broader set of skills and teachers did not spend as much instructional time on the development of basic reading skills as they did on oral communication and reading comprehension. There is some evidence for this latter explanation, as we found that most classes spent a predominant amount of instructional time on oral skills (see Exhibit 4.3). In addition, we found a small but significant positive correlation between scheduled length of class and instructional emphasis on oral communication development -- the longer the class, the more emphasis on this type of instruction.

Findings Related to Attendance

We used attendance measures as predictors in the growth curve modeling of student outcomes to explore the relationship of attendance to literacy and language development of adult ESL literacy students. We also examined the variables related to student attendance using student, class, teacher and instructional variables as predictors of attendance. To study attendance, we constructed four measures:

- *Total hours*— total number of instructional hours attended;
- *Total weeks*— total number of weeks attended;
- *Rate of attendance*— proportion of hours attended out of total hours possible to attend; and
- *Intensity*— average number of hours attended per week.

Each attendance measure provided different information about student attendance patterns. *Total hours* gives us the amount of time the student was in class and exposed to instruction and *total weeks* informs us of the total length of time a student attended class. *Rate* measured how often the student attended, regardless of how many hours the class was scheduled. It is a measure of how often the student took advantage of the class time offered. *Intensity* is a measure of how much attendance the student had in a given time. It is a measure of the dosage or concentration of attendance time.

Attendance and Student Literacy and Language Development

Like almost all prior studies of adult literacy students, the *What Works Study* did not find a relationship between the total hours attended, total weeks attended or intensity of instruction (hour per week attended) and growth in literacy or language development. The number of hours or weeks a student attends did not relate to increased learning for adult ESL literacy students. This counterintuitive finding is difficult to explain, but may be due to the nature of adult education classes, where students enter and leave as their circumstances permit. For example, students may stop attending when they feel they have gotten all they can out of a class, while students having a more difficult time and not progressing may stay longer.

One measure, the *rate* of attendance, was related to student outcomes. This measure, the proportion of hours actually attended to scheduled hours available, was positively related to both growth in reading comprehension and oral communication skills. The most interesting aspect of this finding is that the rate of attendance measure, as a proportion, controls for the total attendance time in weeks or hours. For example, a student who attends 80 hours in a class that has 100 total scheduled hours receives the same score on the measure (0.80) as a student who attends 40 hours in a class that has 50 scheduled hours. Yet, all else being equal, students in both classes who attended 80 percent of the time will show greater gains in reading comprehension and oral communication skills than students in their classes with lower rates of attendance.

Rate of attendance may reflect students' motivation to attend – more motivated students may attend more frequently, regardless of class schedule – and more motivated students may work harder to learn. This motivation may at least partially explain why attendance rate was related to language and literacy skills' growth.

Predictors of Attendance

We conducted an HLM analysis to examine the student, class, teacher and instructional variables related to each of the four measures of student attendance. We found a set of variables related to total hours and total weeks attending and another set of variables related to intensity and rate of instruction.

Total hours and total weeks of attendance. Students' age and basic reading skills at entry into class were related to their total hours and total weeks attended. Older students and students with lower basic reading skills, as measured by the WJR pretests, attended more weeks and hours. In addition, students in classes where teachers spent more instructional time on literacy development attended more total hours and weeks, as did students in classes whose teachers used the varied practice and interaction instructional strategy.

These findings suggest at least two possible explanations. It may be that students with lower basic reading skills stayed in class longer because the class met their needs to improve their basic skills. Students with higher incoming basic skills levels may have learned faster and thus stopped attending earlier, while students with lower skills continued to attend. The fact that classes with a more explicit emphasis on literacy development had more attendance supports this explanation. However, it is also possible that the teacher's instruction became more literacy focused over time, since the lower level students were more likely to attend and the higher-level students had left.

The instructional strategy of varied practice and interaction positively affected student attendance. Teachers who used this strategy provided students with a variety of activities, opportunity for practice, group work, time to interact with each other and feedback on class activities. These activities may produce a class that is more interesting

and stimulating to students, thereby motivating them to attend more, which may explain this finding.

We looked at when students started class a predictor of attendance. Students who began attending class within three weeks of it scheduled start date attended more hours and more weeks than students who started class at a later time. This finding suggests that a managed enrollment approach, with a limited enrollment period, may result in more persistent attendance than classes that have a wider open entry policy.

Rate and intensity of attendance. Older students attended at a higher rate and intensity than younger students and unemployed students attended at a higher rate and intensity that did employed students. We found that students in longer classes, measured as scheduled hours per week, attended a *lower* rate and intensity than students in shorter scheduled classes, implying that if a class is scheduled for too long, students will attend less frequently.

Perhaps the most surprising finding among the attendance analyses was that students in mandatory classes, who were required to attend to receive welfare benefits, did *not* have a significantly higher rate of attendance than students in voluntary classes. Not only did mandating attendance not improve students' attendance rate, it had the opposite effect for older student. We found that older students in mandated classes attended at a *lower* rate than their younger counterparts in these classes. However, type of instruction and other types of class were not related to students' rate or intensity of attendance.

These findings are intriguing, since they imply that it is difficult to get students to attend more frequently, regardless of the class arrangement or instructional approach. These relationships appear to suggest that students devote a set proportion of their time to attend class, which is highly difficult to change through schedules or attendance requirements. Requiring students to attend through punitive means—at least for older ESL literacy students – and making the class longer, appears to backfire, as these factors were related to lower rates of attendance.

IMPLICATIONS FOR PRACTICE AND FURTHER STUDY

The research process involves isolating specific variables and studying whether they are related to the outcomes or processes under study. To non-researchers, findings resulting from this deconstruction process often seem discrete and isolated, removed from a meaningful context and with little application to real-life. Findings also may sometimes appear contradictory or counterintuitive. Explaining findings fully to avoid misinterpretation and affect practice requires a sort of reconstruction process, where the researcher puts the findings together and back into a context that practitioners, policymakers and other audiences can understand. The *What Works Study* was designed from the beginning, not as a traditional evaluation, but to provide scientifically valid information that could help practitioners and policy makers improve practice. In this section, we discuss the implications of study findings for the practice of instructing adult

ESL literacy students. We also comment on assessment issues identified through the study.

Implications for Practice

We found that three instructional strategies: connection to the outside world, use of the student's native language for clarification in instruction and varied practice and interaction, were related to student learning growth. These instructional strategies encompass a range of teaching activities, which we illustrate below. We drew these activities from our classroom observations and from the practitioner literature on effective teaching and offer them as examples of how to put into practice the research findings of the study.

Connection to the Outside: Using Materials from Everyday Life

One of the key findings of the study was that connecting literacy teaching to every day life made a significant difference in reading basic skills development. To implement this strategy, teachers can use materials from daily life that contain information that students want to know about or with which they have some experience. For example, a teacher might bring in grocery flyers from different stores and ask students to compare prices. Since such flyers generally use a combination of pictures, printed language and numbers, students can use their background knowledge to gain meaning from print and use supporting visuals and numbers to solve a problem, such as figuring out who may offer the best buys in a given week. Inserts from automotive stores or catalogues from department stores or cosmetic companies offer similar opportunities.

In some classes we observed, teachers used phone and electricity bills, letters from schools or immigration authorities, and other items that appear in students' mailboxes to highlight literacy for adult contexts. They asked students to focus on the information contained in a bill and where key information appeared on the page, and asked them to focus on the meaning of individual phrases such as "total amount due" or "late payment charges."

Using authentic materials in this way, teachers can help build vocabulary skills, build background knowledge that helps students negotiate different types of document literacy and increase reading comprehension skills. Teachers can also use these real world materials to teach basic literacy skills. For example, they can draw students' attention to particular letters, sounds, and word patterns and introduce basic decoding skills by working with students to help them sound out the words they encounter.

Activities of this sort might foster literacy development by linking new information to what learners already know and by engaging the learner in topics of interest. By starting with familiar materials that are of interest to learners and by creating situations for cognitive involvement, teachers can create interest, maintain high levels of motivation, engage students' minds and through this process build literacy skills that have importance in the lives of adults.

Taking literacy out into the "real world." Another way to connect to the outside is to have students use literacy in real situations that call for reading and writing, such as through field trips outside of class. For example, teachers can create opportunities for their students to study menus in class and then go to a restaurant to order in English. Teachers also can demonstrate how to look up children's books about their home country on the Internet using an on-line bookstore and then check with the local library to see if these books are available to borrow, thus linking reading and writing with technology. Since looking for books in the library often involves both using the computer and perusing the stacks, real life literacy is once again linked to the acquisition of basic reading and writing. As the classroom is linked to the world outside, cultural knowledge of how libraries work and the selection of books of interest can be linked to the development of sub-skills such as spelling and key boarding and using the alphabet to find a book.

Case Study: Connection to the Outside

A teacher of a program on the Mexican border took her mono-lingual Spanish speaking students to a fast food restaurant after having spent a great deal of time helping the group decode the English menu, practice English pronunciation, and predict what the server might say. Besides having students focus on familiar words to see if they might recognize them from experience, this teacher also spent time on building phonemic awareness and fostering decoding skills. She focused the class on patterns common to words such as "ham**burger** and cheese**burger;**" initial sounds such as **m**ustard and **m**ayo; and consonant/vowel combinations such as "**chee**se," "**chi**cken" and "**chi**ldren's menu;" and on different ways of writing a "k" sound in English, such as mil**k** sha**k**e and **k**etchup, **C**o**c**a-**C**ola, fish sti**ck**s, and chi**ck**en. The teacher noted that care must be taken not to overwhelm students and to separate time spent on the functional uses of reading, such as matching items with prices, with time spent on building phonemic awareness and decoding skills. This approach allows students to focus on letters, sounds and patterns in a systematic, rather than merely haphazard, fashion.

While reading menus and flyers and other materials can be practiced in the classroom, inviting a group of adults to then use the newly gained knowledge in authentic situations is likely to increase learning even further. Since language and literacy development occur in fits and spurts, spikes in learning often happen in situations that challenge the mind, and speaking in English outside of the classroom for students who have not pushed themselves to do so is likely to result in significant spurts in both confidence and competence. Yet another skill is gained by offering opportunities that demand language use in authentic settings: students gain a sense of how systems operate. As a result, they improve their socio-cultural competence and through increased ability to navigate systems, are more likely to venture out into English speaking environments, in the process improving their skills even further.

Using students' interest and experiences to link to the wider world. Students' interests and experiences provide an ideal jumping off point for language and literacy development. Inviting students to write about themselves and their families, teachers can introduce words (names of family members; names of countries), phrases (previous job;

current employment), and sentences and use the information gained from the students to introduce decoding skills. Common experiences, such as trip to a health clinic or a newspaper, can be used to develop reading and writing skills through methods such as the language experience approach. With this approach, teachers and students work together to retell an event that students have experienced and then use the writing to develop reading fluency, word knowledge and comprehension. Students' experiences are also used to fill the gap in background knowledge that many literacy students have.

Short writings about students' countries of origin provide the starting point for discussions on geography and for distinctions and similarities among groups. By continuously connecting words and phrases that students know or need to know to other forms of cultural knowledge, teachers end up creating background information that is likely to result in increased vocabulary and heightened understanding of written texts.

Teachers can design this practical approach to adult literacy easily to include a focus on the elements of literacy found important in the recent research in reading (Kruidenier, 2002), such as alphabetic principles, phonemic awareness, reading fluency, vocabulary and comprehension. Linking students' experiences in this way allows these concepts to be taught in adult contexts without sacrificing attention to meaning making.

Use of Students' Native Language for Clarification

Our study showed that in those classes where teachers used the native language in the English learning classroom to clarify and explain, students exhibited faster growth in both reading comprehension and oral communication skills.[43] Since the directions for a language and literacy task are often more complex than the language required by the task itself (e.g., "write your name and the date on the upper right hand side of the paper"), students who received clarification in the native language were able to focus on the task at hand and the confusion and anxiety of not understanding the instructions were reduced.

To prevent an over reliance on the native language, several of the bilingual teachers we observed consciously moved from using the native language to giving basic instructions in English in a relatively short amount of time. For example, a teacher might say "hand in you papers" or "can I erase the board" in Spanish only during the first week while demonstrating with hand signals what is meant, and then might switch to providing the same information in English, while slowly reducing the use of hand signals to help students focus on the language in the message. These same teachers might continue to use Spanish occasionally when directions to a task or explanations in response to a question became complicated.

Creating a safe learning environment. Another reason why using both English and the native language in the classroom was effective may be that many of the learners,

[43] We note again that the *What Works Study* did not include bilingual classes or native language literacy classes, where the home language of the students is the language of instruction and the target is acquisition and improvement of literacy in a language other than English.

particularly along the U.S. – Mexico border, have become convinced that English can only be learned through a reliance on translation and are reluctant to use English outside of the classroom for fear of not understanding or not being understood and therefore subject to ridicule. They may have lost all confidence in their ability to get a point across in imperfect English or to understand a message if not all the words are understood. For these students, having a teacher who shares their language means being able to ask questions in a language they understand and having the security that access to the native language provides. Being in a classroom where the native language is used may provide less of a linguistic and more of a psychological advantage. Free from the anxiety of having to survive on English only in the classroom, these adults now have the opportunity to focus on learning and take in more information than otherwise possible. These explanations, however, must remain speculative, since we collected no data directly on these topics.

Teaching critical thinking skills. It seems clear that we cannot think critically in a language we cannot understand. Beginning ESL literacy students are not able to discuss options or articulate opinions to a deep level if they still struggle with holding even a basic conversation in the new language. They may be able to understand a simple scenario presented to them, but they will be hard pressed to discuss the situation in detail or suggest more than the simplest course of action.

Yet these types of situations present themselves daily to immigrants and refugees since the problems of real life do not wait for English to catch up: children have to be enrolled in school, supervisors need explanations and newcomers get lost. By giving students a chance to use their own language in discussions, teachers can help students think about the situations that might confront them and can encourage them to work with others to brainstorm ideas, discover options and think about consequences. By mixing the use of English with opportunities to use the native language where appropriate, the learning English can be reinforced. This may be the process by which oral communication skills and reading skills improved, although again we can only speculate due to lack of data on this issue.

Varied Practice and Interaction

Language and literacy development encompass complex linguistic and cognitive processes that are not yet fully understood by current science. Since learning a second language also has psychological dimensions, such as motivation to learn, and socio-cultural dimensions, it is not surprising that the relationship between teaching processes in the classroom and learning outcomes is not often linear. No single teaching strategy invariably leads to success in language learning. Multiple modes of learning and teaching tend to be more successful in advancing language skills, particularly oral communication skills, as demonstrated through our analyses.

The reason for this finding may be that learning how to communicate in English is a challenging process that requires different sets of knowledge: an understanding of sentence structure, grammar and syntax; a good sense of how written language reflects

oral language (phonology); the ability to interpret and use word endings that change the meaning of an expression and a rich vocabulary. In other words, students need a good sense of "how English works" to understand what is being said and explain their ideas in ways that at least approximate standard English. Finally, communication requires a good sense of what is appropriate in any given situation, a sense of socio-linguistic competence.

While it is entirely possible to learn English on one's own and slowly sort out the intricacies of the language, the process may be aided by a teacher who draws students attention to certain patterns and rules when appropriate and gives students a chance to talk in class without having to worry about accuracy at every step. While there is definitely a place for direct teaching in the ESL literacy classroom, it is easy for students to become overwhelmed. Adults who did not study English formally in school often have difficulties understanding concepts such as "subject" or "direct object" and too much overt grammar teaching can frustrate both students and teachers. Setting time aside, however, to demonstrate to students how English works and to practice language in meaningful ways appears to pay off in terms of increasing oral proficiency.

Case Study: Varied Practice and Interaction

ESL literacy teachers often ask students to draw a time line of key events in their lives and talk about what happened at each step. They then encourage the class to share information about key events with others, to bring in photos or draw pictures and describe them to others orally and in writing. To help students explain their ideas effectively, some teachers set time aside during the week to draw students' attention to the patterns of tense that appeared in their time lines, working with individual students as necessary. One teacher we observed looked at the sentences the students wrote and identified the verbs used. She then copied the infinitives of the verbs along with past and present tense on the board and asked students to work in groups to self-correct their sentences. In this way, she achieved several positive outcomes: students got a chance to read and write on a topic that had meaning for them; they exchanged information and increased their communication skills; they had the opportunity to focus on only one aspect of grammar, an aspect that had immediate application to the writing they were doing, and they actively engaged in monitoring their own work.

Assessment Issues

The assessment work undertaken in this study points toward the need to develop language and literacy tests that are appropriate for adult learners who are new to English and who have little experience with literacy in the native language. Our review of existing instruments (see Chapter 3) showed that group administered written tests are problematic for students who have no experience with school-based assessment tasks.

Most literacy tests expect students to understand written instructions, complete the item and find the appropriate answer on an answer page. These requirements confound literacy and test taking skill, making it difficult to assess whether low literate learners have trouble with the test item itself or whether they are confused by the extraneous literacy tasks surrounding the item. To measure adult ESL literacy students'

English proficiency, we need tests that allow low literate learners to demonstrate their skill and knowledge without having to navigate a pencil and paper test.

The reading demonstration we developed for the study was an attempt to create an assessment appropriate for adult ESL literacy students. It proved to be a promising approach, as scores correlated with other reading assessments and the test discriminated among learners of differing ability (see appendix). The study also suggests the following additional practices to improve the assessment of students who are new to English and new to literacy.

- **Separate the measurement of oral language and literacy.** We found that many programs use a single instrument to capture both written and oral skills. However, this one-dimensional approach confounds students' lack of experience with English and their inability to handle text. Students may be fluent in oral English, but may not have high reading and writing skills. Unless both sets of skills are assessed and the differential abilities are taken into account, scores on the assessment will not reflect literacy ability. To gain a full picture of what ESL literacy students can do and to measure accurately meaningful progress, programs must use assessments that provide information on at least two dimensions of language proficiency: (1) the ability to communicate face-to-face and (2) the ability to deal with print.

- **Obtain a measure of literacy in the native language.** If programs are to identify low-literate adults and serve them well, a reading or writing assessment in the native language is absolutely necessary. Unless such screening is done, programs will be unable to determine whether students do not read English because they do not yet know English or because they lack literacy experiences in any language. While most programs are unable to administer an extensive test in the native language, it is possible to gain a sense of literacy levels in the native language through simple methods. For example, some programs ask students to fill out a simple form in English and in the native language and offer to help students who have trouble. Other programs request that students write a few words or sentences based on a prompt that is provided by a person who speaks a language the student understands.

Since these writing samples act merely as a screen to identify learners who have difficulties writing, rating then need not be complicated. For example, students who write full sentences or paragraphs with indentations and proper capitalization, spelling and punctuation are likely to be schooled, while those whose writing looks uneven on the page, who miss spaces between words or move back and forth between writing in capital letters and in small letters, are not likely to have much experience with print.

A program's ability to assess accurately the strengths and weaknesses of its learners is directly tied to its ability to provide quality services. Developing and implementing assessments that accurately capture what low literate adults can do allows

programs to design courses that fill the necessary gaps. In the end, services geared specifically toward identified needs are likely to result in greater gains, so that both programs and learners can experience success.

Suggestions for Further Research

Since the *What Works Study* was the first of its kind, we had little prior research to guide us as we designed and implemented it. To develop ideas and hypotheses of what works, we drew upon research in second language learning, instruction of children and other sources, but a major source of information was practitioner knowledge. We examined teaching practices and strategies that teachers believed to be effective and developed a method to measure them quantitatively. We then related these quantitative measures of instruction to students' literacy and language development, as measured by the study assessments, as a means of verifying this field-based knowledge. Our approach followed an evidence-based education model that integrated professional wisdom with empirical evidence (Whitehurst, 2002).

The *What Works Study* employed a quasi-experimental methodology, where we collected student outcome measures at three points in time. We used statistical modeling to measure language and literacy growth, while controlling for the influence of other measures. This powerful approach is widely used in educational and psychological research and meets a high level of scientific validity, as defined by the Department of Education's (2002) criteria. However, since we did not employ experimental manipulation, we cannot state definitively which specific instructional practices will produce the outcomes we observed. For example, while our findings allow us to say that "bringing in the outside" teaching strategies are related to growth in adult ESL literacy students' basic reading skills, the study design does not allow us to say which *specific* instructional practices, among those described in the previous section, will *cause* these students' basic reading skills to improve. To make this type of inference experimental research, with random assignment, is needed.

One possible approach for an experimental follow-up study would be to take instructional strategies the study found related to student growth – varied practice and interaction and bringing in the outside, for example – and train teachers on specific methods to implement the strategies. Students could then be assigned randomly to teachers, who would employ the different techniques. By comparing student learning in the different classes, the more effective methods could be clearly identified. This methodology would allow research to identify definitively the methods more likely to result in literacy and language growth. A broader range of adult ESL literacy students could also be included in this type of study, to allow examination of the generalizability of findings to other populations.

The study methodology and approach limited our ability to examine the effect of teachers on adult ESL student learning and to define the characteristics and behaviors of good teachers. Yet, the importance of a good teacher is widely acknowledged and adult literacy students often identify their teacher as instrumental to their learning. In addition

to focusing on instructional methods, a future study could identify teacher variables that affect student learning. Such variables might include training, background and pedagogical approach of teachers, as well as the interactions between teacher and learners. The findings from such a study would provide guidance on how to train teachers and promote good teaching practices in the classroom.

While the study has demonstrated that instructional practices in adult ESL literacy class are related to language and learning growth, most students spend relatively little time in class. For example, we found our students attend an average of about 129 hours over 16 weeks. Adults in these classes clearly rely on their environmental exposure to English and other methods of learning, in addition to classroom instruction, to acquire literacy and language skills. Such factors as the community in which learners reside, personal and family situation, employment, personal motivation, and literacy practices and needs also affect learning.

We tried to examine some of these variables through our literacy practices interview. This personal interview elicited information about student's reading and writing practices in English and their native language, as well as their English speaking and listening habits and personal goals for attending ESL classes. With its focus on instruction, the study was unable to examine fully the relationship of these factors to student learning, although we did find descriptive information on literacy practices and study habits (see Chapter 3). A future study could more explicitly examine how environmental and personal variables such as these affect participation and learning in adult ESL literacy programs and would provide a fuller picture of adults' literacy and language growth.

Future research could also explore approaches to assessing adult ESL literacy students. As we found, the assessments available for these students for both instruction and research and accountability purposes range from non-exist to inadequate. Empirical work to identify assessment approaches and to develop and evaluate new assessments would greatly benefit the field at all levels. Teachers need these tools to design appropriate instruction, researchers need them as outcome measures and administrators need a gauge on student progress for accountability.

The study attempted to contribute to this area by developing the reading demonstration assessment, which we used to measure students' ability to read and understand authentic materials they encounter in everyday life. The data from the study indicated that the use of this type of assessment to measure adult ESL students' reading abilities holds promise. Scores from the reading demonstration correlated with the study's other reading assessments and student performance on the assessment improved over time. Furthermore, the psychometric statistics for the assessment indicated it could discriminate among learners according to their ability (see study appendix). Unfortunately, the low number of complete reading assessments at each of the three study time points made it very difficult for us to use the assessment in our statistical models of reading growth. However, future projects could work to develop and standardize this type of assessment to promote measurement of student progress in adult ESL literacy.

From Research to Practice

Much as been written in the last few years about the need to link theory and practice and the failure of traditional research and evaluation studies to contribute to the every day lives of programs and teachers. The current study may be an exception: findings are clearly applicable to both teachers and administrators and can help to guide both policy and practice. At a time when immigrants increasingly come from poorer countries, where educational opportunities are limited, finding effective ways of serving adults with only an elementary education becomes an important endeavor. Research-based methods, like the findings of this study, can help advance the fields of literacy and second language acquisition for adults so that they are better prepared to support the schooling of their children, obtain jobs that pay a living wage, become self-sufficient and increasingly participate in civic life.

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TECHNICAL APPENDIX

TECHNICAL APPENDIX

This appendix presents more information about the statistical methods and approach of the study, the relationship among variables and student performance on the assessments. The appendix is designed for researchers, statisticians and others who might be interested in the technical detail behind the analyses. There are seven sections to this appendix:

- **Student Characteristics by Assessment Pattern.** We assessed students in the *What Works Study* three times over nine months and there was student attrition from the study after the first assessment. This section of the appendix describes the characteristics of students at each time to determine the comparability of students at each time point.

- **Correlations Among Assessments.** The study assessments were standardized tests measuring reading comprehension, reading basic skills, writing and speaking and listening skills and an unstandardized reading demonstration assessment. This section shows the intercorrelations among these assessments.

- **Correlations of Assessments and Attendance Variables.** We computed four measures of student assessment for our HLM analyses. In this section, we present the intercorrelations among the assessments and these attendance variables.

- **Correlations Among Predictors Used in HLM and Growth Curve Modeling.** This section shows the correlations among the predictors used in the HLM models of attendance and the latent growth modeling, reported in Chapters 5 and 6.

- **IRT Analysis of the Literacy Practices Interview and Reading Demonstration Items.** The literacy practices interview measured students' reading, writing, speaking and listening practices and also obtained information on study habits and use of English outside of class. We administered the interview individually to each student at each assessment time. The reading demonstration task, an alternative assessment we developed for the study, had students read authentic environmental texts they were likely to encounter in daily life. Study testers rated the students reading fluency and comprehension of the items read. We conducted an item response theory (IRT) analysis on the LPI and reading demonstration measures to explore their psychometric properties and we used the IRT scores generated from the analyses in latent growth models, as reported in Chapter 6.

- **Variance Decomposition Analyses and HLM Model of Attendance.** This section reports decomposition analyses of the between class, within class and student-level variance to provide further information on the statistical properties of the variables used in the HLM analyses of attendance and illustrates the two-level HLM model used in these analyses.

- **Fully Unconditional Growth Curve Model and Supplemental Tables.** In this section we provide an example of the final three-level HLM model we used to predict student literacy and language growth. We also provide variance decomposition tables for these analyses and an illustration of interpretation of the model's predictors of students' initial status.

STUDENT CHARACTERISTICS BY ASSESSMENT TIME

We assessed students in the *What Works Study* shortly after they entered an adult ESL class, approximately three months after entering and about nine months after entry. We attempted to assess students at the later time periods regardless of whether they were still enrolled in class. However, it was not possible to assess all students at each assessment period, either because they were absent from class during the assessment period or could not be located. Of the 495 participants in the study, 258 provided assessment data for all of the three assessment periods, 135 provided initial assessment data only, and 102 provided data at other times during the *What Works* study. Of those 102 students, a single student provided second and third period assessment data only, 4 participants provided data at the initial and final periods only, and 97 completed the initial and second assessments but were inaccessible for the final assessment. Consequently, of 495 students that took the initial assessments 356 students (72 percent) took the second assessments and 263 students (53 percent) took the third set of assessments.

We conducted analyses to determine whether students who provided complete data differed in some way from participants who did not complete all assessments, as significant differences would have limited the generalizability of the results of the study. To determine if students in these groups differed from each other, we compared demographic characteristics and initial assessment scores according to whether they provided assessment data at all three time points, at only the initial assessment or at any two assessment times.

Student Characteristics

As can be seen from Exhibit A.1, students that participated in the study at all three assessment periods were not very different than those who did not. Gender proportions, ethnicity, and educational background were the same for all three groups of students.

Students only differed significantly by average age and percent that were employed. Students providing complete assessment data were, on average, approximately 2 to 3 years older than students in the other groups, and a higher percentage were employed. Participants completing all three assessments also had a slightly higher percentage of students who fell into the 'other' ethnic category and fewer Hmong students, although these differences were not statistically significant.

EXHIBIT A.1:

Demographics of Students by Assessment Time

	Percent of participants providing assessment data at all three periods (n=258)	Percent of participants providing initial assessment only (n=135)	Percent of participants providing any two assessments (n=102)[1]
Age*	42.2	38.2	39.2
Gender (% female)	74	68	74
Ethnicity			
Spanish-Mexico	54.3	66.0	57.8
Spanish-other	10.9	8.2	5.9
Somali	10.1	7.4	10.8
Hmong	5.4	7.4	13.7
Other	19.4	11.1	11.8
Employed*	50.0	39.3	37.0
Years Education in home Country	3.0	3.2	3.5

Average difference is statistically significant, p<.05.

[1] Includes students who provided initial and final, initial and second, and second and final assessments.

Assessments

We compared the student groups according to their initial test scores. As can be seen in Exhibit A.2, average initial scores on the Adult Language Scales (ALAS) writing test, the Basic English Skills (BEST) oral language test, the Comprehensive Student Assessment System (CASAS) writing test and the Woodcock Johnson (WJR) reading tests did not differ significantly among participants providing complete assessment data and those not providing complete data.

Overall, students who provided assessment data at all three data collection periods in the study were not very different from those students who did not provide assessment data at all three periods. Although students providing complete data were, on average, 2 to 3 years older than students in the other groups, and 10-13% more were employed, they did not differ in pre-study ability, as measured by initial assessments.

The lack of many significant differences between the characteristics of those who provided complete data and those who did not suggests that the groups are similar. This similarity between the groups indicates that the analyses are not likely to be biased by student differences among those who provided complete data and those who did not. This suggests adequate generalizability of the results of this study to this population.

EXHIBIT A.2:

Mean Initial Assessment Scores by Assessment Time

	Participants providing assessment data at all three periods (n=258)	Participants providing initial assessment only (n=135)	Participants providing any two assessments (n=102)
Total ALAS Writing Score	17.3	14.6	16.2
BEST Oral Language (SPL)	2.0	1.8	2.3
CASAS Writing (Level)	.76	.72	.89
WJR Reading (Total Score)	9.0	8.2	8.9

CORRELATIONS AMONG ASSESSMENTS

Correlations among the assessments provide an indication of how closely these measures of language and literacy are related. Strong associations were expected among multiple measures of the same construct and provide measures of the validity of the assessments. The reading demonstration task, a performance-based reading test developed specifically for the study, measured reading fluency and comprehension, and we expected it to correlate strongly with other assessments measuring reading skills. We also examined the relationship among reading assessments of the reading difficulty scales from the literacy practices interview (LPI) we developed for the study, which measured students' self-rated frequency of, and difficulty with, reading English.

Reading Assessments

The assessments focusing on measuring student's ability and growth in reading in English included all subscales of the Woodcock Johnson (letter-word identification, word attack, passage comprehension, vocabulary subtests), the reading demonstration fluency subscale, and the frequency and difficulty of reading English scales from the literacy practices interview. Correlations among these assessments were, with one (non-significant) exception, positive and ranged from .017 to .844, as presented in Exhibit A.3.

Reading Demonstration Task

Because the reading demonstration was developed for this study, we examined its correlations with the other standardized assessment in the study as an indicator of its validity. The reading demonstration level scores correlated significantly with each other and with the other assessment measures used in the study (BEST, CASAS, ALAS and Woodcock-Johnson), ranging from r = .21 to *r* = .75. Exhibit A.4 presents the correlations for the initial assessment period.

EXHIBIT A.3:

Correlations Among Reading Assessments

		1	2	3	4	5	6	7	8	9	10	11	12
Initial Assessment													
1.	Woodcock Johnson	1.0											
2.	Reading Demonstration: Fluency	.501	1.0										
3.	LPI: Frequency Reading English	.257	.277	1.0									
4.	LPI: Difficulty Reading English	.223	.263	.341	1.0								
Second Assessment													
5.	Woodcock Johnson	.844	.513	.253	.277	1.0							
6.	Reading Demonstration: Fluency	.486	.341	.107*	.111*	.435	1.0						
7.	LPI: Frequency Reading English	.141	.097*	.619	.234	.109*	.114*	1.0					
8.	LPI: Difficulty Reading English	.329	.294	.192	.361	.347	.342	.343	1.0				
Final Assessment													
9.	Woodcock Johnson	.773	.426	.268	.296	.804	.369	.149	.265	1.0			
10.	Reading Demonstration: Fluency	.548	.394	.113*	.113*	.497	.317	-011*	.279	.530	1.0		
11.	LPI: Frequency Reading English	.174	.112*	.500	174	.061*	.083	.572	.244	.096*	.017*	1.0	
12.	LPI: Difficulty Reading English	.085*	.311	.235	.457	187	.311	.123*	.368	.247	.030*	.315	1.0

*All correlation are statistically significant at p<.05 unless indicated with an asterisk. The Woodcock Johnson score is an averaged total score. Column numbers correspond to row numbers.

Because both assessments provide a measure of reading ability, we expected a strong, significant and positive correlation between the reading demonstration task subscales and the Woodcock Johnson. These correlations were observed for both subscales, but especially so for the fluency measure. There was also a strong correlation between the fluency and comprehension scales of the reading demonstration.

EXHIBIT A.4:

Correlations Between Reading Demonstration Levels and Assessment Scores

	Fluency	Comprehension
Reading Demonstration		
Fluency	-	.75
Comprehension	.75	-
ALAS	.36	.21
BEST (SPL)	.21	.22
CASAS	.34	.22
Woodcock-Johnson		
BRSC	.50	.35
RCC	.46	.35

Note: All correlations are statistically significant at p<. 001.

Writing Assessments

The CASAS (Content, Spelling, and Legibility) and ALAS (Sentences in Action, Adventures in Writing) tests measured student's writing proficiency. Correlations between these measures are presented for each assessment period in Exhibit A.5. All were statistically significant and positive.

EXHIBIT A.5:

Correlations Among Writing Assessments

	1	2	5	6	9	10
Initial Assessment						
1. CASAS level	1.0					
2. ALAS level	.549	1.0				
Second Assessment						
5. CASAS	.562	.447	1.0			
6. ALAS	.537	.697	.508	1.0		
Final Assessment						
9. CASAS	.496	.346	.578	.437	1.0	
10. ALAS	.420	.591	.439	.613	.452	1.0

*Statistically significant at p<. 05.

ATTENDANCE VARIABLES AND ASSESSMENT SCORES

We used attendance measures as predictors in the growth curve modeling of student outcomes to explore the relationship of attendance to literacy and language development of adult ESL literacy students. We also examined the variables related to student attendance using student, class, teacher and instructional variables as predictors of attendance. To study attendance, we constructed four measures:

- *Total hours*— total number of instructional hours attended;
- *Total weeks*— total number of weeks attended;
- *Rate of attendance*— proportion of hours attended out of total hours possible to attend; and
- *Intensity*— average number of hours attended per week.

Exhibit A.6 shows the relationships among the attendance variables and the assessment scores at each time period. Attendance rate correlated only with reading scores at the third assessment. The total hours and weeks of attendance were not consistently associated with any of the outcomes, except for the CASAS, which initially was significantly negatively correlated with the total number of attendance hours. Intensity of attendance consistently and significantly correlated positively with BEST scores and negatively with CASAS scores. However, all correlations were quite small, ranging from -0.174 to 0.235.

EXHIBIT A.6:

Correlations Among Assessment Scores and Attendance Measures

	Total Hours	Total Weeks	Attendance Rate	Intensity
Initial Assessments				
BEST SPL	.056	-.044	-.010	.132*
CASAS Total	-.118*	-.079	.073	-.155*
ALAS	.040	-.023	.048	.043
Woodcock-Johnson	.043	-.033	.072	.002
Reading Demonstration: Comprehension	.080	-.013	-.024	.108
Reading Demonstration: Fluency	.160	.055	.046	.163
Second Assessments				
BEST SPL	.076	-.132*	.045	.176*
CASAS Total	-.174*	-.103	.072	-.173*
ALAS	-.010	-.130*	.024	.050
Woodcock-Johnson	.010	-.109*	.091	-.004
Reading Demonstration: Comprehension	.048	-.017	.028	.047
Reading Demonstration: Fluency	.048	.009	.094	.031
Final Assessments				
BEST SPL	.142*	-.025	.072	.235*
CASAS Total	-.087	-.014	.084	-.142*
ALAS	.029	-.009	.080	.026
Woodcock-Johnson	.023	.012	.131*	-.049
Reading Demonstration: Comprehension	.047	-.022	.171*	.093
Reading Demonstration: Fluency	.062	.080	.214*	.037

*Statistically significant at p<. 05.

As explained in Chapter 5, the lack of relationship between attendance and outcomes is counter-intuitive, although not unusual, since prior studies have not find a clear relationship among these variables. The negative relationship of the attendance measures to the CASAS scores may be due to the suspected validity problems with this assessment, as discussed in Chapter 6.

CORRELATIONS AMONG PREDICTORS USED IN HLM AND GROWTH CURVE MODELING

In Chapters 5 and 6 we discussed the variables we used to predict student attendance and student literacy and language growth in our HLM and latent growth models (see Exhibits 5.4 and 6.3). In this section we present the intercorrelations among these variables to allow understanding of their shared variance vis-à-vis the model. Predictors that are too highly correlated can create a problem of multi-colinearity, which produces instability among the predictors. The predictor variables included student-level variables (demographics and initial reading and speaking skills); class variables of teacher characteristics, class type, instructional emphases and strategies; and attendance measures.

The tables in this section first show the correlations of the attendance and assessment variables with the student and class-levels variables and then the intercorrelations among the student and class predictors. The patterns of correlations will not be discussed in depth here, as they merely reflect the relationships discussed in Chapters 5 and 6.

As can be seen from Exhibit A.7, the number of years that students attended school before coming to the U.S. was significantly associated with increased assessment scores, especially at the beginning of the study. Employment status was negatively associated with the attendance measures, and age was related to higher total attendance hours.

Exhibit A.8 illustrates the associations between class and teacher characteristics, assessment scores, and attendance measures. The nature of these relationships is discussed in detail in Chapters 5 and 6.

Exhibit A.9 illustrates the associations between student, class and teacher characteristics. The nature of these relationships is discussed in greater detail in Chapters 2 and 4.

EXHIBIT A.7:

Correlations Between Student Level Variables, Assessment and Attendance Variables

	Age	Employment Status	Years Previous Education
Initial Assessments			
BEST SPL	-.011	-.046	-.016
CASAS Total	.057	-.028	.383*
ALAS	.001	-.130*	.404*
Woodcock-Johnson	-.008	-.077	.428*
Reading Demonstration: Comprehension	-.019	-.003	.166*
Reading Demonstration: Fluency	-.061	-.032	.250*
Second Assessments			
BEST SPL	-.173*	-.035	.076
CASAS Total	-.081	.107*	.371*
ALAS	-.043	-.049	.463*
Woodcock-Johnson	-.073	.001	.547*
Reading Demonstration: Comprehension	.158*	.006	.236*
Reading Demonstration: Fluency	.082	.056	.336*
Final Assessments			
BEST SPL	-.232*	.032	.122
CASAS Total	-.084	.119	.442*
ALAS	-.107	-.039	.427*
Woodcock-Johnson	-.099	.062	.462*
Reading Demonstration: Comprehension	.075	-.041	.183*
Reading Demonstration: Fluency	-.117	.026	.317*
Attendance Measures			
Total Hours	.105*	-.272*	-.121*
Attendance Rate	.083	-.151*	.067

*Statistically significant at p<. 05.

EXHIBIT A.8:

Correlations Between Class and Teacher Level Variables, Assessment and Attendance Variables

	Day /Night Class	Hispanic Teacher	Mandate	Class Length (in weeks)	Mixed Literacy Levels	Native Language Use	Varied Practice Strategy	Connection to Outside Strategy	Emphasis on Basic Literacy Skills
Initial Assessments									
BEST SPL	.192*	-.287*	.013	.026	-.130*	-.266*	.303*	.015	-.094*
CASAS Total	.036	.218*	-.156*	.154*	.291*	.182*	-.015	.152*	.068
ALAS	.139*	.095*	-.102*	.129*	.183*	.005	.102*	.109*	.056
Woodcock-Johnson	.142*	.125*	-.071	.183*	.199*	.010	.160*	.133*	.019
Reading Demonstration: Comprehension	.071	-.201*	.086	.143*	.173*	-.222*	.275*	.175*	.006
Reading Demonstration: Fluency	.064	-.139*	.125*	.173*	.164*	-.176*	.228*	.260*	.016
Second Assessments									
BEST SPL	.173*	-.216*	.115*	-.000	.160*	-.210*	.225*	-.24	-.105
CASAS Total	-.128*	.251*	-.163*	.010	.275*	.270*	-.103	.059	.051
ALAS	.118*	.008	-.062	.179*	.186	-.080	.194*	.179*	.005
Woodcock-Johnson	.129*	.238*	-.089	.210*	.200*	.088	.097	.155*	.030
Reading Demonstration: Comprehension	.102	.021	-.008	.023	.248*	.026	.115	.134*	-.165*
Reading Demonstration: Fluency	-.037	.029	.109	.139*	.280*	.023	.106	.224*	-.117
Final Assessments									
BEST SPL	.169*	-.279*	.124	.137*	-.129	-.294*	.320*	.049	-.077
CASAS Total	-.143*	.345*	-.041	.177*	.304*	.325*	-.125*	.076	-.008
ALAS	.036	.066	-.078	.263*	.167*	-.075	.237*	.160*	.003
Woodcock-Johnson	.015	.276*	-.034	.208*	.264*	.168*	.076	.175*	-.061
Reading Demonstration: Comprehension	.034	.021	.024	.167*	.154*	-.059	.200*	.091	-.149*
Reading Demonstration: Fluency	-.115	.170*	.070	.183*	.188*	.109	.048	.183*	-.161
Attendance Measures									
Total Hours	.400*	-.273*	.408*	.229*	-.216*	-.348*	.443*	.338*	-.158*
Attendance Rate	.072	.093*	.104*	.263*	-.069	-.035	.077	.130*	.126*

*Statistically significant at p<. 05.

EXHIBIT A.9:

Correlations Between Student, Class, and Teacher Level Variables

	1	2	3	4	5	6	7	8	9	10	11	12
Teacher and Class Characteristics												
1. Day/Night	1.0											
2. Hispanic Teacher	-.286*	1.0										
3. Mandate Class	.324*	-.215*	1.0									
4. Class Length	.039	-.152*	.099*	1.0								
5. Mixed Literacy Levels	-.182*	.101*	-.229*	.049	1.0							
6. Native Language Use	-.435*	.771*	-.270*	-.344*	.346*	1.0						
7. Varied Practice Strategy	.485	-.636*	.202*	.320*	-.151*	-.753*	1.0					
8. Connection to Outside	.152	-.084	.240*	.292*	.064	-.209*	.502*	1.0				
9. Emphasis on Basic Literacy Skills	-.187*	-.008*	-.264*	.140*	.063	-.029	-.202*	-.211*	1.0			
Student Characteristics												
10. Age	.215*	-.022	.021	.015	.126*	-.030	.117*	.036	-.080	1.0		
11. Employment	-.400*	.191*	-.143*	-.059	.099*	.262*	-.280*	-.232*	.026	-.196*	1.0	
12. Years of Schooling	-.099*	.200*	-.160*	.190*	.215*	.104*	-.087	.029	.121*	-.235*	.128*	1.0

*Statistically significant at p<. 05

IRT Analyses of Literacy practice Interview and Reading Demonstration Items

We used the *What Works Study* as an opportunity to try alternative methods of assessing the literacy abilities and habits of adult ESL literacy learners and developed two assessment approaches: a literacy practice interview and a reading demonstration task, described above (also see Chapter 3 for a more detailed explanation of this assessment). The literacy practices interview was an individual interview in the student's native language that asked the student to rate whether they read everyday items (e.g., labels, bills, signs, flyers, newspapers), how often they read each item, the language in which they read them and how difficult each item was for them to read. The interview included corresponding questions for writing and also asked students to rate their speaking habits and study practices outside of class (e.g., asking what words mean, writing down unknown words, seeing teacher outside class). The four- and five-point scale ratings used with the interview questions allowed us to develop scales of use, frequency and difficulty of reading, writing and speaking in English. A copy of the LPI items used to construct these scales is included at the end of this volume.

To study the underlying structure of these scales, as well as the fluency and comprehension scores of the reading demonstration, we conducted separate item response theory (IRT) analyses on the LPI scales and reading demonstration scores. We also wanted to use the IRT scores in the HLM and latent growth modeling analyses, since these scores had better statistical properties for analysis than the raw scores.

The benefits of using the IRT approach are that IRT models differentiate between difficult and easy items based on their difficulty relative to each other. IRT further discriminates between different ability levels of the examinees and identifies the approximate level of ability needed to obtain each response alternative. This methodology maximizes the variance of examinee scores while not assuming that increases from one response category to the next result from equidistant increases in ability. This approach identifies where different increases in ability levels are needed to move from one response category to the next higher one by adjusting the model accordingly to improve the fit of the model with the data. Furthermore, because each scale consists of a set of items, each with unique properties, IRT methodology statistically adjusts for the extraneous variation resulting from items in a scale possessing differing properties. As a result, any differences between test administrations can be attributed to an increase in ability rather than to systematic item variation. IRT also provides information about how examinees at different ability levels perform on scale items. For all of these reasons IRT allows for a better fit of the model to the data and provides measurably more information than what would be gained through the reporting and comparing of means and standard deviations.

The following scales of the literacy practices interview were analyzed using IRT methodology:

- Frequency of Reading in English;
- Difficulty Reading in English;
- Frequency of Writing in English;
- Difficulty Writing in English;
- Engagement in Study Practices; and
- Difficulty Speaking in English.

We also conducted an IRT analysis of the fluency of reading in English and English reading comprehension of the reading demonstration task. Separate analyses were conducted for each LPI scale and reading demonstration measure.

Analytic Approach

Five items were removed prior to the analyses of the literacy practices interview. We eliminated all items containing e-mail or web pages, due to a lack of engagement by the ESL students with any form of electronic communication. Only five students reported e-mail use prior to the initial assessment, and only three reported internet/web-page use. Two items were removed from one scale to be consistent with the items on a related scale, and due to significant lack of fit, items referring to bus or train schedules were removed. Lastly, four of the subscales were combined into two new scales to facilitate

interpretation. The scales assessing the frequency of reading/writing were combined with the scales assessing the extent to which the same items were read/written in English (vs. a student's native language). These new combined scales provided a measure of both the frequency with which the items were read/written and how often this was done in English (e.g., Frequency of Reading/Writing in English).

All parameters were estimated after equating period 2 and 3 ability scores to the initial abilities. Equating the period 2 and 3 data to the period 1 data allows for the measurement of changes in ability occurring between the two tests by putting scores from each assessment into the same ability scale. This, in turn, ensures that any observed difference between the score distributions is due to student learning over that time period and not due to different properties of the test at different times.

Analyses were performed with PARSCALE, first using the cross-sectional data (data from all available students at all times, n ranging between 398 and 425, depending on the sub-scale) and then the longitudinal data (data from only those students for whom we had assessments from at all three time points, n ranging between 169 and 197, depending on the sub-scale).

An IRT model is appropriate for the items of the LPI with ordered categorical responses (items where consecutively higher responses indicate higher quantities of the trait being measured). A Graded Response Model was utilized and is described by following equation:

$$P_{jk}(\theta) = \frac{1}{1+\exp[-Da_j(\theta - b_j + c_k)} - \frac{1}{1+\exp[-Da_j(\theta - b_j + c_{k+1})}$$

where:

$P_{jk}(\theta)$ is the probability that the examinee j gets the response category k
D is a constant 1.7
a_j is item parameter of discrimination for item j
b_j is item parameter of difficulty for item j
c_k is item step of difficulty for item j for category k

The first term in the sum is the probability that the examinee achieves category k or higher.

Item Parameters

Comparison of the underlying structures (estimated parameters, item and test characteristic curves) of the longitudinal and cross-sectional IRT analyses confirmed that they were similar, indicating that even though the sample size was smaller for the longitudinal analyses, the overall patterns of difficulty and discrimination did not change. Exhibit A.10, provides the parameters estimated using the longitudinal approach for the initial assessment period (to conserve space parameters are not provided for the second and third assessments but were comparable to the estimates at the initial time period).

EXHIBIT A.10:

Initial Item Parameters for Literacy Practices and Reading Demonstration Scales

Items	IRT Parameters	
	Discrimination (a)	Difficulty (b)
Frequency of Reading Items in English	**n=423**	
Maps, charts or diagrams	.84	1.68
Manuals or Instructions	.99	1.34
Magazines	.97	1.22
Newspapers	.91	1.16
Letters	.97	1.07
Menus	1.17	.80
Dictionaries, phone books, directions, recipes	1.31	.59
Books	1.0	.52
Print advertisements in newspapers or mail	1.31	.44
Labels	1.35	.37
Billboards on the road	1.71	-.04
Difficulty Reading Items in English	**n=419**	
Maps, charts or diagrams	.93	1.42
Newspapers	1.0	1.40
Manuals, reference books	1.24	1.36
Magazines	1.06	1.30
Letters	1.03	1.02
Books	1.18	.75
Instructions, directions, or recipes	1.44	.69
Menus	1.54	.55
Print Advertisements in newspapers or mail	1.51	.55
Labels	1.74	.35
Frequency of Writing Items in English	**n=417**	
Letters	.74	2.20
Things like bills, invoices, checks	.93	1.39
Forms	1.20	1.36
Instructions or directions	1.25	1.34
A paragraph or short story	1.31	1.33
Short messages or notes	1.41	1.15
A sentence or two about something	1.13	.27
Difficulty Writing Items in English	**n=397**	
Letters	.88	2.43
A paragraph or short story	1.66	1.50
Things like bills, invoices, checks	.98	1.40
Instructions or directions	1.34	1.33
Short messages or notes	1.49	1.18
Forms	1.47	1.18
A sentence or two about something	1.39	.90
Engagement in Study Practices	**n=411**	
Look up words in the dictionary	.95	.37
Write down words you don't know to ask or look up later	.72	.18
Ask your teacher of other staff for help outside of class	.84	.10

Items	IRT Parameters	
	Discrimination (a)	Difficulty (b)
Ask what words mean in conversation	.77	-.18
Ask English speakers to help you communicate or solve problems	.58	-.26
Study English on your own other than for class	.84	-.43
Do homework for your class	.87	-.80
Difficulty Speaking English	**n=430**	
Have conversations about important things	1.76	1.04
Talk to the doctor	1.99	.82
Talk to your children's teachers	1.96	.81
Talk on the phone	2.44	.72
Make small talk	2.29	.69
Order at a restaurant	1.80	.60
Ask for help or directions	2.38	.50
Ask questions	2.27	.46
Talk to your teacher	1.83	.44
Reading Demonstration- Fluency	**n=356**	
Newspaper	1.61	1.02
Magazine	1.62	1.0
Story 2	1.65	.57
Ad	1.64	.57
Bill	2.07	.51
Flyer	2.43	.44
Story 1	1.16	.39
Food can	1.44	.20
McDonald	1.64	-.18
Coca Cola	1.11	-.29
Reading Demonstration- Comprehension	**n=354**	
Magazine	1.38	.82
Newspaper	1.21	.79
Story 2	1.71	.11
Bill	1.28	-.01
Ad	1.84	-.04
Flyer	1.18	-.07
Story 1	1.58	-.17
Food can	1.55	-.61
McDonald	1.43	-.87
Coca Cola	1.76	-.91

Note: Items within each scale are sorted in order of decreasing difficulty, so that the most difficult items are listed first.

Interpretation of the *b* parameters depends on whether the scale is measuring the difficulty a person has doing certain literacy practices (difficulty scales), or if the scale is measuring the frequency of performing a literacy task or the engagement in literacy practices (frequency and engagement scales). For the difficulty scales, higher values of *b* indicate that a higher level of ability with the types of literacy measured by the scale is needed to accomplish the activity described by the item. For the frequency and engagement scales, higher values of *b* indicate items where a high level of engagement also implies a high level of engagement in all tasks covered by the scale. For the reading

demonstration sub-tests, higher values of *b* indicate the more difficult items, requiring higher levels of ability to read or comprehend.

Overall, the items on the literacy practice interview and reading demonstration task had high item discrimination, meaning they were instructionally sensitive and likely to be responded to differently by examinees of different ability levels (see the *a* parameters in Exhibit). The most difficult items tended to have lower discrimination parameters, which makes sense given a lower threshold at which examinees became able to engage in the task. For example, a newspaper is a difficult item to read and understand. Yet, once a certain lower threshold (an ability level that once reached allows for the newspaper to be read and understood) is obtained, the paper can be read and understood. This difficult item may be less discriminating than an easier item without such a threshold. In other words, the range of ability measured by the newspaper may be wider (from the lower threshold to infinity) than the narrower range of ability measured by an easier item for which respondents either get it or they do not. An easier item like the Coca-Cola is likely to be recognized or not, so there is a very little range of ability between those who are not able to read the Coke can and those that are.

The items represented an appropriate range of difficulty. The most difficult reading demonstration items were the magazine, newspaper and story 2; the easiest items were the Coca-Cola can, McDonald's french-fry bag, and the food label. Further, the levels of difficulty were as expected: we would expect the magazine and then the newspaper to be the most difficult reading tasks, and we would expect the Coca-Cola can and the French-fry bag to be the easiest in reading load. The most difficult items in the literacy practices interview were those that asked about reading, writing or understanding newspapers, magazines, or maps and charts. The easier items involved reading billboards and labels, or writing a sentence or two about something. Again, the ordering by difficulty appears quite reasonable and interpretable.

Test Characteristic Curves

Test Characteristic Curves (TCC) illustrate the relationship between examinees' "true score," as estimated based on the probabilities of examinees responses to different response categories in the items of the test or scale and their ability. TCCs provide important information about the performance of items on a test - but provide no information about individual examinees' performance on the test.

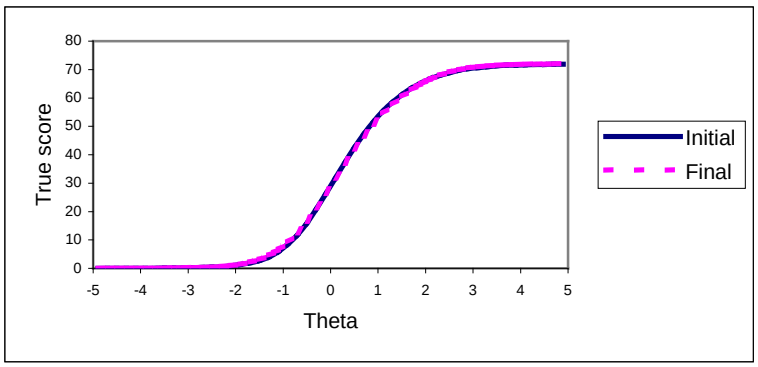
On each TCC, the same test or scale score at different time periods is graphed on the same plot. If a test performs the same at both time points, the two curves should overlap. If there is a gap between these two curves, the examinees, whose ability is located within the range of gapped curves, responded to the tests differently.

To generate the TCC for each test, the ability scale (from –5 to 5) is divided into 50 intervals. Within each interval, the mean represents the ability measure at that level and is plotted on the graph. The TCC, in other words, is generated based on 50 average Theta points from equally spaced intervals on the ability scale. Exhibit A.11 illustrates the lack of difference between initial and final proficiencies with a TCC for the reading

difficulty scale of the LPI. The average scores were calculated for Period 0 and Period 9 separately at each of the 50 Theta points and then plotted.

EXHIBIT A.11:

Test Characteristic Curves for the Initial and Final Difficulty Reading in English Subscale of the LPI



The lack of overlap in the graphs indicates that the initial scale estimates of ability are the same as the final estimate. The square of the difference between the initial and final scores at all the points has a Chi-square distribution. Chi-square tests examine the significance of the difference between the two curves for each test, and for this example revealed that none of the scales were significantly different in estimating proficiency scores for people with the same literacy proficiency.

Exhibit A.12 displays the Chi-square tests of the initial and final curves for the scales of the LPI. All Chi-square tests were not significant, indicating the scales are stable and have the same performance over time. The TCCs of the other LPI scales are not shown, as they would look almost identical to the TCC in Exhibit A.11.

The TCCs for the reading demonstration scores and the LPI difficulty in speaking scale were significantly different, indicating those measures are unstable over time. These differences may be due to characterizing of the assessments or to the nature of student learning, which may change the relative difficulty of the test items to students.

EXHIBIT A.12:

Chi-square Tests and Statistics for TCCs of Initial and Final LPI Scales and Reading Demonstration Scores

LPI Subscale	Chi-square	P-value
Study Practices	11.40	1.000
Frequency of reading in English	7.75	1.000
Difficulty reading in English	51.76	0.405
Frequency of writing in English	23.15	1.000
Difficulty writing in English	16.11	1.000

VARIANCE DECOMPOSITION ANALYSIS AND HLM MODEL FOR ATTENDANCE MEASURES

In Chapter 5, we presented models studying student, class and teacher variables and student attendance. We created four measures of attendance: attendance rate, intensity, total hours, and total weeks. In this section, we describe the amount of variation in each of these attendance measures that is between students *within* classes and the amount of variation that is *between* classes.

While analyzing variance in attendance outcomes, it is important to note the multi-level or hierarchical nature of data. In other words, there are two different levels (or units) of analysis since students are nested within classes. Student-level variables, such as age or employment status, are likely to shape distinctively students' attendance and persistence, as are classroom-level variables such as mandatory or night class status. To take into account the multi-level nature of the data at hand, we adopted hierarchical linear model or HLM (Bryk & Raudenbush, 1992) as an alternative analysis strategy to other more conventional strategies such as ordinary least square regression.

Variance Decomposition

To tease out different levels of variations (i.e., between students within classes vs. between classes) in attendance, we performed a procedure called variance decomposition with the use of HLM. This procedure allows us to take apart the total variation in each of the attendance outcome measures into a number of components of random variation. In this case, one component would be a random variation among class attendance means around a grand mean for all classes, and another component would be a random variation among students around their class means. A fully unconditional two level HLM model was formulated to estimate these two random variation components (i.e., within- and between-classes) and a fixed component (in this case, the grand mean for the attendance rate for all classes) as follows:

Level-1 or student-level is:

$$Y_{ij} = \beta_{0j} + r_{ij}, \quad [1]$$

where:

β_{0j} is the mean attendance rate for students in class j;
r_{ij} is the Level-1 random variation among students around their class means.
We assume r_{ij}, ~ N(0, σ^2) for i=1, …, n_j students in class j, and j= 1, …, 38 classes. We refer to σ^2 as the student-level variance.

Level-2 or classroom-level model is:

$$\beta_{0j} = \gamma_{00} + u_{0j}, \quad [2]$$

where:

γ_{00} is the grand mean for the attendance rate for all classes;
u_{0j} is the Level-2 random variation among class means around a grand mean for all classes.
We assume u_{0j}, ~ N(0, τ^2). We refer to τ^2 as the class-level variance.

Exhibit A.13 reports the results of estimation of fixed effects. For example, the maximum likelihood point estimate of the grand mean attendance rate is 64.5% with a standard error of 2.0%, indicating a 95% confidence interval of 64.5 +- 1.96(2.0) = (60.6, 68.5).

EXHIBIT A.13:

HLM Estimation of Fixed Effects

Measures	*Coefficient*	*se*	*df*	*Z value*	*p*
Rate of Attendance (in Percent)	64.5	2.0	37	31.9	<.0001
Intensity of Attendance (in Hours)	6.9	0.5	37	14.5	<. 0001
Total Attendance Hours	121.9	11.2	37	10.9	<. 0001
Total Weeks of Attendance	15.7	0.7	37	21.1	<. 0001

Similarly, the maximum likelihood point estimate of the grand mean total attendance hours is 121.9 hours with a standard error of 11.2, indicating a 95% confidence interval of 121.9 + or - 1.96*11.2 = (100.0, 143.8).[44]

[44] Note that HLM estimate of fixed effect in attendance measures seems a bit different from that of univariate analysis reported in the previous chapter. For example, in terms of total attendance hours,

Exhibit A.14 shows the results of variance decomposition analysis on four measures of attendance. As the first column of the table indicates, for each of the four measures, the total variance is decomposed to two different components of random variation: *between* classes and between students *within* classes. The second column of Exhibit A.14 displays the estimated variance attributable to each of the variance components. The third column shows the percentage of each component variance out of the total variance. The fourth column represents the standard error of the estimated variance. The Z-value shown in the fifth column informs us whether each component variance departs significantly from zero.

EXHIBIT A.14:

Decomposition of Variance in Attendance Measures

Variance Component	*Variance Estimate*	*Percent of Variance*	*se*	*Z value*	*p*
Rate of Attendance (in Percent)					
Between classes	131.9	39%	35.3	3.7	<.0001
Between students	203.4	61%	13.4	15.1	<.0001
Total Variance	335.3	100%			
Intensity of Attendance (in Hour)					
Between classes	8.2	75%	2.0	4.2	<.0001
Between students	2.7	25%	0.2	15.1	<.0001
Total Variance	10.9	100%			
Total Attendance Hours					
Between classes	4265.7	51%	1078.5	4.0	<.0001
Between students	4135.6	49%	273.1	15.1	<.0001
Total Variance	8401.3	100%			
Total Contact Weeks					
Between classes	15.6	23%	5.0	3.1	0.0009
Between students	51.3	77%	3.4	15.1	<.0001
Total Variance	66.9	100%			

For example, as the first panel of Exhibit A.14 illustrates, about 39% of the total variance in attendance rate exists between classes, while remaining 61% resides between individual students within classes. These estimates indicate that the primary source of variation in the attendance rates comes from students, although quite a sizable variance

student-level univariate mean is 128.7 hours, while HLM estimate of grand mean is 121.9 hours. HLM estimate is based on class means, while univariate mean is based on student means.

remains between classes. A statistical test of significance indicates that attendance rates are significantly different not only from one class to another but also from one student to another within classes.

As the second panel of Exhibit A.14 displays, seventy five percent of the total variance in the intensity of attendance exists between classes, while remaining 25% resides between individual students within classes. Similarly with attendance rates, the intensity of attendance significantly differs not only from one class to another but also from one student to another within classes. Dissimilar with attendance rates, however, the main source of variation in the intensity of attendance derives from classes. Partly due to the sampling design of this study, there is a wide variation in programming and schedule among classes. For example, some classes meet 20 hours per week, while others meet only 4 hours a week. Furthermore, some of the 20-hour classes meet during the day, while other 20-hour classes meet at night.

Since the intensity of attendance is by definition student's average weekly attendance in hours, it is bound by the length of class (weekly scheduled hours). However, within the same 20-hour long, intensive day-classes, students' average weekly attendance (i.e., intensity of attendance) may fluctuate widely depending their background characteristics and life circumstances such as age, employment status, or motivation for learning. Therefore it is very important to understand how much variation there is between students *within* classes, aside from how much difference there is *between* classes. Provided that the intensity of attendance is primarily a function of the class length and that the attendance rate reflects some indirect evidence of individual student's motivation for class participation, it is reasonable to find that, the intensity of attendance varies more widely between classes while the attendance rate fluctuate more among individual students within classes.

As the third panel of Exhibit A.14 shows, about a half of the variance in total attendance hours lies between classes (51%), while the other half is between students within classes (49%). In contrast, last panel of Exhibit A.14 indicates that the great majority of variance in total contact weeks lies between students within classes (77%), while relatively small but statistically significant portion of variance remains between classes (23%). This means that despite some class variation in class duration, there is a great deal of individual students' variation within the same classes whether and when they start and end the class, stop out and drop in the class, or stay in or leave the class at any time they wish. This attendance-related decision is made by individual student's choice and discretion, which may represent one of many unique characteristics of adult ESL literacy classes.

It is also interesting to note that individual students demonstrate relatively greater fluctuation in total contact weeks than in total contact hours. Conversely, students' class attendance hours seem to add up to more or less similar amount of time despite such a huge individual variation in the total number of weeks of attendance, in other words,

whether students' attendance spread out over many weeks or concentrate in a fewer weeks. Students seem to strike some act of balancing between how long, how regularly, and how persistently they go to class. If the class is spread out over a long period of time, they may thin out their class time regardless of the length of scheduled class hours. Alternatively, if the class is scheduled for a short period of time, then they may afford themselves for class participation even if it is an intensive one.

In sum, we found a great deal of variation in all four measures of attendance, not only between classes, but also between students within classes. The variations in attendance rates and total contact weeks seem to be more attributable to individual difference within classes than to class difference, whereas variation in the intensity of attendance is primarily attributed to classes. About an equal amount of variance is divided into within classes and between classes. Knowledge about the main source of variation (e.g., within- or between-classes) found in this variance decomposition analysis helps us direct our focus on appropriate variables (e.g., individual student-level or classroom-level) in our next analysis aimed at searching for determinants of the variance in students' attendance.

HLM Model of Attendance Measures

We used a two-level HLM model to examine the relationship among student, class and instructional variables on each of the four attendance measures. Chapter 5 presents the findings for these analyses in detail. Below we show the final model, using attendance rate as the outcome variable. We used the same model for the other attendance measures.

Level-1 or student-level of the model is:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{female}) + \beta_{2j}(\text{age}) + \beta_{3j}(\text{schooling}) + \beta_{4j}(\text{employed}) + \beta_{5j}(\text{Hispanic}) + \beta_{6j}(\text{Hmong}) + \beta_{7j}(\text{Somali}) + \beta_{8j}(\text{oral}) + \beta_{9j}(\text{reading}) + \beta_{10j}(\text{prompt start}) + r_{ij}, \quad [1]$$

where:

Y_{ij} is attendance rate for student i in class j;

β_{0j} is the mean attendance rate for students in class j;

β_{1j} is the female differential in attendance rate, compared with males, in class j (i.e., the mean difference between the attendance rate of female and male students);

β_{2j} is the degree to which student's age is related to attendance rate in class j;

β_{3j} is the degree to which formal schooling in home country relates to attendance rate in class j;

β_{4j} is employment status differential in attendance rate, compared with unemployed students, in class j;

β_{5j} is Hispanic student's attendance rate differential, compared with others, in class *j*;
β_{6j} is Hmong student's attendance rate differential, compared with others, in class *j*;
β_{7j} is Somali student's attendance rate differential, compared with others, in class *j*;
β_{8j} is degree to which initial oral English proficiency relates to attendance rate in class *j*;
β_{9j} is degree to which initial basic reading skills relate to attendance rate in class *j*;
β_{10j} is prompt starter's differential in attendance rate, compared with late starter, in class *j*;
r_{ij} is the Level-1 random variation among students around their class means.

Level-2 or classroom-level model is:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}\text{(female teacher)} + \gamma_{02}\text{(Hispanic teacher)} + \gamma_{03}\text{(ESL teacher)} + \gamma_{04}\text{(class length)} + \gamma_{05}\text{(mandatory)} + \gamma_{06}\text{(day)} + \gamma_{07}\text{(mixed)} + \gamma_{08}\text{(native language)} + \gamma_{09}\text{(practice)} + \gamma_{0.10}\text{(connection)} + \gamma_{0.11}\text{(open com)} + \gamma_{0.12}\text{(literacy focus)} + \gamma_{0.13}\text{(ESL focus)} + u_{0j}, \quad [2]$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}\text{(mandatory)}, \quad [3]$$

$$\beta_{4j} = \gamma_{40} + \gamma_{41}\text{(mandatory)}, \quad [4]$$

$$\beta_{5j} = \gamma_{50} + \gamma_{51}\text{(day)}, \quad [5]$$

where:

γ_{00} is the grand mean for attendance rate for all classes;
γ_{01} is the degree to which teacher's gender (in this case, female) relates to the mean student attendance rate (i.e., the mean difference between the attendance rate of students in female vs. male teacher's class);
γ_{02} is the degree to which teacher's ethnicity (in this case, Hispanic teachers compared with others) relates to the mean attendance rate;
γ_{03} is the degree to which teacher's ESL certification status relates to the mean attendance rate;
γ_{04} is the degree to which the class length relates to the mean attendance rate;
γ_{05} is the degree to which student's mandatory attendance requirement relates to the mean attendance rate (i.e., the mean difference between the attendance rate of mandatory vs. voluntary class students);
γ_{06} is the degree to which day (vs. night) class schedule relates to the mean attendance rate;
γ_{07} is the degree to which mixed (vs. homogeneous) class relates to the mean attendance rate;
γ_{08} is the degree to which the use of native language relates to the mean attendance rate;
γ_{09} is the degree to which practice strategy relates to the mean attendance rate;

$\gamma_{0.10}$ is the degree to which connection strategy relates to the mean attendance rate;

$\gamma_{0.11}$ is the degree to which open communication strategy relates to the mean attendance rate;

$\gamma_{0.12}$ is the degree to which the literacy focus relates to the mean attendance rate;

$\gamma_{0.13}$ is the degree to which the ESL focus relates to the mean attendance rate;

γ_{20} is the overall effect of student's age on attendance rate;

γ_{21} is the degree to which mandatory class attendance requirement relates to the overall effect of student's age on attendance rate;

γ_{40} is the overall effect of student's employment status on attendance rate;

γ_{41} is the degree to which mandatory class attendance requirement relates to the overall effect of student's employment status on attendance rate;

γ_{50} is Hispanic students' mean attendance rate;

γ_{51} is the degree to which day class schedule relates to Hispanic students' mean attendance rate;

u_{0j} is the Level-2 random variation among class means around a grand mean for all classes.

Each of the distributive effects, β_{0j}, β_{1j}, β_{2j}, ... and β_{10j}, are net of the others. For example, the female differential in attendance rate in class j, β_{1j}, is the adjusted mean attendance rate difference between male and female students in class j after controlling for the effects of individual student's other characteristics included in the model such as age, formal schooling and so forth.

FULLY UNCONDITIONAL GROWTH CURVE MODEL AND SUPPLEMENTAL TABLES

To examine the relationship among student and class variables, teacher characteristics, instructional methods and attendance on students' English literacy and language growth we used latent growth modeling analyses within an HLM framework. We used each of the study's assessments as outcome measures with a set of predictors, with a three-level HLM model. In Chapter 6, we reported in detail the results of these analyses. In this section we present the fully unconditional HLM model we used and then provide the general statistical parameters and variance decomposition tables for each outcome measure reported. This section concludes with an example of interpreting the findings of the initial status parameters of the model we did not discuss in the main report, since the study focus was on linear and quadratic student growth.

Fully Unconditional HLM Model

The fully unconditional HLM model represents individual growth in literacy or language as linear and quadratic functions of time, in the absence of other conditional (predictor) variables. We illustrate the model below using the WJR basic reading skill cluster (BRSC) score an example.

Level-1 or time-level is:

$$Y_{tij} = \pi_{0ij} + \pi_{1ij}(\textit{linear time})_{tij} + \pi_{2ij}(\textit{quadratic time})_{tij} + e_{tij} \quad [1]$$

where:

Y_{tij} is the basic reading skills cluster (BRSC) score at time *t* for student *i* in class *j*;
$(\textit{linear time})_{tij}$ is 0 at intake, 1 at 1st month, 2 at 2nd month, 3 at 3rd month, 4 at 4th month, …, and 12 at 12th month into the program or beyond;
$(\textit{quadratic time})_{tij}$ is 0 at intake, 1 at 1st month, 4 at 2nd month, 9 at 3rd month, 16 at 4th month, …, and 114 at 12th month into the program or beyond;
π_{0ij} is the initial status of student *ij*, that is, the expected level of basic reading skills for that student at intake (when *linear time=0* and *quadratic time=0)*;
π_{1ij} is the linear growth rate for student *ij* per the unit of linear time, that is, a month in case of growth in the BRSC score;
π_{2ij} is the quadratic growth rate for student *ij* per the unit of linear time, that is, a month in case of growth in the BRSC score; and
e_{tij} is the amount of variance in students' BRSC score that is left unaccounted for by the initial status, the linear growth, and the quadratic growth;

Level-2 or student-level is:

$$\pi_{0ij} = \beta_{00j} + \beta_{01j}(\textit{age})_{01j} + \beta_{02j}(\textit{schooling})_{02j} + \beta_{03j}(\textit{employed})_{03j} + \beta_{04j}(\textit{Hispanic student})_{04j} + \ldots + \beta_{09j}(\textit{total attendance time})_{09j} + \beta_{0.10j}(\textit{Hispanic teacher})_{0.10j} + \beta_{0.11j}(\textit{class length})_{0.11j} + \beta_{0.12j}(\textit{mandatory})_{0.12j} + \ldots + r_{0ij} \quad [2.1]$$

$$\pi_{1ij} = \beta_{10j} + \beta_{11j}(\textit{age})_{11j} + \beta_{12j}(\textit{schooling})_{12j} + \beta_{13j}(\textit{employed})_{13j} + \beta_{14j}(\textit{oral skills})_{14j} + \ldots + \beta_{17j}(\textit{Hispanic teacher})_{17j} + \beta_{18j}(\textit{class length})_{18j} + \beta_{19j}(\textit{use of native language})_{19j} + \ldots + \beta_{1.12j}(\textit{emphasis on basic literacy skills})_{1.12j} + r_{1ij} \quad [2.2]$$

$$\pi_{2ij} = \beta_{20j} + \beta_{21j}(\textit{schooling})_{21j} + \beta_{22j}(\textit{oral skills})_{22j} \quad [2.3]$$

Level-3 or class-level is:

$$\beta_{00j} = \gamma_{000} + u_{00j} \quad [3.1]$$
$$\beta_{10j} = \gamma_{100} + u_{10j} \quad [3.2]$$
$$\beta_{20j} = \gamma_{200} \quad [3.3]$$

where:

Y_{tij} is the basic reading skills cluster (BRSC) score at time *t* for student *i* in class *j*;
$(\textit{linear time})_{tij}$ is 0 at intake, 1 at 1st month, 2 at 2nd month, 3 at 3rd month, 4 at 4th month, …, and 12 at 12th month into the program or beyond;

(quadratic time)$_{tij}$ is 0 at intake, 1 at 1st month, 4 at 2nd month, 9 at 3rd month, 16 at 4th month, …, and 114 at 12th month into the program or beyond;

π_{0ij} is the initial status of student *ij*, that is, the expected level of basic reading skills for that student at intake (when *linear time=0* and *quadratic time=0)*;

π_{1ij} is the linear growth rate for student *ij* per the unit of linear time, that is, a month in case of growth in the BRSC score;

π_{2ij} is the quadratic growth rate for student *ij* per the unit of linear time, that is, a month in case of growth in the BRSC score;

e_{tij} is the amount of variance in students' BRSC score that is left unaccounted for by the initial status, the linear growth, and the quadratic growth;

β_{00j} is the mean initial status among students in class *j*;

r_{0ij} is the between-student variance in mean initial status;

β_{10j} is the mean linear growth among students in class *j*;

r_{1ij} is the between-student variance in mean linear growth;

β_{20j} is the mean quadratic growth among students in class *j*;

γ_{000} is the grand mean of initial status for all classes;

u_{00j} is the between-class variance in mean initial status;

γ_{100} is the grand mean linear growth among all classes;

u_{10j} is the between-class variance in mean linear growth; and

γ_{200} is the grand mean of quadratic growth for all classes.

As with the attendance HLM model, each of the distributive effects is the net of the others.

Estimates of Overall Growth in Basic Reading Skills (BRSC)

Exhibit A.15 shows the results of the fully unconditional model for the WJR basic reading skill score (BRSC). The analysis showed that in the absence of other conditional (or predictor) variables, the overall level of basic reading skills among adult ESL literacy students (as measured by the BRSC score) grew as additive functions of initial status, linear growth, and quadratic growth. Specifically, the HLM estimates suggest that students started at 453.4 (initial status), grew at the rate of 2.1 points per month (linear growth), but declined at the rate of .1 times the quadratic time score (i.e., starting from 0, to 1, 4, 9, to 144). Estimated of both initial status and linear growth were highly significant, but the estimate of quadratic growth was statistically not significantly different from 0.

EXHIBIT A.15:

Results of Fully Unconditional HLM Model for Basic Reading Skills Score (BRSC)

Effect	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Initial Status	453.4	3.42	37	132.47	<.0001***
Linear Growth	2.1	0.43	1014	4.91	<.0001***
Quadratic Growth	-0.1	0.04	1014	-1.92	0.06$

As Exhibit A.16 shows, students' initial status varied significantly not only between classes but also between students within classes. However, the rate of linear growth in basic reading skills differed between classes, but not between students within classes.

EXHIBIT A.16:

Decomposition of Variance in Basic Reading Skills (BRSC)

Variance Component	*Estimate*	*se*	*Z-value*	*p*
Between-class variance in initial status	386.55	104.14	3.71	0.00***
Covariation in class-level initial status & linear growth	-6.48	4.48	-1.45	0.15ns
Between-class variance in linear change	0.56	0.31	1.82	0.03*
Between-student variance in initial status	350.31	35.02	10.00	<.0001***
Covariation in student-level initial status & linear growth	-2.44	3.73	-0.65	0.51ns
Between-student variance in linear change	0.71	0.58	1.24	0.11ns
Residual	169.66	13.56	12.51	<.0001***
Total	907.79			

Estimates of Overall Growth in Reading Comprehension Skills (RCC)

Exhibit A.17 shows that initial status and linear growth on the WJR reading comprehension cluster (RCC) score was statistically significant among students. There was no significant quadratic growth. As Exhibit A.18 shows, students' initial status in reading comprehension varied significantly not only between classes but also between students within classes. Furthermore, the rate of linear growth in reading comprehension differed significantly between classes as well as between students within classes.

EXHIBIT A.17:

Results of Fully Unconditional HLM Model for Reading Comprehension Score (RCC)

Effect	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Initial Status	428.7	1.96	37	218.29	<.0001***
Linear Change	1.2	0.28	1014	4.26	<.0001***
Quadratic Change	-0.01	0.03	1014	-0.44	0.66ns

EXHIBIT A.18:

Decomposition of Variance in Reading Comprehension (RCC)

Variance Component	*Estimate*	*se*	*Z-value*	*p*
Between-class variance in initial status	120.27	33.66	3.57	0.00***
Covariation in class-level initial status & linear growth	-1.02	1.89	-0.54	0.59ns
Between-class variance in linear change	0.48	0.21	2.34	0.01**
Between-student variance in initial status	174.20	15.89	10.96	<.0001***
Covariation in student-level initial status & linear growth	0.59	1.66	0.36	0.72ns
Between-student variance in linear change	0.54	0.25	2.12	0.02*
Residual	61.60	5.11	12.06	<.0001***
Total	357.09			

Estimates of Overall Growth in Oral Communication Skills (BEST Score)

Exhibit A.19 shows that initial status, linear and quadratic growth in oral communication, as measured by the BEST score was statistically significant among students. As Exhibit A.20 indicates, students' initial status in oral English skills varied significantly not only between classes but also between students within classes. In addition, the rate of linear growth in oral English skills also varied significantly between classes as well as between students within classes.

EXHIBIT A.19:

Results of Fully Unconditional Model for Oral Communication Skills (BEST Score)

Effect	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Initial Status	23.7	1.78	36	13.33	<.0001***
Linear Growth	2.2	0.24	908	9.12	<.0001***
Quadratic Growth	-0.1	0.02	908	-4.54	<.0001***

EXHIBIT A.20:

Decomposition of Variance in Oral Communication Skills (BEST Score)

Variance Component	*Estimate*	*se*	*Z-value*	*p*
Between-class variance in initial status	94.07	25.77	3.65	0.00***
Covariation between class-level initial status & linear growth	-1.30	1.28	-1.02	0.31ns
Between-class variance in linear change	0.25	0.13	1.87	0.03*
Between-student variance in initial status	166.26	14.37	11.57	<.0001***
Covariation between student-level initial status & linear growth	-1.06	1.38	-0.76	0.45ns
Between-student variance in linear change	0.70	0.20	3.42	0.00***
Residual	42.23	3.84	10.99	<.0001***
Total	303.51			

Interpretation of Initial Status Parameters in the HLM Model

The latent growth model provides estimates of the predictors at three time periods: at time zero, or the initial status; at the first time point, estimating linear growth; and at the second time period, estimating quadratic growth. In Chapter 6 we discussed and interpreted the models' findings for linear and quadratic growth. Since the main goal of the project was to identify variables related to growth, we did little interpretation of initial status. Initial status provides descriptive information of where the variables were relative to each other at the start of data collection. An understanding of initial status, however, promotes a fuller understanding of the modeling results. In this section we illustrate the interpretation of initial status, using the findings from the modeling of the WJR basic reading skills (BRSC) scores.

Predictor Variables and Initial Status in Basic Reading Skills

Exhibit A.21 shows the initial status results of the final model for the basic reading skills score (BRSC). In Chapter 6, we reported the linear and quadratic trends for this model and below we provide a brief interpretation of the initial status results, focusing on significant findings.

Student variables. Age is positively related with initial status: the older the students, the higher the initial level of basic reading skills. For example, the difference in initial basic reading skills between 20 olds and 40 olds, was 3.0 points (0.15*20). Increased students' experience with or exposure to literacy-oriented culture and society with age may explain this age gap in basic reading skills. The level of formal schooling in the students' home country was also positively associated with initial status. With each addition year of formal schooling in student's native country, there was a 2.76-point advantage on the BRSC at the study's starting point, according to the model.

EXHIBIT A.21:

Initial Status Results of Modeling on Growth in Basic Reading Skills (BRSC)

Parameter	*Predictor*	*Coefficient*	*se*	*df*	*t-ratio*	*p-value*
Initial Status	Intercept (Base Level)	425.95	6.39	27	66.62	<.001***
	Student Variables					
	Age	0.15	0.07	855	2.01	.04*
	Formal Schooling at Home Country	2.76	0.39	855	7.14	<.001***
	Employed	0.71	2.17	855	0.33	.74ns
	Hispanic Student	13.97	3.94	855	3.54	.00***
	Hmong Student	-2.12	5.00	855	-0.42	.67ns
	Somali Student	7.16	3.56	855	2.01	.04*
	Basic Oral English Skills (BEST)	0.49	0.06	855	8.68	<.001***
	Attendance Variables					
	Attendance Rate	0.01	0.07	855	0.15	.88ns
	Total Attendance Time (in hours)	0.01	0.02	855	0.92	.36ns
	Teacher Variables					
	Hispanic Teacher	15.41	7.24	27	2.13	.04*
	Class Variables					
	Length of Class (in hours per week)	0.22	0.75	27	0.29	.78ns
	Mandatory Class	-1.30	5.29	27	-0.25	.81ns
	Day Class	4.67	5.78	27	0.81	.43ns
	Mixed Class	6.56	4.60	27	1.42	.17ns
	Instructional Variables					
	Use of Native Language	11.13	14.62	27	0.76	.45ns
	Practice Strategy	12.72	6.46	27	1.97	.06$
	Connection Strategy	-0.40	4.79	27	-0.08	.93ns
	Emphasis on Basic Literacy Skills	2.57	20.69	27	0.12	.90ns

Hispanic students also started class with an advantage in basic reading skills over other ethnic groups. Compared with Hmong students, for example, Hispanic students scored almost 14 points higher on this reading assessment. Somali students also had significant edge of 7.2 points over non-Hispanic students.

The proficiency level of students' oral English skills was significantly related to the initial level in basic reading skills. This finding means that a student who was 10 points higher than average on the BEST, for example, was also an average of 4.9 points (0.49*10) higher in the BRSC scores at the beginning of data collection.

Teacher and instructional variables. Hispanic teachers' classes had a higher mean level at basic reading skills compared with other teachers' classes. The size of this discrepancy is 15.41 points. This class-level gap is independent of the fact that Hispanic students had higher BRSC scores initially. We have no data to explain this finding, but it may be due to a programmatic characteristic, where some programs in the study (which had Hispanic teachers) attracted higher-level students.

The use of a practice strategy in classroom instruction was positively – if marginally significantly – related with initial status. This means that the classes that showed a higher level of basic reading skills among students at the outset tended to the ones that used practice-oriented instructional strategy more often. This finding means that the classes that showed a lower level of variety and practice strategy among students at the outset tended to be the ones that emphasized the basic reading skills more. Again, we have no data to explain this finding, but it may be due to a programmatic decision or simply a unique characteristic of the classes in the study.

ADDENDUM:

SAMPLE COMPLETED CLASSROOM OBSERVATION AND CODES; LITERARY PRACTICES INTERVIEW SCALES

"What Works" Study for Adult ESL Literacy Students

Classroom Observation and Coding Guide

Site Name: American Dream School
Program Name: Excellent Adult Education Program
Teacher Name: John Doe
Name and Type of Class: Literacy (Health)
Class Meeting Time: 9:00 am - 11:30 am, Monday-Thursday
Name of Observer: Jane Smith
Observational Date, Start and End Time: March 10, 1999, 9:35 - 11:30 am

September 23, 1998

A. CLASS DESCRIPTION AND ORGANIZATION

1. Number of students during this observation:

   11

2. Number of instructional aides present:

   1

3. Use of first language during class:

   - ❑ Not used
   - ❑ Teacher gives directions about class activities
   - ❑ Teacher clarifies vocabulary or explains concepts
   - ❑ Students ask questions or respond in L1
   - ❑ Written assignment in L1 given
   - ❑ Students write or talk with each other in L1 with teacher encouragement
   - ❑ Students write or talk with each other in L1 although teacher discourages
   - ❑ Students write or talk with each other in L1 and teacher is neutral
   - X Bilingual class

4. Name of main textbooks used, if any.

   None

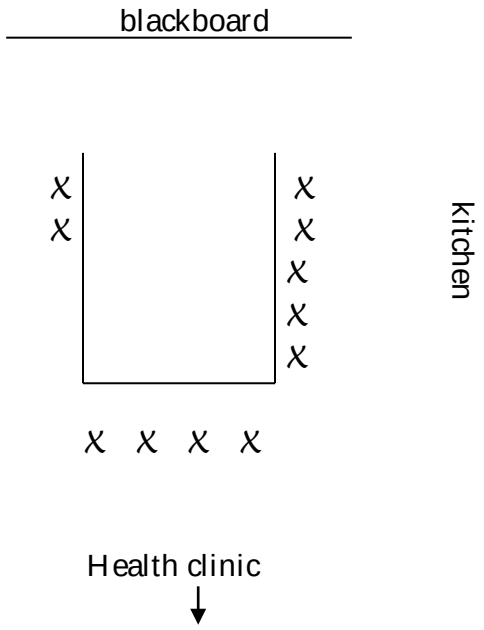
5. Summary of lesson: describe goals, topics and activities of the lesson observed. Indicate whether general focus is ESL acquisition or literacy, and rate opportunity for student involvement and type of materials used.

   This class is part of a two-week health unit within a regular literacy class. Class discussed an article about cancer.

6. Indicate any noteworthy instructional practices (positive or negative).

   Health materials used may be too complex for the students.

7. Draw all classroom configurations used during the observation including changes in groupings. Indicate where literacy or struggling students are seated.


blackboard
kitchen
Health clinic

B. USE OF INSTRUCTIONAL STRATEGIES

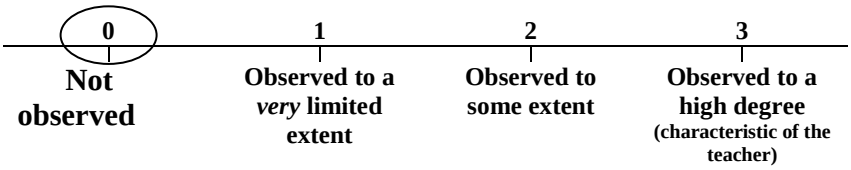
Instructional Strategies	Emphasis	Evidence from Observation
Shares the overall goal for the lesson as well as individual activities; brings lesson back to the overall point or theme	❑ 0–Not observed ❑ 1–Observed to a *very* limited extent X 2–Observed to some extent ❑ 3–Observed to a high degree (characteristic of teacher)	Came in late, though teacher had told us later that she explained the goal of the day to students.
Is flexible and responds to students concerns as they arise (e.g., goes with the teachable moment)	❑ 0–Not observed ❑ 1–Observed to a *very* limited extent X 2–Observed to some extent ❑ 3–Observed to a high degree (characteristic of teacher)	Teacher asks them for words they don't know and explains.
Engages in direct teaching (e.g., when point is unclear, pattern or point needs to be highlighted, a generalization is in order)	❑ 0–Not observed ❑ 1–Observed to a *very* limited extent X 2–Observed to some extent ❑ 3–Observed to a high degree (characteristic of teacher)	Explains where, what, and why questions ask for certain information.
Provides a variety of activities that keep students involved and engaged	❑ 0–Not observed ❑ 1–Observed to a *very* limited extent ❑ 2–Observed to some extent X 3–Observed to a high degree (characteristic of teacher)	Had students work together on different activities, give presentations, etc.
Provides opportunity for practice	❑ 0–Not observed ❑ 1–Observed to a *very* limited extent X 2–Observed to some extent ❑ 3–Observed to a high degree (characteristic of teacher)	Question and answer about articles, practice reading articles.
Asks for open-ended responses	❑ 0–Not observed ❑ 1–Observed to a *very* limited extent X 2–Observed to some extent ❑ 3–Observed to a high degree (characteristic of teacher)	Asks for words they know/ don't know. Why are health posters important?
Supports authentic communication	❑ 0–Not observed ❑ 1–Observed to a *very* limited extent X 2–Observed to some extent ❑ 3–Observed to a high degree (characteristic of teacher)	Discuss what health posters are for, and their importance (prevention, etc)

B. USE OF INSTRUCTIONAL STRATEGIES

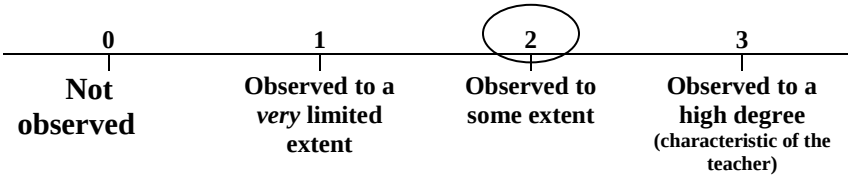
Instructional Strategies	Emphasis	Evidence from Observation
Links what is learned to life outside of the classroom	❑ 0–Not observed ❑ 1–Observed to a *very* limited extent ❑ 2–Observed to some extent X 3–Observed to a high degree (characteristic of teacher)	Lesson centers around health problems and illness prevention.
Brings "outside" into the classroom (e.g., through field trips; guest speakers, realia)	X 0–Not observed ❑ 1–Observed to a *very* limited extent ❑ 2–Observed to some extent ❑ 3–Observed to a high degree (characteristic of teacher)	
Provides opportunities to work together, do projects, jointly solve problems, read and write collaboratively	❑ 0–Not observed ❑ 1–Observed to a *very* limited extent X 2–Observed to some extent ❑ 3–Observed to a high degree (characteristic of teacher)	Class did two major group projects.
Provides feedback in class to students on their work and understanding of what is taught	❑ 0–Not observed ❑ 1–Observed to a *very* limited extent ❑ 2–Observed to some extent X 3–Observed to a high degree (characteristic of teacher)	Teacher spends a lot of time walking around class, checking work and helping students.

Rate the opportunities provided in class for the literacy learners to:

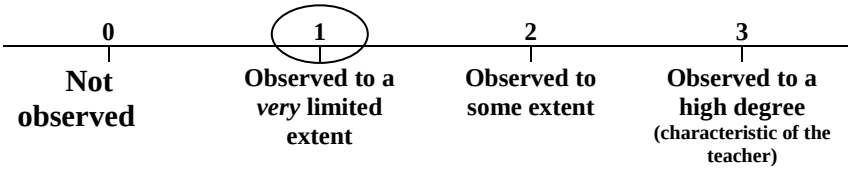
1. Contribute ideas based on their experience.



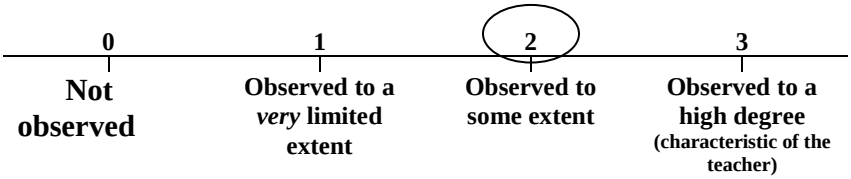
2. Learn with and from each other.



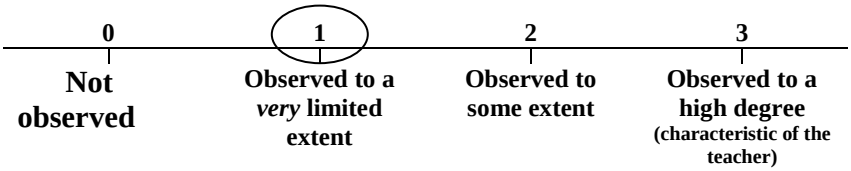
3. Make choices regarding content and ways they want to learn.



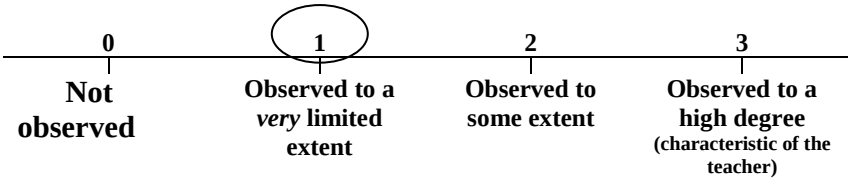
4. Think about a task and discuss it and how to approach it.



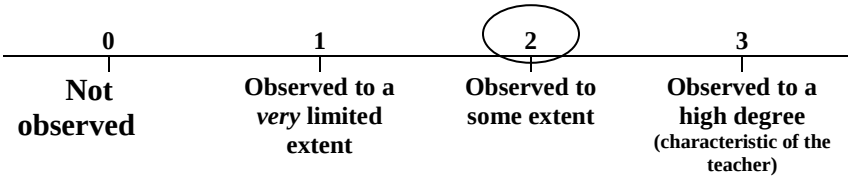
5. Spend sufficient time on a task to "get it".



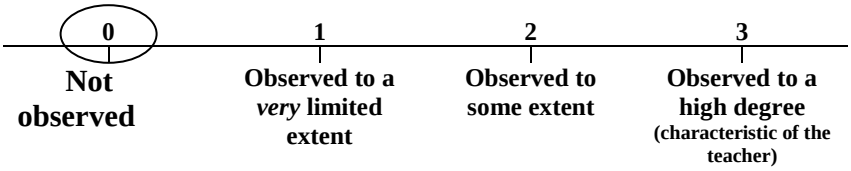
6. Express themselves (even if it means making mistakes) without being immediately corrected.



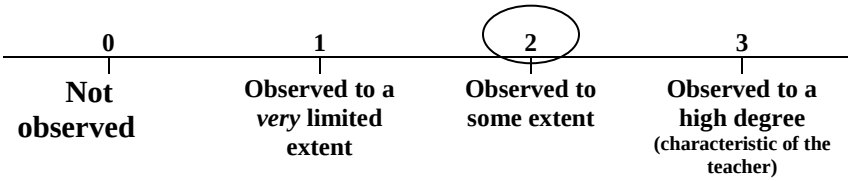
7. Be engaged in different types of literacy (e.g., textbook exercises, functional, songs, rhymes).



8. Make the connection between school type task and the challenges they face outside of the classroom.



9. Use multiple modes of learning (see it, hear it, do it, touch it, write and read about it).



Activity Summary Sheet

List each activity in order, using descriptive terms that explain process (e.g., "teacher asked students to label pictures"). Indicate whether it was primarily ESL acquisition or literacy, and the general category of the activity.

Activity	Primary Focus (ESL or Literacy)
1. Reading on cancer	Literacy
2. Answer Qs about articles	Literacy
3. Review words students know	ESL
4. Explanation	ESL
5. Sentence writing	Literacy
6. Read and present	Literacy
7. Discuss article	ESL
8. Poster instructions	ESL
9. Poster work	Literacy
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	
20.	

OBSERVATION NOTES

Class: Literacy (Health Class) **Observer:** Jane Smith
Site: American Dream School **Date:** March 10, 1999

Time	Observed Activities/Learning Events	Notes and Comments
9:15am	Teacher hands out copy of newspaper article of cancer, and instructs class to read it. As they're reading it, he wants them to circle 3 words they don't recognize and 10 words that they know. Teacher writes comprehension questions on board while they're working: 1. Where is Maria from? 2. How old is she? etc., 9 questions total	First in English, then clarifies in Spanish. Regular teacher also gives them instruction in Spanish.
9:34	Teacher asks class what the article is about, as well as the questions above.	
9:35	Then asks what words they know, and individuals give her their words. He writes them on the board and asks what they mean.	Ss write words down on their own except for one person who gets help from the regular literacy teacher.
9:38	Teacher asks questions about other words that were on their vocabulary list yesterday (related) – he probes them for words that they don't understand, and they tell him.	
9:43	Teacher breaks class into 3 groups and assigns them questions from the board (see above). He explains that questions beginning with Where are asking for a location, What asks for a thing, and Why asks for a reason (probes Ss for understanding). Then groups begin working on answering questions (9:47).	

Class: Literacy (Health Class) **Observer:** Jane Smith
Site: American Dream School **Date:** March 10, 1999

Time	Observed Activities/Learning Events	Notes and Comments
10:25	Each group gets up and reads their question and answer, first in English and then Spanish. Teacher asks class comprehension questions after each.	
10:32	Teacher asks class for their thoughts on the article, and what they think about the topic.	Regular teacher helps faltering groups.
10:33	Break	
10:58	Teacher explains that they are going to make posters. Asks Ss what to include (nutrition, breast cancer, etc.).	
11:01	Teacher asks, why make posters? Class gives suggestions, which teacher writes on board, turning spanish into english (prevention, education). He asks why each suggestion is important and what's important about it.	
11:06	Break into 3 new groups to make posters on 1) nutrition, 2) cervical cancer, 3) breast cancer. Students get poster board, markers, and some handouts to get ideas from.	
11:37	Class ends, they will finish next time.	Teachers go around asking groups questions about their poster.

D. CLASSIFICATION OF INSTRUCTIONAL ACTIVITIES

Instructional Activity Coding Form

Page number 1 of 2

Site American Dream School
Teacher John Doe
Observer Jane Smith

Class Name Literacy (Health)
Date and Time observed March 10, 1999, 9:35 am - 11:30 am
Special Focus

Time	Activity #- Name	Codes	Application	Grouping	Materials	Additional Student Support for Literacy	Literacy Student Involvement*
19	1 - Reading on cancer	major emphasis: D1 secondary emphasis: other emphasis:	J	X Whole class ❑ Small groups ❑ Student pairs ❑ Individually	18	❑ Aide or volunteer assisting ❑ Teacher assisting ❑ Student assisting X No assistance	X All involved ❑ Most involved ❑ Some involved ❑ No one involved
2	2 - Answer questions about article	major emphasis: D8 secondary emphasis: D12, D13 other emphasis:	B	X Whole class ❑ Small groups ❑ Student pairs ❑ Individually	18	❑ Aide or volunteer assisting ❑ Teacher assisting ❑ Student assisting X No assistance	❑ All involved X Most involved ❑ Some involved ❑ No one involved
8	3 - Review words they know	major emphasis: M2 secondary emphasis: Q1 other emphasis:	B	X Whole class ❑ Small groups ❑ Student pairs ❑ Individually	18	❑ Aide or volunteer assisting ❑ Teacher assisting ❑ Student assisting X No assistance	X All involved ❑ Most involved ❑ Some involved ❑ No one involved
4	4 - Explanation	major emphasis: L2 secondary emphasis: other emphasis:		X Whole class ❑ Small groups ❑ Student pairs ❑ Individually	18	❑ Aide or volunteer assisting ❑ Teacher assisting ❑ Student assisting X No assistance	❑ All involved X Most involved ❑ Some involved ❑ No one involved
40	5 - Sentence writing	major emphasis: H3 secondary emphasis: D13 other emphasis:	B	❑ Whole class X Small groups ❑ Student pairs ❑ Individually	18	☐ Aide or volunteer assisting X Teacher assisting ❑ Student assisting ❑ No assistance	X All involved ❑ Most involved ❑ Some involved ❑ No one involved

Instructional Activity Coding Form

Page number 2 of 2

Site American Dream School
Teacher Jane Smith
Observer Larry Condelli
Special Focus _____

Class Name Literacy (Health)
Date and Time observed March 10, 1999, 9:35 am - 11:30 am

Time	Activity #- Name	Codes	Application	Grouping	Materials	Additional Student Support for Literacy	Literacy Student Involvement*
11	6 - Read and present	major emphasis: C7 secondary emphasis: J5 other emphasis: M2, K5	A	X Whole class ❑ Small groups ❑ Student pairs ❑ Individually	18	❑ Aide or volunteer assisting X Teacher assisting ❑ Student assisting ❑ No assistance	❑ All involved X Most involved ❑ Some involved ❑ No one involved
1	7 - Discuss article	major emphasis: K3 secondary emphasis: other emphasis:	B	X Whole class ❑ Small groups ❑ Student pairs ❑ Individually	18	❑ Aide or volunteer assisting X Teacher assisting ❑ Student assisting ❑ No assistance	❑ All involved X Most involved ❑ Some involved ❑ No one involved
8	8 - Poster instructions	major emphasis: K2 secondary emphasis: D10, D13 other emphasis:	B	X Whole class ❑ Small groups ❑ Student pairs ❑ Individually	18	❑ Aide or volunteer assisting X Teacher assisting ❑ Student assisting ❑ No assistance	❑ All involved X Most involved ❑ Some involved ❑ No one involved
8	9 - Poster work	major emphasis: H8 Secondary emphasis: D6 other emphasis:	K	❑ Whole class X Small groups ❑ Student pairs ❑ Individually	5	X Aide or volunteer assisting X Teacher assisting ❑ Student assisting ❑ No assistance	X All involved ❑ Most involved ❑ Some involved ❑ No one involved
		major emphasis: secondary emphasis: other emphasis:		❑ Whole class ❑ Small groups ❑ Student pairs ❑ Individually		❑ Aide or volunteer assisting ❑ Teacher assisting ❑ Student assisting ❑ No assistance	❑ All involved ❑ Most involved ❑ Some involved ❑ No one involved

*To be completed only in mixed literacy/beginning ESL classes.

Literacy Development Codes

	Literacy Development		Activity
A	Print Awareness and Directionality	**1**	Telling English print from other kinds of print
		2	Talking about reading and writing
		3	Left to right eye movement (directionality) and up-down
		4	orientation in reading
		5	Left to right hand movement in writing
		6	Becoming aware of paper direction
B	Reading—Recognition and Fluency Development	**1**	Working with environmental print
		2	Recognizing individual letters and learning the names of
		3	letters in English
		4	Practicing the alphabet in sequence
		5	Recognizing numbers in print
		6	Practicing phonics, sound-symbol relationships (phonemic
		7	awareness)
		8	Recognizing similarities in words that look the same
		9	Recognizing word boundaries
		10	Identifying familiar words in print
C	Reading—Reinforcement	**1**	Reading as a group (choral or echo reading)
		2	Reading aloud individually or listening to others and reading
		3	along
		4	Reading for intonation
		5	Reading from the board
		6	Practicing through supported reading
		7	Re-reading known texts and reading predictable texts
		8	Reading own writing
		9	Matching words to pictures or realia
D	Reading—Comprehension Skills & Meaning Making	**1**	*Reading for meaning (silent)*
		2	Reading to categorize
		3	Predicting what text is about
		4	Using "context cues" to guess meanings of words
		5	Identifying key words and concepts in text
		6	Skimming or scanning to find a word or extract information
		7	Guessing the end of stories or sentences
		8	Reading and responding to questions
		9	Seeing relationships between ideas through "connecting words"
		10	Using background knowledge to make meaning
		11	Free reading (Learners pick up book or magazine and read on their own)
		12	Identifying/discussing the general meaning (topic or function) of a text
		13	Extracting specific information from a text through questions or discussion
		14	Discussing what has been read (no special focus)

Literacy Development Codes

	Literacy Development		Activity
E	Writing—Fluency Development	**1**	Practicing using a pen, pencil, or chalk
		2	Experimenting with writing (scribbling)
		3	Practicing letter formation
		4	Practicing number formation
		5	Copying words or letters to practice writing
F	Writing Subskills	**1**	Practicing and learning capitalization and punctuation
		2	Learning and practicing standard spelling
		3	Using phonemic knowledge to try to spell (inventive spelling)
G	Writing to Practice	**1**	Writing sentences or dialogues based on a pattern
		2	Copying sentences or text from a book or the board
		3	Copying own writing to practice (language experience story)
H	Composing—Guided Writing	**1**	Filling in blanks in sentences
		2	Finishing sentences
		3	Creating sentences
		4	Sequencing sentences
		5	Connecting sentences
		6	Creating the ending to a story
		7	Writing an account following prompts
		8	Writing labels, captions and headings
		9	Sequencing pictures, word strips to tell a story
		10	Creating and organizing a story orally
		11	Editing own writing or writing of others
I	Writing—Free Writing/Expression	**1**	Writing to prompt or picture
		2	Writing own ideas (sentences, word lists)
		3	Personal story writing
		4	Creative writing (rhymes, poetry, story)
		5	Engaging in the writing process
		6	Discussing own writing or writing of others
		7	Free writing (in journal, etc.)

ESL Acquisition Codes

	ESL Acquisition		Activity
J	Oral Communication Skills—Listening	**1**	Listening and repeating sentences, phrases, and dialogues
		2	Listening to focus on pronunciation
		3	Listening and responding nonverbally (e.g., TPR, Bingo games)
		4	Repeated listening to gain meaning
		5	Guided Listening (e.g., Listening and answering comprehension questions)
		6	Using listening strategies
K	Oral Communication Skills—Speaking	**1**	Practicing communication skills with structured language
		2	(repetition)
		3	Practicing communication with guided structure (some open-
		4	ended phrases)
		5	Practicing open-ended communication (conversation)
		6	Spontaneous exchange of information (conversation, discussion)
		7	Practicing pronunciation (distinguishing sounds; saying different
		8	sounds)
		9	Practicing stress, tone and rhythm (single items)
		10	Practicing stress, tone and rhythm (sentences or texts, such as rhymes)
		11	Using strategies that promote clear speech (comprehensibility)
L	Understanding How English Works (syntax and morphology)	**1**	Working with grammar patterns (oral)
		2	Hearing explanations of grammar
		3	Writing sentences focused on grammar patterns
		4	Completing grammar exercises
		5	Editing sentences focusing on grammar
		6	Studying word parts (prefixes, suffices, endings, etc.)
		7	Studying parts of speech (verbs, nouns, adjectives)
		8	Using problem solving to discover rules and patterns (e.g., "task-based" grammar)
M	Vocabulary and Idioms	**1**	Learning words unrelated in meaning or context
		2	Learning words that arise out of a particular context
		3	Learning words that are related (decide; decision; decisive)
		4	Learning idioms
N	Learning the Language of Math	**1**	Learning the names of numbers
		2	Learning the names of calculations and operations
		3	Learning how to say number sets
O	Language Functions	**1**	Routine exchanges
		2	Dealing with problems
		3	Negotiating a group discussion
		4	Speaking up (for oneself or others)
P	Socio-Cultural Knowledge	**1**	Learning cultural facts
		2	Acquiring background knowledge of life skills
		3	Learning how to navigate systems
		4	Learning about community resources
		5	Learning about rights and responsibilities as a citizen (civics)
		6	Learning social appropriateness in language and communication
		7	Making cross-cultural comparisons
Q	Connecting Spoken and Written Word	**1**	Learning new words, phrases, and sentences by hearing, seeing in print, and/or copying (use with other codes)
		2	Writing dictation (words, phrases, sentences) or writing answers to spoken questions

	Functional Reading, Writing, and Math		Activity
R	Text based	**1** **2** **3** **4** **5** **6**	Interpreting and filling out forms Interpreting labels Reading notices and flyers Reading letters (e.g., from children's school) Writing messages Reading or writing lists and menus
S	Alphabet based	**1** **2** **3**	Looking up names or services in the phone book Looking up words in a dictionary Creating a personal dictionary (alphabetized)
T	Graphic literacy	**1** **2**	Working with maps Interpreting charts, graphs, or schedules
U	Working with numbers and math	**1** **2** **3** **4** **5** **6** **7**	Working with money Estimating quantities (i.e., how much something might cost or how far it is) Adding costs (bills, etc.) Calculating a discount or mark up (50% off) Measuring Working with dates, calendars, time Learning cardinal and ordinal numbers

	Connecting the Native Language and English		Activity
V	Connecting the Native Language and English	**1** **2** **3** **4** **5** **6**	Connecting words in English with words in the native language Translating phrases and sentences into the native language Listening to directions or explanations in the native language Using the native language to ask questions Using the native language to discuss a task (group of learners among themselves) Translating a text (from English to native language or vice versa) as a task

Context and Application of Skills	Activity Description
A Literacy, Language or Vocabulary Practice (controlled)	Learners practice patterns (grammar or word patterns) or fixed expressions (orally or in writing), recite dialogues; etc.
B Literacy, Language or Vocabulary Practice (guided)	Learners practice patterns but exercises are partially open-ended, although most of the structures are given.
C *Communication and Exchange of information (non-scripted)*	Learners share ideas with each other and the teacher (or guests) through open-ended, non-scripted conversation or discussion.
D Problem Solving (tasks, etc.)	Learners are engaged in problem solving activities that require some higher order thinking skills.
E Problem Posing	Learners generate problems or questions, based on personal experience. Other learners respond or brainstorm ideas.
F Critical Literacy	Learners are engaged in evaluating what they hear and write.
G Strategic Competence	Learners discover and use strategies that make communication (expression and understanding) possible, in spite of limited language and literacy skills. (E.g., text processing strategies for reading and writing; communication strategies for listening and speaking; self-assessment of understanding)
H Learning How to Learn	Learners discover and use techniques that allow them to become independent learners
I Goal Setting	Learners engage in a variety of activities designed to state their goals, express topic preferences, or select skills they want to work on.
J Assessment	Learners engage in activities designed to capture or demonstrate what has been learned or what they find difficult or hard to learn
K Collaboration and Project Work	Learners work as a team to produce a product
L Life Skills Themes	Learners focus on the kind of English needed for basic life skills; learners discuss issues of interest to their lives

Special Class Focus Codes

Specific Functional Context
1 Citizenship Preparation (preparing for the U.S. citizenship exam)
2 Workplace literacy
3 Training (language needed to succeed in training or vocational classes)
4 Health (language needed to understand and discuss specific health issues)
5 Home buying (e.g., Fannie Mae)
Other specific functional contexts

LITERARY PRACTICES INTERVIEW SCALES

Section B: Literacy Practices and Habits

Ask B.2 for each item read in B.1.

	B.1 I would like to ask you about different kinds of things you might read either in English or in your native language. You might read things for your own use or at your job. How often do you read (item below)? Would you say about every day, a few times a week, once a week, less often than once a week or never?					B.2 Do you normally read *(item)* in English? Would you say always read *(item)* in English, usually read in English, sometimes read in English or never read *(item)* in English?			
	Every Day	**Few Times Week**	**Once Week**	**Less Than Once A Week**	**Never**	**English Always**	**English Usually**	**English Sometimes**	**English Never**
a. Newspapers	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
b. Magazines	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
c. Books	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
d. Manuals or instructions	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
e. Dictionaries, phone books, directions or recipes	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
f. Labels	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
g. Maps, charts or diagrams	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
h. Billboards on the road	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
i. Letters	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
j. Menus	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
k. Bus or train schedules	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
l. Print advertisements in newspapers or mail	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
m. E-mail	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
n. Web pages	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
o. Anything else? (Specify)	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔

If “Never” to all, go to B.5.

B.3 How difficult is it for you to read in English? When you read (*item*) would you say it is very difficult to read, somewhat difficult to read, a little difficult to read, or not at all difficult to read in English?

	Very Difficult	Somewhat Difficult	A Little Difficult	Not Difficult
a. Newspapers	¬	∧	∨	⇔
b. Magazines	¬	∧	∨	⇔
c. Books	¬	∧	∨	⇔
d. Reports or articles	¬	∧	∨	⇔
e. Manuals, reference books	¬	∧	∨	⇔
f. Instructions, directions or recipes	¬	∧	∨	⇔
g. Labels	¬	∧	∨	⇔
h. Maps, charts or diagrams	¬	∧	∨	⇔
i. Letters	¬	∧	∨	⇔
j. Menus	¬	∧	∨	⇔
k. Bus or train schedules	¬	∧	∨	⇔
l. Phone books	¬	∧	∨	⇔
m. Print advertisements in newspapers or mail	¬	∧	∨	⇔
n. E-mail	¬	∧	∨	⇔
o. Web pages	¬	∧	∨	⇔
p. Other (Specify)	¬	∧	∨	⇔

B.4 In general, how much help do you usually have to get from friends or family members to read in English? Do you have to get a lot of help, some help, a little help or no help to read in English?

1. A lot of help
2. Some help
3. A little help
4. No help

Ask B.6 for each item written in B.5.

	B.5 Now I'd like to find out whether you write or fill out things in English or your native language. You might write these things for your own use or on the job. How often do you write (*item below*)? Would you say you write (*item*) about every day, a few times a week, once a week, less often than once a week or never?					B.6 Do you normally write (*item*) in English? Would you say you always write (*item*) in English, usually write in English, sometimes write in English or rarely or never write (*item*) in English?			
	Every Day	**Few Times Week**	**Once Week**	**Less than once a week**	**Never**	**English Always**	**English Usually**	**English Sometimes**	**English Never**
a. A sentence or two about something	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
b. Letters	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
c. Things like bills, invoices or checks	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
d. Instructions or directions	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
e. E-mail	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
f. Forms, like at the doctor's office or for your children's school	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
g. Short messages or notes	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
h. A paragraph or short story about yourself or someone else	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔
i. Anything else? (Specify)	¬	∧	∨	⇔	⇐	¬	∧	∨	⇔

If all "Never" write in English, go to B.9. Ask B.7 for each item written in English.

B.7 How difficult is it for you to write in English? When you write (*item*) would you say it is very difficult to write, somewhat difficult to write, a little difficult to write, or not at all difficult to write in English?

	Very Difficult	**Somewhat Difficult**	**A Little Difficult**	**Not Difficult**
a. A sentence or two about something	¬	∧	∨	⇔
b. Letters	¬	∧	∨	⇔
c. Things like bills, invoices or checks	¬	∧	∨	⇔
d. Instructions or directions	¬	∧	∨	⇔
e. E-mail	¬	∧	∨	⇔
f. Forms, like at the doctor's office or for your children's school	¬	∧	∨	⇔
g. Short messages or notes	¬	∧	∨	⇔
h. A paragraph or short story about yourself or someone else	¬	∧	∨	⇔

i. Anything else? (Specify)	¬	∧	∨	⇔

B.8 In general, how much help do you usually have to get from friends or family members to write in English? Do you have to get a lot of help, some help, a little help or no help to write in English?

5. A lot of help
6. Some help
7. A little help
8. No help

B.9 Now I'd like to ask you about how difficult it is for you to understand English when you hear it spoken. How difficult is it for you to (*item*) in English? Would you say it is very difficult, somewhat difficult, a little difficult, or not at all difficult to (*item*) in English?

	Very Difficult	Somewhat Difficult	A little Difficult	Not Difficult
a. Listen to people talking to each other	¬	∧	∨	⇔
b. Understand people having a conversation with you	¬	∧	∨	⇔
c. Understand people when they are explaining things to you or asking you questions	¬	∧	∨	⇔
d. (**If employed**) Understanding people who speak to you on your job	¬	∧	∨	⇔

B.10 Next, could you tell me whether you listen to the radio and watch TV or movies and if you do this in English or your native language? Do you (item)? For each item watched/listen: Do you always (*item*) in English, usually (*item*) in English, sometimes (*item*) in English or rarely or never (*item*) in English?

	Do Not Do	English Always	English Usually	English Sometimes	English Never
a. Listen to the radio	¬	∧	∨	⇔	⇐
b. Watch TV	¬	∧	∨	⇔	⇐
c. Watch videos	¬	∧	∨	⇔	⇐
d. Watch movies in a theater	¬	∧	∨	⇔	⇐

If "Do Not Do" or "Never" in English to all, go to B.12.
Ask B.11 for each item listened/watched in English.

B.11 How difficult is it for you to (*item*) in English? Would you say it is very difficult, somewhat difficult, a little difficult, or not at all difficult to (*item*) in English?

	Very Difficult	Somewhat Difficult	A little Difficult	Not Difficult
a. Listen to the radio	¬	∧	∨	⇔
b. Watch TV	¬	∧	∨	⇔
c. Watch videos	¬	∧	∨	⇔
d. Watch movies in a theater	¬	∧	∨	⇔

B.12 Now I am going to list some things that you might do to help you learn English. You may not do these things at all or you may do them often or only once in while. For each, I'd like to know if you always or usually do it, sometimes do it, rarely do it or never do it at all. Do you (*item*)? For each item done: Do you always or usually (*item*), sometimes (*item*), or rarely or never (*item*)?

	Do Not Do	Rarely	Sometimes	Always or Usually
a. Write down words you don't know to ask or look up later	¬	∧	∨	⇔
b. Ask what words mean in conversation	¬	∧	∨	⇔
c. Look up words in the dictionary	¬	∧	∨	⇔
d. Ask your teacher or other staff for help outside of class	¬	∧	∨	⇔
e. Ask English speakers to help you communicate or solve problems	¬	∧	∨	⇔
f. Do homework from your class	¬	∧	∨	⇔
g. Study English on your own other than for class	¬	∧	∨	⇔