

The *What Works Study*: Instruction, Literacy and Language Learning for Adult ESL Literacy Students

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The focus of the *What Works Study* is on adult ESL *literacy* students—ESL learners who lack basic literacy skills and have minimal proficiency in English. These learners face the dual challenge of developing basic skills, decoding, comprehending and producing print. Until the last quarter century, schools and resettlement agencies designed ESL classes on the assumption that adult students had the basic education and literacy skills to learn another language (Van de Craats, Kurvers & Young-Scholten, 2006). A wave of immigrants that arrived beginning in the late 1970s challenged this assumption, as these new immigrants did not have the strong educational experiences upon which literacy is built. Without the basic text processing skills that allow them to follow text that appeared in class and in textbooks, these students became frustrated, overwhelmed and had a high drop out rate, due to their inability to catch up the missing literacy skills and keep up with the more literate students in the class (Wrigley & Guth, 1992). Recent trends indicate that the number of new immigrants to the U.S. who have very low levels of literacy is continuing to increase (Fix, Passel and Sucher, 2003).

The *What Works Study* is the first large, national study to examine these students: who they are, their instructional experiences and what they learn. 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, by addressing the following questions:

- Who are adult ESL literacy students? What are their English literacy and language abilities?
- What types 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 and how do these relationships vary by students' initial literacy level, native language, age or other characteristics?
- What are the attendance and persistence patterns of adult ESL literacy students and what instructional factors affect persistence?

The study was to suggest changes in program design, resources and instruction that are needed to improve instruction to, and literacy and language development of, adult ESL literacy students.¹

Conceptual Framework

Teaching ESL Literacy requires 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 *literacy* or reading and writing skills necessary to process print and gain meaning from the written word. Cognizant of the importance of these key components in teaching and learning, we based our approach to the study on the literature in second language learning, theories of adult learning, studies in cognition, and research in reading. When we began the study, very few studies existed that systematically explored the intersection of literacy development and language learning in students who were non-literate or only marginally literate in their native language. Since there was no direct research upon which to build our study, the conceptual framework we created had to be based on implications from related research.

To guide our efforts, we built on a set of principles, originally developed as part of the national Cyberstep Project (Wrigley, H.S. 2001), outlining what it takes for adults to learn. We wed these principles to research in basic reading and created a framework that looked at key

components needed to enable students to learn to read and write for the first time in English. These components included reading as meaning-making, reading for practice, and activities related to oral fluency, grammatical accuracy, and vocabulary development. We also included strategies likely to improve literacy development, such as connecting prior information with new information and focusing on both global meaning and details, and sub skills related to phonemic awareness, decoding, and pronunciation.

There is very little research on outcomes related to adult literacy students and almost no such research on adult ESL literacy students, to inform development of a growth model. However, the broader research on adult second language acquisition suggests that the following could affect English language learning and literacy development of our students:

- **English oral language** ability could influence second language reading development (Alderson, 1984; Carrell 1991; Bernhard and Kamil, 1995);
- **Literacy in context** – use of language in rich contexts in instruction (such as connection to real-world tasks and materials) promotes second language learning (Bransford, *et al.*, 2000; Brown, *et al.*, 1996; Greeno and Resnick *et al.*, 1996; Purcell-Gates, *et al.*, 2002);
- **Native language support** – literacy in the native language promotes second language development (Ramirez, Yuen and Ramey, 1991; Slavin and Cheung, 2003; Thomas and Collier, 2002).²

Methodology of the Study

We collected data over a two year period in 38 classes from 13 adult ESL programs in seven states (Arizona, California, Illinois, Minnesota, New York, Texas and Washington), and we had a final sample size of 495 students. The sample included two cohorts of students who were followed from the time of entry into class for nine months. Data collectors assessed students at entry (initial assessment), approximately three months after enrollment (second assessment) and about nine months after enrollment (final assessment), regardless of how long

the student remained enrolled. Data collectors also observed each class an average of nine times over the data collection period and coded instructional activities.

Site and Student Selection

When identified ESL literacy students as those who had 3 years of schooling or fewer and selected a sample of candidate sites (over 25 in all) chosen from a mail survey. We recruited 558 students, of which 58 left classes less than four weeks after recruitment, the minimum time we required for inclusion in the study, leaving 500 eligible students in the sample. Data for five students were incomplete or inaccurate, giving us a final study sample of 495.

Longitudinal Issues: Maintaining Contact with Students

Although the study had a nine month follow-up period, we did not expect learners to remain in class more than three or four months. The nine month follow-up assessment, however, allowed us to take a longitudinal look at student learning after instruction ended. The extra time also provided an opportunity to look at student attendance and retention in adult ESL classes.

We knew that keeping track of adult ESL students for even a relatively short time would be a challenge. Our main strategy for tracking students was to use individuals from the community as our local field staff. These “study liaisons” lived in the communities of each local adult school in the study and most were former adult ESL teachers. They knew the issues and concerns facing students in the program and were experienced in working with the study population. In Latino communities in the study, all liaisons were English-Spanish bilingual and one had been a student in the school where the study was being conducted.

The study liaisons recruited students into the study, observed classes and had ongoing, direct contact with each student in the study. They collected extensive contact information on

each student, stressed the importance of remaining in touch for the study and encouraged students to inform them of planned leaves or absences. If students failed to attend class, liaisons would try to locate them, either directly or by asking other students in the class or the community to assist in locating them. Through this personal relationship between student and liaison, we hoped to minimize study attrition.

Measuring Instruction: Classroom Observations

. Guided by our conceptual framework and our observations of over 75 classes, we outlined the learning tasks and teaching strategies associated with both literacy development and second language development and created codes that described the components of learning and instruction associated with each.

We quantified instructional activities (using percent of observed time on the activity) as well as observer ratings of teachers' use of instructional strategies, with four point Likert scales. We created two categories of measures: *instructional emphasis* measures, which describe the content of the instruction in terms of the language or literacy focus and *instructional strategies*, the activities teachers used to organize and teach the lesson.

While these strategies and emphases 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 combinations of them over time or within a single class session. The following instructional variables were used in the analyses.

Instructional Emphasis Variables

- **Literacy development emphasis**—Main focus on reading and writing development.
- **ESL acquisition emphasis**—Main focus on, fundamentals of English (how English works)

- **Functional skills emphasis**—Main focus on functional literacy (e.g., interpreting forms, labels, using money, maps).
- **Basic literacy skills emphasis**—Main focus on print awareness, fluency and basic reading skills.
- **Reading comprehension emphasis**—Main focus on comprehension strategies.
- **Writing emphasis**—Main focus on writing fluency, writing practice.
- **Oral communication emphasis**—Main focus on speaking and listening practice.

Instructional Strategies Variables

- **Varied practice and interaction**—teachers provide students with opportunities to learn in a variety of ways and modalities (e.g., speaking, reading, writing) and by having students interact with each other.
- **Open communication**—teachers are flexible and respond to students’ concerns as they arise; ask for open-ended responses; support authentic communication.
- **Connection to the “outside”**—teachers link what is being learned to life outside classroom and bring the “outside” into the class through use of field trips, speakers, and real-life materials.

Another instructional strategy we coded was the teacher’s use of students’ native language in instruction. We constructed a scale of the use of this instructional strategy by first conducting a factor analysis of the four measures we used of how native language use was incorporated into classes: to explain concepts, give directions, for students to ask questions and to do written assignments. The analysis identified only one factor, which incorporated all of the measures. 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). We then averaged the scores across observations.

To ensure reliability, we trained observers extensively and reviewed coding of all observations. The framework and the resulting observation instrument not only helped to guide

the study, but also served as a blue print of sorts to the kind of teaching and learning that make up adult ESL literacy.

Measuring Student Learning: Outcome Measures

Assessment in adult ESL requires measurement of skills in two domains: English language proficiency and literacy ability. Knowledge of English is interwoven with the ability to process print. To assess students' knowledge of English, regardless of their ability to read and write, we needed assessments that measured speaking and listening and did not require reading instructions or other literacy-based skills, to respond. Conversely, to find out if students could complete literacy tasks, we had to make sure that they understood the instructions. To that end, we gave instructions to each task in English and the native language.

To capture these complexities, we used a multi-dimensional, multi-method approach to assessment with a battery of standardized and non-standardized tests that included:

- The Woodcock-Johnson Basic Reading Skills Cluster (WJBRSC) and Reading Comprehension Cluster (WJRCC), which measured basic reading and comprehension abilities;
- The oral Basic English Skills Test (BEST), measured English speaking and listening; and
- Adult Language Assessment Scales Writing Assessment (A-LASW) measured writing ability.

The study also included an interview about student literacy practices in both English and the native language and a reading demonstration task, which measured student English fluency and comprehension through reading of authentic materials. Each assessment was conducted individually. Instructions were translated and the literacy practices interview was conducted entirely in the native language. .

Student Attendance Measures

Students enrolled in adult basic literacy and ESL classes typically attend for relatively brief periods of time. 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, Wrigley & Ewen, 1993) which may cause them to drop out of class. However, students may also leave for positive reasons, such as meeting their educational goals and some may “stop out” and return to the class at a later time (Quigley, 1996; Comings, Cuban, Bos & Porter, 2003). Many adult educators fear this brief attendance prevents students for achieving significant improvements in their literacy skills.

We studied student attendance patterns through the following measures:

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

Each measure of attendance provides us with different information about student attendance patterns.

Descriptive Findings

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. Of those 102 students, 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.

The study attrition for the third assessment was quite high, due primarily to the loss of students during the summer months in the first year of the study. While we tried to begin the study in the fall each year, during the first year some sites did not begin data collection until the winter and in those sites, the third assessment period was in the fall. Over the summer, many students left the area and liaisons lost contact with students. During the second year of the study when the final assessments were completed by June, the retention was over 70 percent.³

The average age of students in the study was 40; they were 72% female and had an average of 3.1 years of schooling in their home country. Table 1 summarizes the characteristics of students in the study.

Put Table 1 about here

Students in the study attended an average of about 16 weeks and 128 total hours and attended about two-thirds of possible time (rate of 0.64). This rate had very little variability and further analysis revealed that type of instruction and scheduled class time had no significant effect on rate of attendance. These findings suggest that students devote a set proportion of their time to attend class, which appears to be difficult to change through schedules, class content 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 by students to devote only a certain amount of time to class attendance.⁴

Literacy and Language Skills

The students in the study were indeed very low literate and had minimal oral language skills in English, as measured by the standardized assessments. According to the WJBRSC subtests, students started at an average of about a 1.5 grade level and improved to second grade

level at the final assessment. Students' reading comprehension scores as measured by the subtests were also very low and changed little over the study period, remaining at just about the first grade level. According to the BEST Oral English assessment, students had very little oral English ability, with almost 70 percent of them initially at SPL II or lower. In contrast to literacy skills, however, BEST scores improved dramatically over the study period, with only about 40 percent of students at these levels and increased percentages at higher SPLs at the final assessment.

The ALAS Writing Test (ALAS-W) presented a challenge for students. Most students were able to write few, if any, English words and most words were simple nouns and pronouns. It was not uncommon for students to write partially or even exclusively in their native languages or to return blank test forms. By the final assessment, the average scores on both subtests increased little and the increase was not statistically significant.

Statistical Modeling of Growth of Literacy and Language Skills

The study examined the relationship of instructional content, instructional strategies, attendance, student characteristics, teacher characteristics and class variables on student outcomes using a latent growth modeling within a hierarchical linear model (HLM) framework (Bryk and Raudenbush, 1992). The latent growth modeling technique is designed to capture the underlying growth that takes places over time by using each individual student's data 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 *linear* and *quadratic* (or non-linear) rates and direction of change. The parameters allow prediction of 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, how fast they grew on the measures over the course of their class participation and estimate continued growth. We can also relate this growth to specific variables in the model to predict which ones correlate with faster (or slower) growth.

Variables Used in the Model

The conduct of latent growth modeling requires identification of predictor variables and a model of how the predictors relate to an outcome measure within the different levels of analysis. The researcher must identify the predictor variables and model through theory, prior research and the statistical nature of the data collected.

We first conducted preliminary analyses on student, class, teacher and instructional variables that we believed would influence language learning and based on these analyses, dropped variables due to lack of variance on measures, to avoid redundant predictors and to achieve a parsimonious model.⁵

Figure 1 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. The student background, attendance and outcomes variables are student-level measures and the remaining variables are class-level measures. Not all the measures in Figure 1 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.⁶

Figure 1 about here

Variables Related to Growth in Basic Reading Skills (WJBRSC)

Table 2 shows the results of the HLM modeling on the WJBRSC, which assessed students' basic reading skills, including letter-word identification and knowledge of phonics.⁷ 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. Even though younger students started lower on this measure (as revealed by preliminary analysis), they made up for their initial disadvantage in basic reading skills by learning faster.

Table 2 about here

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. However, students' years of formal schooling in the home country became less important over time, as indicated by the negative quadratic growth coefficient. 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 related with the linear growth in basic reading skills (with marginal statistical significance). This finding may indicate that some proficiency in oral English language skills may work to assist learning of basic reading skills.

The only class-level 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.

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. The analyses suggest that that all else being equal, the use of the connection to the outside strategy results in an increase in basic skills development over time.

Variables Related to Growth in Basic Reading Comprehension (WJRCC)

The latent growth modeling analysis for the reading comprehension measure, the WJRCC), showed an average steady linear growth over time of about 1.2 points per month. We examined within the model the relationship of students' basic reading skills at entry in class on growth in reading comprehension. The results of the analysis, shown in Table 3, 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 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.

Table 3 about here

The model identified the rate of attendance (proportion of hours 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, which was significant even after controlling for the total attendance

time in hours. 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.

The use of a native language in class, a measure of how teachers used the students' native language for clarification during instruction, 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. This relationship was quite strong: 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.

Variables Related to Growth in Oral English Language Development (BEST)

The growth curve model for ESL literacy students' oral language skills measured by the BEST test showed that there was significant linear growth and a significant quadratic trend, meaning the linear trend 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 showed it would take the next six months to achieve the same amount of gain. The results of the growth curve modeling presented in Table 4 show that many student, class attendance and measures of instructional strategies were significantly related to linear growth in development of oral English communication skills.

Table 4 about here

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.

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 hours, 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.

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 students in classes where this type of instruction was provided less often.⁸ The use of native language as instructional support also helped students learn oral English faster, as did increased use of the varied practice and interaction strategy.

We illustrate the growth curve model predictions for oral English language development in Figure 2, using 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 curvilinear relationship is clearly evident, as are the relative effect of the two instructional emphases and the combined effect when both strategies are used.

Figure 2 about here

Summary and Discussion of Main Findings

The *What Works* study was successful in achieving its main goal of relating instructional strategies to student learning. Through the growth modeling approach, 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 growth in student literacy and language learning. Table 5 summarizes the main findings related to instruction and program practices. These instructional strategies encompass a range of teaching activities, which we discuss below, along with an interpretation of why these strategies were effective. We conclude with a summary of findings related to student variables and suggestions for further research, including conducting longitudinal research.

Table 5 about here

Connection to the Outside: Using Materials from Everyday Life

Connecting literacy teaching to every day life made a significant difference in reading basic skills development. To implement this strategy, teachers used materials from daily life that contained information that students wanted to know about or with which they had some

experience. For example, a teacher might bring in grocery flyers from different stores and ask students to compare prices or use phone and electricity bills, letters from schools or immigration authorities, and other items that highlight literacy for adult contexts. 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. Work by Purcell-Gates and her colleagues has also demonstrated positive effects for using authentic materials in instruction (Purcell-Gates, *et al.*, 2002).

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.

Use of Students' Native Language for Clarification

In classes where teachers used the native language as part of instruction to clarify and explain, students exhibited faster growth in both reading comprehension and oral communication skills.⁹ Since the directions for a language and literacy task are sometimes 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.

Another reason why using both English and the native language in the classroom was effective may be that many of the learners, 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 possibly subject to ridicule. They may have lost 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.

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 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

The reason for the relationship of varied practice and interaction to oral language learning 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. Communication requires a good sense of what is appropriate in any given situation, a sense of socio-linguistic competence.

While it is possible to learn English on one’s own and slowly sort out the intricacies of the language, the process is 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. This strategy is fundamental to direct teaching and explicitly literacy instructional approaches, for example (Brown & Pressley, *et al.*, 1996; Carell, 1985). However, while there is 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 academic terminology can frustrate both students and teachers. Setting time aside, however, to demonstrate to students how English works by highlighting patterns and to practice language in meaningful ways appears to pay off in terms of increasing oral proficiency.

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. This find is consistent with the general research on the relationship of educational training in basic literacy to learning basic reading skills in a second language the subsequent learning level and second language literacy development (Young-Scholten and Strom, 2006).

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 WJRBR 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. We cannot state from this research whether this finding is due to a cognitive advantage of age or higher motivation of younger to learn English 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 (see Condelli, et al, 2003).¹⁰

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 most had Bachelor or Master's degrees, 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.

Suggestions for Further Research

Because the *What Works Study* did not employ experimental manipulation or a randomized design, 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 will *cause* these students’ basic reading skills to improve. To make this type of inference, experimental research using random assignment, is needed.

The study methodology and approach limited our ability to examine the effect of teacher characteristics 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, such as ESL specific

training, educational background and pedagogical approach of teachers that affect student learning.

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 attended 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. The role of self-directed learning of adult ESL students has received little attention, but current research suggests it is an important factor in adult learning (Reder and Strawn, 2006).

Future research could also explore approaches to assessing adult ESL literacy students. We found that the assessments available for these students for instruction, research and accountability purposes range from non-existent to inadequate, particularly in the assessment of literacy skills in second language learners. 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.

Implications for Longitudinal Studies

This study is a first attempt to examine adult ESL literacy student's experiences with instruction and how literacy and language skills develop over time, using quantitative methods. Although the study period was only about 9 months, our analytic model uncovered intriguing changes in learning development during this time. The HLM model for basic reading skills,

reading comprehension and oral English language development each had a significant quadratic or non-linear trend. In the modeling of basic reading skills, students with more schooling improved on these skills more quickly than less educated students, but this advantage disappeared over time. The model also identified a changing learning dynamic for reading comprehension. Adult ESL literacy students who had higher 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. At first, students with low basic reading skills improved slightly, but then later showed no growth in their reading comprehension skills. For oral English development, we observed rapid learning initially, which dropped off over time, according to the statistical model. Further research can study these learning changes over time and by student, only through longitudinal study.

Unaddressed in this study was the role of students' literacy and language learning outside the classroom. Students only attend for an average of about 129 hours over a four month period, an insufficient amount of time for proficient language development, especially for students at the literacy level. However, students are exposed to English and negotiate American culture and daily life with varying degrees of success. Clearly, ESL students have other ways of learning English and supplementing their classroom experiences which longitudinal study could help reveal. As reported elsewhere in this volume, Reder has studied this issue with low-literate native English speakers.

As we found, however, longitudinal study of the adult ESL literacy population must contend with the reality that many students are new immigrants and refugees and move frequently to follow jobs and family. A substantial number of students from Mexico and Central America also return home frequently, maintaining ties on both sides of the border. Our strategy

for maintaining contact with students was to use field staff from the community who developed personal ties with learners and maintained frequent, ongoing contact, which was somewhat successful when we were able to implement it. For the second study cohort, we had a retention rate of almost 75 percent of learners. For the first cohort, however, which lasted over a summer, field staff lost track of many students and retention was just over 50 percent. This difference illustrates that continuous, ongoing student contact is essential to the success of any longitudinal effort.

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Table 1: 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: Prior education data were missing from five students in the sample of 495.

*More than 30 other languages are included in this group.

Table 2: Growth in Basic Reading Skills (WJBRSC): Predictors of Initial Status, Linear and Quadratic Growth Rates

<i>Parameter</i>	<i>Predictor</i>	<i>Coefficient</i>	<i>se</i>	<i>df</i>	<i>t-ratio</i>	<i>p-value</i>	
Initial Status	Intercept (Base Level)	428.78	6.94	27	61.77	<.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)	-0.29	0.51	855	-0.58	.56ns
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	

Table 2 (continued): Growth in Basic Reading Skills (WJBRSC): Predictors of Initial Status, Linear and Quadratic Growth Rates

<i>Parameter</i>	<i>Predictor</i>	<i>Coefficient</i>	<i>se</i>	<i>df</i>	<i>t-ratio</i>	<i>p-value</i>
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.

Variance Decomposition of Growth in Basic Reading Skills

Variance Component	<i>Estimate</i>	<i>se</i>	<i>Z-value</i>	<i>p</i>
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			

Table 3: Growth in Reading Comprehension (WJRCC): Predictors of Initial Status, Linear and Quadratic Growth Rates

<i>Parameter</i>	<i>Predictor</i>	<i>Coefficient</i>	<i>se</i>	<i>df</i>	<i>t-ratio</i>	<i>p-value</i>	
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	
	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*		

Table 3 (continued): Growth in Reading Comprehension (WJRCC): Predictors of Initial Status, Linear and Quadratic Growth Rates

		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.

Variance Decomposition of Growth in Reading Comprehension

Variance Component	<i>Estimate</i>	<i>se</i>	<i>Z-value</i>	<i>p</i>
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			

Table 4: Growth in Oral English Skills (BEST): Predictors of Initial Status, Linear and Quadratic Growth Rates

<i>Parameter</i>	<i>Predictor</i>	<i>Coefficient</i>	<i>se</i>	<i>df</i>	<i>t-ratio</i>	<i>p-value</i>	
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 ***	

Table 4 (continued): Growth in Oral English Skills (BEST): Predictors of Initial Status, Linear and Quadratic Growth Rates

		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***
<i>Parameter</i>	<i>Predictor</i>	<i>Coefficient</i>	<i>se</i>	<i>df</i>	<i>t-ratio</i>	<i>p-value</i>
Quadratic Growth Rate	Intercept (Base Level)	-0.11	0.02	832	-4.82	<.001***
	Length of Class (in hours per week)	-.01	.01	832	-1.62	.11ns
	Use of Native Language	-.05	.11	832	-.52	.61ns

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.

Variance Decomposition of Growth in Oral English Skills

Variance Component	<i>Estimate</i>	<i>se</i>	<i>Z-value</i>	<i>p</i>
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			

Table 5: Key Findings Related to Instruction, Program Practices and Students

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.

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 developed basic reading and English oral communication skills faster than older students.