National Field Test of *Workplace Essential Skills*

Multimedia Resources for Adult Literacy from the PBS LiteracyLink® Project

Final Report

November, 2001

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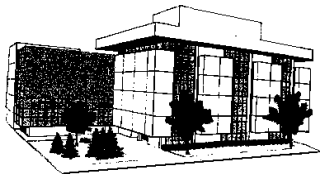

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National Field Test of *Workplace Essential Skills*

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This report represents the observations and insights of independent evaluators examining *Workplace Essential Skills* from a social science perspective. The contents do not necessarily represent the positions or policies of the designers or funders, nor have they endorsed this report.

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Abstract

National Field Test of *Workplace Essential Skills*

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Workplace Essential Skills (WES) is a 24-unit multimedia (print, video and online) course designed for pre-GED adults who want to learn how to apply for a job, increase their knowledge of the workplace, and refine their reading, writing, communication, and/or mathematical skills to meet the demands of common workplace settings. The program is designed for students reading between the 5th and 8th grade levels. A summative evaluation was conducted between September 2000 and June 2001 in which the WES product was examined in Adult Basic Education (ABE) classrooms in six states and Washington, D.C. Each of the four WES content strands—reading, math, communication and employment—was tested in six or more classes.

The goal of the study was to determine the potential of WES to enhance the knowledge and skills of ABE learners who engaged the materials under optimal conditions. Student learning and job-seeking behaviors were measured using a pre-post research design with each student serving as his/her own control. The sample was self-selected; interested candidates were screened based on their demonstrated literacy levels. Wherever possible, student growth was measured using standardized and normed tests. Tailored tests of knowledge and skills were developed for those WES topics for which no standardized tests have yet been developed.

Findings

Reading and Math. The most dramatic increases occurred in the test scores of those students studying the Reading and Math strands. Impact was assessed using content area tests from the CASAS Employability Competency System—a standardized testing package that is widely used in adult education. Forty percent of the students showed impressive gains in their scores (5 points or more), even though the WES instructional time in this study (24-30 hours per strand) was considerably less than the 100 hours CASAS suggests is needed to show such gains. However, 60 percent of students did not improve, which indicates the difficulty of meeting the needs of all ABE students with a single instructional approach. Further study is needed to determine which students most profit from these WES strands.

Employment. Students studying the Employment strand showed varied amounts of growth. Overall, student knowledge gains were modest. Adults with the lowest pretest scores tended to show the most improvement. This finding is not unexpected, given that WES is designed to introduce individuals who have minimal employment experience to basic information associated with finding and maintaining a job. In a special site where

the instruction was more intensive, students demonstrated greater gains on the assessment measure. This finding points to the difference good teaching can make in student learning. Studying the Employment strand also had a motivational effect: 20 – 25% of participants increased their job-seeking activity in areas such as searching for job information at the library, preparing a resume and sending it to an employer, and actually securing a job interview.

Communication. Students in the Communication strand showed a small increase in knowledge in the areas of recognizing good practices in written, oral, and non-verbal communication in the workplace. Students learned more about different forms of written communication than they did about verbal and non-verbal communication. But they did not improve their skills in producing specific workplace forms—writing a memo or completing a work order. They also did not improve in the skill of identifying appropriate information in a chart or table. To master skills needed to produce and/or extract information from certain types of text requires extensive practice, which was not possible given the breadth of material covered in this introductory course.

Multimedia Usage. Products like WES are taking ABE instruction in new directions. The combination of video, print, and online taps into students' interests and addresses differences in learning style. Yet, with new technology comes a large learning curve and the need for technical support systems at the local level. While national field test sites were provided with training in the online portion of WES as well as with ongoing technological assistance, many sites and teachers were unprepared to utilize the online component. Test participants attempted well less than half of the available online activities (from 15% of the activities for employment to 42% for mathematics).

Summary

WES can be viewed as a workplace survey course. It emphasizes understanding how and when various skills are needed in the workplace. As a survey course, most topics are not covered in sufficient depth for students to fully master the topic in just six hours of class time per unit. Skill mastery in particular requires additional teacher guidance and learner practice. In a typical employment skills class, student learning needs vary widely. For each unit of instruction, teachers should assess student needs carefully and plan to provide extra guidance and practice tailored to those needs.

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Executive Summary

National Field Test of *Workplace Essential Skills*

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A national field test of the *Workplace Essential Skills* (WES) program from LiteracyLink® was conducted in 14 sites in 6 states and Washington D.C. beginning in September, 2000 and concluding in June, 2001. All four WES strands (Employment, Communication, Reading, and Math) were tested with a variety of adult learners in 6–8 classrooms per strand. In WES, each strand is comprised of multiple units—8 for Employment, 7 for Communication, 4 for Reading, and 5 for Math. A unit consists of one half-hour video, a chapter of instruction in a printed workbook, and a collection of related online activities. The goal of the field test was to assess the *potential* of the materials to enhance the knowledge and skills of Adult Basic Education (ABE) students under optimal conditions, defined here as six hours of classroom instruction for each unit of instruction.

Student learning and job-seeking behaviors were measured using a pre-post research design. Each student served as his/her own control; there was no control group. A combination of standardized and tailored tests was used to assess learning in each of the content areas. Where possible, standardized measures such as the CASAS ECS Reading and Math tests were used to see how well WES could fare in a climate where certain funding sources for adult education are increasingly tied to the NRS requirement that every student show measurable progress during the time spent in a course of instruction.

The evaluation was conducted in two phases. The first phase, called the National Field Test (NFT), was conducted in the Fall of 2000 in 14 sites with a range of literacy providers including CBOs, community colleges, public schools, and one library. Teachers were trained to use WES by the developers. The second phase—called the

Prelude to Success program—added another site in Winter-Spring of 2001 where instruction was more intense. In the *Prelude* program, two teachers at the Brooklyn (NY) Educational Opportunity Center (BEOC) taught a more intensive version of the Employment and Math strands. Students in these classes had applied to Brooklyn's vocational training program and were promised admission to it if they first attended WES classes. BEOC staff were experienced at adhering closely to research and instructional protocols. In addition to the usual WES testing, *Prelude* participants were followed through the first semester of their vocational training to see if the WES impacted their further education.

A Summary of Findings

A content analysis of WES reveals a curriculum that exposes students to good practices in American business. These practices are in areas such as how work is organized, communicating with customers, and using math to complete a specific task. WES covers the tools used to organize work as well as the intellectual skills needed to process the tools. In many instances WES provides skill-based instruction; however, the program's emphasis is more on knowing what to expect in the workplace than on mastering particular skills. The WES curriculum offers students a framework through which to understand the purposes for learning specific knowledge and skills. The field test measured both the knowledge and skills learned when studying WES.

Reading and Math

In the Reading and Mathematics strands, results were impressive. Impact was assessed using the CASAS ECS Reading and Math tests. The test developers expect a learner will increase his or her score approximately five points with 100 hours of instruction. In both the reading and math areas of WES, instructional time was much shorter—24 hours for reading and 30 hours for math. More than half of the students showed gains in their reading and math scores in that limited instructional time. Approximately 15% showed scaled score gains of 5 points or more; another 25% had larger gains. This shows impressive instructional potential. However, the scores of almost half of the students did not increase at all. There may be great potential in the materials for some, but more

research is needed to understand why other students did not demonstrate any learning gains on the tests.

Employment

Underemployed adults need to improve in many areas if they are going to secure a new or better job. This includes learning how the job market works, how to prepare a good resume and cover letter, and—most importantly—how to use their knowledge and skills to successfully present themselves to potential employers. Based on our test of job-seeking knowledge, the test groups were already quite knowledgeable about the concepts taught in the WES Employment strand prior to studying the strand (pretest average: 74%). Students in the National Field Test (NFT) did not improve their scores significantly on this measure. The *Prelude* group scores improved by 15%. It is likely the *Prelude* teachers were able to provide more intense instruction than the typical NFT teacher since they had additional administrative and data collection support as well as a more concentrated instructional timeframe in which to help students engage the materials. But the *Prelude* students may have been a bit more motivated. More of these students had job experience and were planning to look for a job in the coming months.

When it comes to filling out a job application, the average ABE student in our sample knew how to complete most sections of a sample job application, though few attended to grammatical and mechanics-based errors. *Prelude* program students again improved twice as much as their NFT counterparts. Further analysis revealed that the students in both groups who were the least familiar with job applications before studying WES improved the most—92% of students scoring at the lowest levels on the baseline test improved one-half proficiency level or more on the standardized CASAS job application test.

After studying the Employment strand, students knew the basics of preparing a resume, but they still needed more work in two areas—describing the skills associated with prior jobs and understanding the necessity of including a section on references.

Finally, in the behavioral-motivational arena, studying the Employment strand helped students formulate a plan to find a job and actually begin the search. Between 20% and

25% of the students in the Employment strand increased their job-seeking activity in areas such as searching for job information at the library, preparing a resume and sending it to an employer, and actually securing a job interview.

The Employment strand includes a wide array of information and advice about job-seeking. Engaging the materials in depth has the potential to help adults improve their job-seeking knowledge and skills, though the materials need to be supplemented with multiple opportunities to practice the skills introduced in the strand.

Workplace Communication

The Workplace Communication strand covers appropriate use of written and oral communication in the workplace. It is designed to help students recognize "good practice" in these areas and provides some instruction in the skills of writing a memo, reading a chart or table, and filling out a form. Students who studied this strand improved a small amount in their ability to recognize good practices in written, oral, and non-verbal communication in the workplace. However, they did not improve their skills in the use of common workplace forms. In terms of recognizing good practices, students learned more about written communication (e.g., the variety of formats used for business messages, the meaning of "jargon", etc.) than oral communication (e.g., eye contact with customers is important, when you are part of workgroup you solve problems together, etc.). The knowledge gain for written communication was 14%, for oral and non-verbal 7%. Students may have learned more than is suggested by these modest increases. It is difficult to capture in a written test the kind of incidental knowledge taught in this strand. The coverage is broad, and what is taught about any one area is at an introductory level.

Three performance tests were used to assess student gains in the skills of producing and interpreting workplace forms. Strand participants were fairly skilled at filling out a form—e.g., a room-reservation request—before they began studying WES and thus there was little room to improve. With two other skills—writing a memo and extracting information from a chart—students' skills were low to begin with and they did not improve appreciably as a result of studying the strand. This is not surprising given the complexity of completing these tasks. While the WES materials familiarize students with

these forms, there is insufficient instruction, or opportunity to practice and get feedback, built into the materials and tasks. In typical K-12 programs, the topic of extracting information from tables and charts is covered over many chapters. Similarly, writing a good office memo requires much more than simply knowing what a memo format looks like. The quality of a memo depends on a set of underlying skills having to do with organizing information and presenting it in a compelling way—skills that are usually acquired over time and with real life experience.

The Communication strand introduces many important concepts regarding workplace communications, and this knowledge provides an important overview of common forms of workplace communication. But improved skills in any one of these areas, from writing a memo to interpreting accurately the wishes of a customer or manager, require additional instruction and practice that only a teacher and multiple opportunities to engage the skill can provide.

Impact on Further Education

As it became clear WES could enhance students' work-related knowledge as well as their confidence in their abilities, it seemed natural to ask if the WES experience could have an impact on how they fared in other classes designed to increase specific skills. Following the completion of the WES program, students in two classes at the Brooklyn Educational Opportunity Center (known as the *Prelude to Success* students) were tracked through the end of their first semester in vocational classes. The performance of WES students in these classes was compared with that of a matched set of controls who were close in age, were of the same gender and had similar TABE reading and math scores. *Prelude* students' performance was also compared with all other students in vocational classes at BEOC, most of whom had much higher TABE scores.

Results were mixed. Both matched controls and *Prelude* students dropped out at a lower rate than other vocational students, but matched controls had the lowest rate (matched controls 19%, *Prelude* 31%, other vocational students 43%). When it came to average grades in their vocational courses *Prelude* students performed as well or better than the other groups. While the study numbers are quite small, these findings suggest WES

Prelude students benefited from studying the Math and Employment strands in ways that facilitated their success in the more traditional vocational classes.

Further Thoughts

Since the publication of the SCANS report (Secretary's Commission, 1993) there has been growing national interest in finding ways to enhance the workplace skills of adults, particularly ABE learners and others with minimal employment skills. These adults need to develop a broad range of skills to succeed in the workplace. WES addresses four large categories of workplace-related skills: employment, communication, workplace reading and workplace math. It presents an overview of each of these areas and teaches some of the basic skills students need in a work environment. However, because the range of skills needed is so diverse, WES by itself cannot provide sufficient instruction in all areas. Rather, it serves to present the major areas to students and provides them with basic knowledge and a jumping off point to further build those skills. Full mastery of most skills will typically require additional practice. For example, the communication strand teaches students about verbal and non-verbal communication. It provides models in the videotape and examples in the workbook. However, to fully master these skills, students need to engage in interactions with others in a directed manner—the type of activity teachers should be encouraged to use in conjunction with the WES materials. The WES materials provide an orientation to the key issues; further instruction, practice and teacher guidance are needed if students are to fully master the workplace skills.

Another important consideration—one that cuts across all adult literacy instruction—involves assessing students' individual instructional needs. For example, whereas one student might struggle to compose a letter, another might have had considerable experience with workplace writing tasks and need to focus on verbal and nonverbal communication. The WES Skills Preview that appears at the beginning of each workbook can be a useful intake assessment tool. It can help teachers use the flexibility of the WES curriculum to tailor instruction to the needs of each student.

Finally, students in the field test made limited use of the online activities. Employment students attempted only 20% of the activities; math students attempted the highest

number, 42%. This was quite surprising given the enthusiasm of administrators, teachers, and students for an ABE product that had an online component. Additional research needs to be done on this topic. There is great interest in using online learning with this population and it is important from a policy perspective to understand the reasons for the low usage.

Workplace Essential Skills provides a wide array of materials to help ABE students prepare for the workplace. The coverage of workplace topics is quite comprehensive, but their self-teaching potential is uneven. Careful assessment of student needs by teachers familiar with the needs of individual students, coupled with instruction tailored to these needs, is crucial to realizing the full potential of the materials.

Introduction

The LiteracyLink® Project and Materials

LiteracyLink® is a five-year Research and Development project (1996–2001) with the goal of developing new multimedia courses for adults seeking to improve their employability skills or earn a GED. *Workplace Essential Skills* (WES) is a course designed for pre-GED adults who want to learn how to apply for a job, increase their knowledge of the workplace environment, and refine their reading, writing, communication, and/or mathematical skills to meet the demands of common workplace settings. *GED Connection*™ is a course to prepare adults for the new GED test that will be used beginning in January, 2002. The two curricula are multimedia, consisting of an integrated set of video, print, and Web-based components.

In addition to materials for adult learners, LiteracyLink® offers two online products that provide resources for adult literacy teachers: *LitTeacher*® and *PeerLit.*® *LitTeacher*® is a resource that includes training, on-line courses and on-line resources for teaching. *PeerLit*® is a collection of peer-reviewed Web resources that teachers can use to enhance instruction for adult learners. An additional LiteracyLink® product is an annual video conference and subsequent videotape covering various topics in adult literacy instruction.[1]

LiteracyLink® is a partnership among four organizations. (1) The Public Broadcasting Service (PBS) provides project leadership, distributes online components, designs and delivers video conferences, and provides users with technical support for the online component. (2) Kentucky Educational Television (KET) and Kentucky Department of Education were responsible for the curriculum and for development of the video and print materials. KET distributes the print materials and the videos in cassette format. (3) The

[1] More information on all of the LiteracyLink® products can be found at www.pbs.org/literacy.

National Center on Adult Literacy (NCAL) at the University of Pennsylvania was responsible for developing the online components including curricular content, web site design, and online implementation. (4) Funding for the project came from the U.S. Department of Education's Star Schools Program. Supplementary funding for evaluation came from the Department's Office of Vocational and Adult Education.

The Workplace Essential Skills *Product*

Workplace Essential Skills is designed to enhance the job skills of adults at the margins of employability. A "To the Teacher" section included at the beginning of each workbook states that "the purpose of the Workplace Essential Skills series is to enable adult learners to become better informed and more highly skilled for the challenging world of work." The target audience is the ABE learner whose reading skills are in the range of grades 5–8. Three media—video, print, and online—provide complementary learning opportunities. The materials are designed primarily for mediated[2] use in ABE programs offered by adult learning centers in a variety of settings including community colleges, community-based organizations, K–12 adult literacy programs, and public libraries. A teacher's guide provides suggestions for using the different materials with adult audiences. A number of states are experimenting with the use of WES in non-classroom settings as well (see for example, Johnston & Petty, 2001).

The 30-minute videos are intended to stimulate discussion by showing adults grappling with employment challenges that range from applying for jobs to completing on-the-job writing, reading, and mathematics tasks. Students are provided with the rationale for using various skills in the workplace (e.g., why it's a good idea to use forms to track customer orders) as well as with some instruction in those skills. The videos also show employment from the employer's side of the desk. For example, there are interviews with human resources staff describing what they look for on an application form and in an interview. In addition, there are interviews with job supervisors describing the forms employees are expected to complete and the types of writing needed to make an enterprise function. Videos in each of the strands attempt to demonstrate both the types

[2] In this report, "mediated" refers to learning that is assisted by a teacher or human guide. The mediator helps the learner engage and understand the content and tasks contained in the various media.

of workplace activities associated with a particular strand's focus and the different purposes for utilizing the complementary skills.

A workbook accompanies the videos for each course. It provides activities to prepare learners for what they will see in the videos and helps them derive lessons from the videos after they view them. The workbook also provides direct instruction and practice in the skills being promoted (e.g., filling out a job application, completing a job ticket describing what an employee did on a job assignment, etc.) as well as offering some samples of different business texts (e.g., resumes, completed job applications, memos, charts, etc.).

The online component (called *LitLearner*®) provides a set of online exercises designed to complement the videos and workbooks. In a typical online unit, students begin by reading about the focus and terminology associated with the unit's topic (e.g., team work). Students then engage in two types of activities. The first involves reviewing a digitized clip from the video for that unit and then answering questions about it or engaging in role-playing designed to help students think about the video's message in terms of their own lives. The majority of video clip activities serve as complements to the workbook and address educational objectives through different activities. The second activity type involves linking to an Internet site outside LiteracyLink®. Activities in these sites are wide-ranging, providing students with concepts and strategies (e.g., SQ3R reading method), resources (e.g., interest inventory, classified ad sites) and/or opportunities to practice particular skills (e.g., "Fresh Baked Fractions" a mathematics Web site where students are encouraged to solve various types of math problems through playing games). Some, but not all, of the web activities lead students to sites designed specifically for instructional purposes. Thus, while all of the web-based activities expose the student to additional information and resources, the degree to which the web activities reinforce the instruction presented in the other WES components varies considerably.

Chapter 1

National Field Test Design

The evaluation plan for assessing the impact of LiteracyLink®'s *Workplace Essential Skills* program includes both formative and summative evaluations. In 1998, a pilot test was conducted to determine whether design adjustments to the WES materials were needed to better meet the needs of the target audience. Eight units were selected from the 24-unit WES series for in-depth study. Evaluation results led to adjustments in several of the design principles and the remaining programs were produced reflecting these changes. The full series was released in Fall, 1999. The complete evaluation report for the 1998 pilot test is available from PBS (see Johnston, J. & Young, S., 1999).

The evaluation plan for LiteracyLink® also called for a summative study of the complete WES program to be completed toward the end of the 5-year project.[3] This study was conducted to assess the potential of WES to teach ABE-level adults employment-related skills, enhance their motivation to secure employment or improve their job situation, and increase their knowledge of appropriate workplace behaviors. This chapter presents the details of the design of that study.

Efficacy Testing

Two types of studies are frequently employed in the evaluation of educational products: *efficacy* studies and *effectiveness* studies. An efficacy study seeks to understand the potential of an intervention when it is used under controlled conditions that are often more intensive than typical use. An effectiveness study seeks to measure impact of an intervention under typical patterns of use. The WES national field test is an efficacy study. An efficacy study is useful because it permits researchers to study the potential of an intervention in an "ideal" setting early in its life. Every innovation—no matter how

good—requires time, money and effort to get it recognized, adopted and used in the best way to have its impact widely felt. It often takes years to get literacy providers (or the adults they serve) to become aware of a new product and use it on a regular basis. Doing an efficacy study early in the life of a new product helps various groups—developers, distributors, and teachers—figure out how best to promote its further use and guide staff development efforts.[4]

The primary question asked in this efficacy study is: What is the *potential* of this product to affect the lives of adult learners? This efficacy question can be answered by selecting a sample of educational agencies, teachers, and learners that matches the developers' target audience and then ensuring students are exposed to the materials under conditions considered optimum by the developers. For the national field test study it was decided that optimum conditions included six hours of class time per unit supervised by a teacher trained in the recommended strategies for teaching WES. The six-hour time frame was selected in consultation with teachers from two prior pilot tests. This was deemed a reasonable amount of class time to present and discuss the video and assist students with the workbook and online activities designated for each unit, with the recognition that students might spend additional time studying outside class. Students were asked to complete all of the workbook and online exercises, though they were not required to do so. It was largely agreed by these same teachers that much more time would be required if the expected outcome was for students to master all of the materials included in the workbook. Although parallels can be drawn between the skills taught in WES and pre-GED skills (and this is done in the LiteracyLink® Teachers Guide) WES is more narrowly focused on the skills students need in a workplace context. The goal of WES is not to teach math, reading or writing to students deficient in basic skills, although students will likely build their skills through use of the WES materials. Rather its objective is to expose students to the types of math, reading and communication tasks they will likely encounter in the workplace. Thus, WES does not aim to have students master mathematical skills such as computing percentages. Rather it is designed to teach

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[3] The other LiteracyLink® program—*GED Connection*—was not completed until the very end of the project. There was no time left in the project period to study its effectiveness.

[4] The efficacy concept is more fully developed in Johnston (1981).

them the basics of how and when to use percents, and how, when and why they might need them in a workplace setting. Similarly, students are taught about the parts of a memo, why a memo is used and what to look for when reading one, but are given little practice in composing a memo of their own.

While national field test teachers agreed to spend 6 hours teaching each unit, later estimates of actual instructional hours varied from this goal. In all cases the average exceeded what was suggested, but the range was wide with some sites falling well below the suggested instructional time. It is likely many teachers did not carefully track their instructional hours and thus were able to provide only rough estimates. The large variation in instructional hours may also be due in part to the fact that some instructors included lab or independent online time as part of their total hours while others included only direct instructional hours. Table 1.1 lists the recommended and actual number of hours by strand.

Table 1.1 Instructional Time Estimates

WES Strand	No. of Units	Suggested Instructional Hours	Avg. Reported Instructional Hours
Employment	8	48	54
Communication	7	42	45
Reading	4	24	32
Math	5	30	48

Note: Estimates of actual instructional time were obtained from teacher reports and class schedules. The recommended hours of instruction do not include pre-post testing time or time needed to train students to use the computer and the online portion of WES.

Student adherence to the regimen was tracked in several ways. Teachers kept attendance data on all students and submitted it at the end of the project. No attempt was made to assess students' completion of workbook exercises, but their online work was tracked. As part of their participation agreement, students granted permission to the evaluators to examine their online portfolio at the end of the project. PBS provided a database with all the portfolio entries for every student. The evaluation staff scored each entry 1 or 0, with 1 indicating the presence of any text that responded to the assignment. These scores were summed for each student, with the total indicating how many of the online portfolio

activities the student attempted to complete. The results are shown in Table 1.2 below. Although teachers and students alike were *very* enthusiastic about the online portion of WES, few students engaged the activities and completed the portfolio assignment. On average, students in the Employment and Communication strands completed only 20-22% of the online activities. More activities were done by students in the Reading (35%) and Mathematics (42%) strands. However, an examination of the content of their entries indicates that most of the work would not pass the critical eye of a teacher. It was frequently incomplete or rudimentary.

Table 1.2 Online Portfolio Use

Strand	Total Online Activities	Average No. Completed	Avg Pct Completed
Employment			
Video Activities	15	3.76	25%
Internet Activities	15	2.35	16%
Total	30	6.11	20%
Communication			
Video Activities	14	3.45	25%
Internet Activities	14	2.63	19%
Total	28	6.08	22%
Reading			
Video Activities	8	2.95	37%
Internet Activities	8	2.58	32%
Total	16	5.53	35%
Mathematics			
Video Activities	10	4.26	43%
Internet Activities	10	4.08	41%
Total	20	8.34	42%
All Video Activities			32%
All Internet Activities			27%

In short, although the goal in the efficacy study was to get high engagement of all the materials, this goal was not fully reached. Accordingly, both to increase the number of

students in the evaluation and to test the impact of higher fidelity, researchers sought to supplement the national field test with an additional site where better adherence to the prescribed regimen might be realized. The site was found at the Brooklyn Educational Opportunity Center (BEOC) in Brooklyn, NY. Researchers had worked closely with BEOC staff in other studies and thus were able to ensure both intensive engagement of the materials and tighter control of data collection procedures. Unlike many adult education sites, the BEOC had the resources to assign a research assistant to administer all surveys and tests, to track and contact students, and to provide in-classroom support on an as-needed basis. This freed the WES teachers to focus almost exclusively on instruction.

WES was introduced to this site in a special way. The Coordinator for Academic Affairs was concerned about the high dropout rate among low-level students in the BEOC vocational preparation program. Researchers and the coordinator speculated that WES might have the potential to provide important contextual information about the realities of job settings for students with little experience in the world of work. This information could make the existing vocational training of BEOC more relevant to students and make them more attentive to the vocational instruction. The coordinator was especially concerned to reach students at the margins whose standardized test scores fell at the low end or just below the minimum requirements for entry into the vocational courses of BEOC. Many of these students had been away from school for a long time. The coordinator wanted to see whether WES could serve as a preparatory experience in which these students would be reintroduced to school and school-based activities prior to taking regular classes. The coordinator presented this possibility to a small group (n = 22) of applicants who had been denied admission to the vocational program because their TABE reading and/or math scores fell just below the seventh-grade cutoff levels. Dubbed by the coordinator as the *Prelude to Success* program, *Prelude* students were required to attend class four days a week for 2-3 hours per day. Of the 22 students that accepted her offer, 19 finished the Employment strand and went on to the Math strand. Seventeen finished the Math strand. Sixteen of the 17 students who completed the Math strand enrolled in vocational courses at the center. Their experience in the vocational courses is discussed in Chapter 5.

Research Questions

Four research questions guided the national field test.

Student Learning, Retention, and Job-Search Behaviors

- What learning gains do students make as a result of studying the WES materials for the prescribed number of hours?
- In what ways do students' plans for seeking a job and/or improving their employment situation change immediately after completing the WES courses and again after 3 months?

Assessment and Reporting

- What types of measurement best capture learning and change in WES students?
- How well do the CASAS standardized tests in math, reading and writing measure the content covered by WES?

Recruitment of Test Sites

Over the past several years, the LiteracyLink® staff has worked closely with 26 partner agencies to pilot test the WES materials; these sites are considered "innovation sites" and were the most logical test sites for this summative research. The majority of the innovation sites had the opportunity to test out prototypes of the WES curriculum in their centers beginning as early as 1996. Therefore, by year four of the project, it was expected that innovation site teachers would be comfortable teaching WES and that sites would be teaching all or parts of the WES curriculum as part of their agency's regular course offerings. (It turned out this was not entirely true. Many sites assigned teachers to the evaluation that had had little or no prior exposure to WES. This unfortunately reflects the high staff turnover rate common at most adult education programs.)

In preparation for the National Field Test (NFT), innovation site teachers and administrators were contacted in June of 2000 and invited to participate. Sites that agreed to participate met the following selection criteria:

- Able to teach more than one of the four WES strands
- Able to recruit and maintain 10-15 target-population students per strand
- At least 1 internet-connected computer available for every 2 students and ongoing technical support available to facilitate computer use

- Easy access to a TV and VCR

Figure 1.1 Adult Education Agencies in the National Field Test

State	Hub	Agency
WES Innovation Sites		
CA	KCET-TV, Los Angeles	Los Angeles Urban League (CBO)
IA	IPTV-Iowa Public Television	Decorah Public Library, Decorah (Lib) Des Moines Area CC, Des Moines (CC) Dubuque Learning Center, N.E. Iowa CC, Dubuque (CC)
KY	KET-Kentucky Educational Television	Adult Learning Center, Henderson CC, Henderson (CC) Ahrens Learning Center, Louisville (Pub) ABE Tech Program, London (Coll) S. E. Regional Tech Center, Middlesboro (Coll) Bullitt County Adult & Continuing Education (Pub)
NV	KNPB-TV	Lahontan Valley Literacy Volunteers, Fallon (Lib/Priv) Pershing County Adult Ed., Lovelock (Pub) Sun Valley Family Research Center, (CBO)
NY	WNED-TV	Herman Badillo Bilingual Academy, Buffalo (Priv)
Other Agencies Recruited for the National Field Test		
CA	KCET-TV, Los Angeles	Los Angeles Technology School (Pub)
CT	Unaffiliated	Computers4Kids, Waterbury, CT (CBO)
DC	Unaffiliated	Community Preservation and Development Corporation, Washington, DC (CBO)
NY	WNED-TV	Educational Opportunity Center of Buffalo (Coll)
NY	Unaffiliated	Brooklyn Educational Opportunity Center (Coll) Bronx Educational Opportunity Center (Coll) Consortium for Worker Education (Priv)

Note: In parentheses after each center's name is the sponsorship: CBO = Community Based Organization; CC = Community College; Coll = College; Lib = Library; Priv = Private; Pub = Public School.

Participating agencies were invited to send 1-2 teachers to attend a WES training session conducted by KET in August, 2000. Thirteen of the sites did so; they are listed in the top part of Figure 1.1. To increase diversity and size of the test pool seven other agencies were invited to join the field test. Three New York City sites were recruited after the KET training and were trained separately.

Teachers were paid to teach WES for the evaluation. Total payments ranged from $1,200 for teaching the eight-unit Employment strand to $600 for teaching the four-unit Reading

strand ($25 per hour times six hours per unit times the number of units in the strand). Students were not paid for their involvement.

Teacher Training

In total, 23 teachers participated in the training sessions at Kentucky Educational Television in Lexington, KY. Training costs (travel and tuition) for these teachers were paid by the evaluators. At the KET training, teachers were introduced (or reintroduced) to the WES materials, receiving an overview of the program's contents along with a chance to engage the online materials in a computer lab setting. Participants were shown how to set up the online portion of the curriculum and provided with tips on how to help students become comfortable working on computers and navigating the WES Web site. In addition, teachers learned about different ways to utilize the videos to focus on specific lessons and to engage students in discussion and activities around segments from videos.

Teachers were also trained by the research staff in research procedures. The evaluation process was explained to participants along with the appropriate procedures for classroom-based data collection. In addition, a teacher from the 1998 pilot study, Terri Valentine, provided advice to the group about implementing a multimedia curriculum, engaging students in all portions of the curriculum, and avoiding certain potential problem areas such as students forgetting their usernames and passwords. Teachers were provided both with a WES Teacher Guide and with a WES Research Notebook containing detailed instructions.

Of the 20 sites that attended training and were slated to test WES, 14 provided complete data on five or more students. Of the other six agencies that agreed to participate:

- 1 site was dropped at the Kentucky training because all instruction at the site was conducted in Spanish. (None of the test instruments was available in Spanish.)
- 1 site failed to turn in any student data.
- 4 sites cited scheduling difficulties, an inability to recruit students, and/or staffing changes as reasons for dropping.

The NFT sites and the strands that they taught are shown in Figure 1.2

Figure 1.2 Strands Taught at Each Site

Site	Employ.	Comm.	Reading	Math
Ahrens Learning Center		√	√	√
Bronx EOC			√	
Brooklyn EOC	√			√
Buffalo EOC	√			
Community Preservation and Dev. Corp.	√			√
Computers4Kids	√	√		
Consortium for Worker Education			√	
Decorah Public Library	√			
Des Moines Area Community College			√*	√*
Lahontan Valley Literacy Volunteers	√			
Los Angeles Technology School		√**	√	
Los Angeles Urban League	√	√	√	√
Northeast Iowa Community College		√	√	
Pershing County Adult Education		√		√
S. E. Regional Technology Center	√			√
TOTAL	**8**	**6**	**7**	**7**

*Summer, 2000 Pilot test classes only. **Participant content-area test scores from this class were dropped due to problems with data administration and collection.

When trying out new educational materials, it is not uncommon for an agency to decide not to adopt a particular curriculum. However, it was anticipated given the long-term relationships LiteracyLink® had established with its innovation sites, that these sites would be adequately staffed with experienced WES teachers, appropriate technology, and access to a student base from which to recruit participants. This proved not to be the case—all sites that dropped from the study were innovation sites. This suggests that future projects may want to recruit larger programs with a more stable teaching staff as innovation sites.

Data Collection and Assessment Plan

Multiple data collection strategies were used, including assessment measures (standardized and tailored tests and surveys), classroom-based field observations, face-to-

face interviews with teachers and administrators, and focus groups with students. Eight of the 14 sites were visited by one of the evaluators while instruction was in progress. All paper-and-pencil measures were completed on a pre-post schedule to gauge change over the course of the intervention. Figure 1.3 lists the complete data collection schedule.

Figure 1.3 Data Collection

Time	Student Data	Teacher/Site Data
Pretest (day 1–2 of class)	Baseline Survey Tailored and standardized knowledge and skill pretests for each strand	
Instruction (2–8 weeks per strand)	Focus group in selected classrooms	Periodic email and/or phone contact with site personnel Teacher and administrator interviews
Posttest (final 1–2 days of class)	End of Program Survey Tailored and standardized knowledge and skill posttests for each strand	Teacher reflections on WES materials and teaching process Selected student profiles

Measurement

Developed to address the goals and core indicators identified by the Workforce Investment Act (WIA), the National Reporting System (NRS) guidelines include five core outcome levels to determine student advancement. The primary outcome measure focuses on students' academic advancement, defined in terms of five educational levels ranging from "Beginning ABE Literacy" to "High Adult Secondary Education." The NRS requires adult education programs to report on their ABE and ASE students in terms of movement within and between those levels.

The NRS recommends programs use one of several standardized assessment measures "to determine whether the student has advanced one or more [educational functioning] levels or is progressing within the same level" (US Dept. of Education, 2000, p. 7). Time between testing periods is determined by states or individual programs as is the selection of assessment systems used to measure student growth. The amount of incentive grant awards that programs are eligible to receive from the US Department of Education is tied directly to student outcomes, as gauged by student progress measured in terms of educational functioning levels. Thus, it behooves producers of adult education

materials, and the adult educators who use those materials, to have a clear understanding of the types of educational gains students can be expected to make after engaging a particular set of materials.

Given the importance of demonstrating student growth in terms associated with the NRS core performance indicators, researchers used standardized measures in evaluating WES where possible. A content analysis of WES was completed and compared with content coverage of various standardized tests recommended by the NRS. The best curriculum-measurement match was found with the Comprehensive Adult Student Assessment System (CASAS) Employability Competency System (ECS). The match was reasonably good in the areas of reading, math, and workplace writing. Specific measurement-related issues with regard to the CASAS are discussed in later chapters. For other WES content areas, no appropriate standardized group-administered assessments were found, so tailored knowledge and performance tests were developed. Data collection instruments are listed in Figure 1.4 and can be found in the separately bound Measurement Appendix, except for the CASAS instruments, which are proprietary. Each of the measures is described in detail in the relevant chapter on learner outcomes.

Figure 1.4 Measures Used to Evaluate the WES Curriculum

Strand	Instrument	Administration		
		Pre	**Post**	**3-Month Follow-up**
Measures for All Participants				
	CASAS ECS Appraisal Form 130* (used to identify the appropriate test level)	X		
	Student Survey (Demographics, Computer Skills, & Motivation Measures)	X		
	Job Search Behaviors	X	X	
	End-of-Course Survey (Student perceptions of their learning and hours spent studying)		X	
	Employment Survey			X
Strand-Specific Measures				
Employment	Getting a Job — What's Important? (Tailored knowledge test of good job seeking practices)	X	X	
	CASAS Functional Writing Assessment: Form Task*	X	X	
	Writing a Resume (Tailored test of job seeking skills)		X	
Communication	Workplace Communication (Tailored knowledge test of good practices in written, oral, and non-verbal workplace communication; tailored skill tests for forms, memos, and reading a chart)	X	X	
Reading	CASAS Reading Test*	X	X	
Mathematics	CASAS Mathematics Test*	X	X	

*Proprietary test copyrighted by CASAS, Inc.

One test of the efficacy of the Employment strand is job attainment three months following completion of the Employment strand. This time frame was chosen because it matches the recommendations of the NRS. At the end-of-course survey, participants were told they would receive a phone call several months later to find out about their success in getting a job. Care was taken to design a phone interview that matched the NRS recommendations. The survey did not yield good enough data to report in this evaluation. There were a number of problems. Phone numbers were not available for many students in the project. For those for whom a phone number was available, many did not answer their phone, or did not return the call despite being provided with a toll-

free number to contact. Much more discouraging was the conversation with those who were reached. Respondents were asked if they could recall being in the WES class(es). Many confused WES class(es) with other training they had taken, a problem that raised serious questions about the validity of their responses.

Participants

A total of 192 individuals enrolled in one or more of the 28 WES classes and attended at least two sessions; 137 participants completed course requirements for one or more strands and at least some testing. Table 1.3 shows the number of students that completed requirements for testing each strand.

Table 1.3 Sample Sizes for WES Testing

Demographic	Total	Employ.	Comm.	Reading	Math
No. of Classrooms	28	8	6	7	7
Ave. Class Size	8	9	8	6	7
Total No. of Learners	137†	71	50	43	51

† Unduplicated total. Students were allowed to enroll in more than one strand.

Students ranged in age from 17 to 68 with approximately the same number of students under 35 as over 35 years of age. Female participants outnumber male participants two to one. The majority (70%) are native speakers of English; the 30% of participants who are non-native speakers were fluent enough in English to participate fully in the study. Over 60% (n=83) of participants were unemployed at the time of the study and more than half resided in major metropolitan areas. More detailed information on participant demographics can be found in Table A.1 in the Appendix.

Students were asked about their experience working with computers and various Internet and software applications. The majority (89%; n=110) report using computers occasionally or often, suggesting that most students in the study believe they have at least some familiarity with computers. Almost 50% of participants report owning their own computers with 50% (n=43) of those who responded noting they have a home computer with an Internet connection. In addition, the majority of students said they had easy access to a computer outside their homes. These findings represent a considerable

change from the 1998 pilot study, where less than 25% of students reported frequent computer usage. A full breakdown of student responses to questions about computer familiarity and usage can be found in Table A.2 in the appendix.

Chapter 2

Testing the *Employment* Strand

WES employment units take students through the process of searching for, securing, and retaining a job. The strand begins by helping students think about careers and researching employment possibilities and suggests ways in which students can identify their skills and interests. Students are introduced to the process of filling out job applications, writing resumes, and preparing for job interviews. The strand is also designed to help students understand workplace expectations for behavior, safety, and on-the-job learning. An outline of the Employment strand units appears in Figure A.1 in the appendix.

The Employment strand was tested in 8 classrooms. A total of 71 students completed the strand, providing pre and post data for one or more assessments. Results are considered in two arenas. First is the impact on knowledge and skills related to finding a job—the usual criteria by which we judge such a course of study. Second is the impact on job search behaviors—whether studying the Employment strand affected how participants went about searching for new or better employment. Results for the Employment strand are considered separately for the National Field Test group and the Brooklyn EOC *Prelude* group.

Impact on Knowledge and Skills

Measurement

WES teaches good practices regarding a variety of job seeking activities. These practices have a knowledge component that can be measured with paper-and-pencil tests. But WES hopes to go beyond mere knowledge. WES wants to develop a learner's skills in finding, applying for, and interviewing for a job. Paper-and-pencil performance tests could be used to measure attainment of some of the skills—for example, completing a job

application and writing a resume. But performance measures of the more subtle skills and behaviors associated with efficient job searching and presenting oneself to an employer require observation of a learner in a real or hypothetical situation by trained observers. This was not possible in a dispersed-site evaluation design where the research sites were spread across the United States. Instead, three tests were used to cover the employment area: a tailored knowledge test (*Getting a Job*), a standardized performance test for job applications (CASAS *Functional Writing Assessment: Form Task*), and a tailored performance test on preparing a resume (*Writing a Resume*). The *Getting a Job* and *Form Task* tests were administered both before and after the class. *Writing a Resume* was used as a post measure only. Each of the measures is described in detail below.

Getting a Job — What's Important

This assessment is a true-false test with 60 items that measure a student's knowledge of two domains taught by WES. *Getting a Job* includes 36 items covering good practices for finding a job, completing job applications, creating resumes and cover letters, and interviewing. *On the Job* includes 24 items covering basic principles of learning on the job, appropriate job behaviors, and workplace safety procedures. The items were developed based on an in-depth content analysis of the WES employment materials. The complete test can be found in the separately bound Measurement Appendix; sample items appear below. There were three response options: *True*, *False* and *Don't Know*.

- The *hidden job market* refers to jobs that are available but are not advertised or posted to the general public.
- Whenever you send a resume through the mail you should send a cover letter with it.
- Working as part of a team is not a good way to advance your career because you don't get all the credit for the work done.
- Most employers will expect you to learn everything you need to know for your job in the first week you are working.

Table 2.1 shows test results separately for the NFT and *Prelude* groups. Both groups had high pretest scores—between 73% and 81%. The small improvement for the NFT was statistically non-significant, but the *Prelude* group made gains of 15% and 13% and the change was statistically significant. (For detailed information on various subscales see Table A.3 in the appendix.)

Table 2.1 Good Practices in Job Seeking

Group	Test	n	Pre	Post	Gain	Sig.
NFT	Getting A Job (36 items)	34	73%	81%	8%	.156
	On the Job (24 items)	34	81%	84%	3%	.557
Prelude	Getting A Job (36 items)	19	77%	93%	15%	.002
	On the Job (24 items)	19	76%	89%	13%	.023
TOTAL	Getting A Job (36 items)	53	74%	85%	11%	
	On the Job (24 items)	53	80%	86%	6%	

NOTE: Significance comes from the Paired Comparison T-Test. Gains associated with a significance level larger than 0.05 are ignored.

The greater gains demonstrated by students in the *Prelude* group may be a reflection of the greater in-depth exposure students received or to the students' pre-existing motivation to succeed at school-based tasks. *Prelude* students were a little more likely to hold a part- or full-time job when they began to study WES (*Prelude* 40%, NFT 27%) and they were a little more likely to be in the market for a job after completing WES (*Prelude* 82%, NFT 66%). In terms of ability, the two groups had almost identical scores on the CASAS reading and math locator tests.

Filling Out a Job Application

The CASAS *Functional Writing Assessment: Form Task* is designed to measure students' awareness of appropriate information to include on a job application and their ability to complete an application properly. The test consists of filling out a two-page job application that asks for educational background, work history, employment goals, references, and other relevant information. CASAS utilizes a weighted scoring rubric to grade the completed application based on three categories:

1. Content—completeness of application, appropriateness of content
2. Legibility and appearance

3. Mechanics—spelling, capitalization, and punctuation

A comparison of the *Form Task* items with the instruction in the WES Employment strand revealed that two of the three CASAS assessment categories—Content and Legibility/Appearance—were appropriate measures of the content taught in the WES Employment strand. WES introduces students to the process of filling out a job application, instructing them in the appropriate information to include in each section. WES also emphasizes the importance of writing clearly and completing all parts of an application and offers strategies for successful completion of a job application. While WES advises students to watch for spelling and punctuation errors, no direct instruction is provided in these areas. Not surprisingly, pre-post scores on the writing mechanics category showed the smallest gains of the three categories. (See Table A.4 in the appendix for a detailed breakdown by category.)

When CASAS scores the Form Task, they assign a weighted score based on the subscores in content, legibility, and mechanics. The total weighted score can range from 0-23. CASAS also converts the weighted scores to a Proficiency Level score. These scores range from 0 to 5 and are reported in half-level increments. Partial descriptions of Levels 2-5 are shown in Figure 2.1 (none of the participants in the study scored below Level 2). The full level descriptions can be found in Figure A.5 in the appendix.

Figure 2.1 CASAS Proficiency Levels for Writing*

Proficiency Level 2: Beginning Literacy ABE. Weighted Score Range 10-14.
Individuals at this level generally can write letters, numbers and a limited number of basic sight words and simple sentences related to immediate needs. ... Can handle only the most basic written communication in English in routine entry-level jobs in which all tasks can be demonstrated.
Proficiency Level 3: Beginning Intermediate Basic Skills ABE. Weighted Score Range 15-19.
Individuals at this level generally can write simple notes and messages based on familiar situations. … Can handle jobs or job training that involve some simple written communication.
Proficiency Level 4: Advanced Basic Skills ABE. Weighted Score Range 20-22.
Individuals at this level generally can write short routine work memos or reports. … [G]enerally able to begin GED preparation, and *may* be able to pass the writing section of the GED test.

Proficiency Level 5: Adult Secondary. Weighted Score Range 23.

Individuals at this level generally can perform writing tasks, such as most letters, logs, memos, and forms, with reasonable accuracy to meet most personal and employment-related needs. … [Generally] able to successfully complete the writing section of the GED Test.

*Reprinted from CASAS Basic Skill Levels for Writing (Feb, 2001).

All pre and post tests were scored by CASAS. Before sending the tests in a batch to CASAS, identification was removed that showed whether the Form Task was a pre or post measure. Table 2.2 shows the weighted score data for both the NFT and *Prelude* groups. Overall, the mean weighted score for the pretest was quite high (17 out of 23 or 73% correct) indicating that many students already possessed a working understanding of job applications. Thus, gains were expected to be modest. As with the knowledge test results, *Prelude* students outperformed their NFT counterparts, improving twice as much as the NFT students.

Table 2.2 Performance on the CASAS Form Task—Weighted Scores†

Group	n	Pre	Post	Gain	Sig.*
National Field Test	38	16.9 74%	18.5 81%	1.6 7%	.010
Prelude Students	19	16.7 73%	19.9 87%	3.2 14%	.000
Total	57	16.9 73%	19.0 83%	2.1 10%	.002

Note: Three students received pre-test scores of 22.5-23 and were not included in these results because they could not show gains. †Percentages are based on dividing the weighted score by the total score possible: 23. * Significance is from a paired comparison T-test.

Table 2.3 shows the data in terms of proficiency levels. A primary NRS goal is to have students increase one proficiency level in an area of instruction. Learning how to fill out a job application is only a subtask in a broader arena of job seeking/attainment, but it is appropriate to ask whether study of this subtask would contribute to improving one proficiency level in the broader arena. The data show that 30% of WES study participants improve one-half proficiency level and another 23% improved one full level or more.

But the table has a much more interesting message than this. The percent improving is directly related to the proficiency level at the beginning of the class. Among those with a

proficiency level of 2.0-2.5 on the baseline test, 50% improved one-half level and another 42% improved a full level or more. These students represent the target audience for the Employment strand. As the baseline proficiency increases, the percent improving gets progressively smaller. WES is designed to introduce students to the job application completion process. It includes general instruction in the mechanics of completing a form (i.e., how to fill out each section) and stresses the importance of completing all sections of the application using clear handwriting. Students at the 3.0 and 4.0 level already know the basics of filling out a job application. To improve, they need help with spelling and punctuation and with the more sophisticated skills associated with presenting themselves on paper. WES advises students to be careful about spelling and punctuation, but the materials do not directly teach these skills. Nor does it provide in-depth instruction in how students should represent themselves on an application.

Table 2.3 Performance on the CASAS Form Task—Proficiency Level Scores

		Pre – Post Change		
Proficiency Level on Baseline Test	**n**	**No Change**	**+0.5 Level**	**≥+1.0 Level**
2.0-2.5	12	1 8%	6 50%	5 42%
3.0-3.5	32	13 41%	11 34%	8 25%
4.0-4.5	13	13 100%	0	0
Total	57	27 47%	17 30%	13 23%

How should one judge a half-level improvement? In the reading and math areas CASAS recommends students be retested after 100 hours of instruction at which time it is anticipated student scores will improve by approximately one-half to one level. Students in the Employment strand spent about 50 hours studying the entire strand and less than ten hours studying job applications. In light of this, one-half level improvement is quite good.

Writing a Resume

Composing a resume is another skill for which there are no widely used standardized measures. Thus, the researchers developed a task and scoring scheme to measure the skill. The evaluators made a difficult research design choice for this measure based upon their knowledge of the population they were studying: the resume-writing task was given only as a post-test. For students who had never prepared a resume—the majority of the evaluation sample—it was deemed potentially too difficult or discouraging a task. Researchers were concerned that including this task as part of a long baseline assessment would discourage many from continuing with the field test. This decision, however, has implications for research findings. To the extent learners are unable to produce a resume after studying the Employment strand, we can assert WES failed to teach this skill. But if learners are able to produce a satisfactory resume after studying WES, we are unable to attribute this uniquely to their study of the Employment strand; students may have possessed this ability prior to class, although experience with this population suggests this is not likely.

For this task, students were asked to read a short biography of a fictitious job seeker and identify information in the biography that would be appropriate to include in a resume. They were given 30 minutes to create a resume for this person. (A copy of the resume task is provided in the Measurement Appendix.) The evaluators developed a rubric to use in assessing the resume. Thirty-nine points were allotted for basic information including Work History, Skills, Educational Background, and References. In addition, up to four bonus points were awarded for certain style features and up to five penalty points were deducted for inclusion of inappropriate personal information.

Resume samples were double-scored by the evaluation staff and reflect an inter-rater reliability rate of 96%. Table 2.4 shows the final resume scores.

Table 2.4 Resume Results

Resume Sections	Possible Points	NFT Scores (n=36)	Prelude Scores (n=19)
Work History/Experience	15	78%	76%
Work Skills	10	51%	57%
Education	10	84%	86%
References	4	50%	69%
Bonus Points	4	83%	92%
Total	**43**	**70%**	**73%**

These scores indicate participants in the Employment strand groups were generally familiar with the appropriate content and format of a resume and were able to successfully construct a resume from the information provided to them.

Of the four content sections of the resume, students did best on Work History and Education, with more than 75% of students including all the appropriate basic information in these sections. Students were less familiar with what constituted a "work skill." While most understood the need to include places of employment, dates, and job titles, only a little over half included the skills associated with each job. Students were also less clear on the necessity of including a "references upon request" section with only half of the NFT sample and 69% of *Prelude* students including this section.

While these scores cannot be directly attributed to WES teaching, they do indicate WES was not lacking in instruction in the resume development arena. Otherwise, it is likely student scores would have been considerably lower than the average totals of 70% for the NFT group and 73% for the *Prelude* group.

Impact on Job Seeking Behaviors and Plans

The overall goal of the WES Employment strand is to improve the employability of participants. This section examines the impact of participation in the Employment strand on job search behaviors and plans. For this section, Brooklyn EOC students were not included in the analyses since they were not in the market for another job, having

committed to one year of instruction. Below, the job status of the NFT students are described prior to examining the effects of WES on their job search behaviors.

Job Status of Employment Students

Most of the WES students (69%) were unemployed at the time they enrolled in WES (see Table 2.5). This is true of both the students who studied the Employment strand and those who studied other strands. Only 14% were employed full time. The same proportion (69%) were seeking employment, either full time or part time. In short, the students studying Employment were in the job market and should be receptive to suggestions about how best to search for a job.

Table 2.5 Employment Status of Study Completers at Beginning of Study

	All Participants		**Employment Strand Only**	
Category	**n**	**%**	**n**	**%**
Employment Status				
Working full time	15	14%	7	13%
Working part time	19	17	10	18
Unemployed	75	69	39	69
Total	109	100	56	100
Job Seeking Status				
Seeking full-time employment	40	38%	23	42%
Seeking part-time employment	32	31	16	29
Not seeking employment	33	31	16	29
Total	105	100	55	100

For those students who indicated they were employed at the time of the study, 32 provided information on their employment situation. Participant jobs were fairly evenly divided among five industry types: food preparation, clerk/secretarial, child/health care, sales, and physical laborer. All were in entry-level jobs.

Job Seeking Behaviors

While the instructional components of the job-seeking curriculum teach about job-seeking skills, the ultimate goal is to have the students put these ideas into action and find

either a first-time job or a job that is qualitatively better than the one they currently hold. Whether the WES experience helped students in this regard was measured in two ways: (1) self reports of their job-seeking *behaviors* in the several weeks prior to the beginning and end of the Employment strand and (2) self reports of *plans* for seeking a job in the month following the beginning and end of the course.

Figure 2.2 Job Search Behaviors

Category	Item
Collect Information about Jobs (Paper Research)	Read the classified ads in a newspaper to look for a job
	Went to a library or job resource center to look for information about jobs
Collect Information about Jobs (Networking)	Talked with friends or family to find out about possible jobs
	Talked with a teacher or career counselor about job possibilities
Describe Self in Writing	Wrote (or revised) your resume
	Wrote a cover letter to accompany your resume
Present Self to Employer (low risk)	Filled out a job application
	Sent or gave your resume to a company
Present Self to Employer (medium risk)	Went into a business and asked if they were hiring
	Went into a store or business that had a “Help Wanted” sign posted and asked about the job
	Answered a classified ad by sending in your resume or calling the number in the ad
Present Self to Employer (high risk)	Had a job interview
	Been offered a job

To assess their job seeking behaviors a collection of activities were identified that represent the range of activities a person might engage in to learn about or secure a new job. These activities included actively pursuing jobs by filling out a job application, answering a newspaper advertisement, having a job interview, etc. They also included networking (talking with others about job leads), completing and sending resumes and cover letters, and doing research on particular types of jobs. The full list of activities is shown in Figure 2.2. The items are ordered by the complexity and risk represented by the activity. For example, it is easy and non-threatening to read classified ads to identify an interesting job, but it is more challenging and threatening to answer a classified ad or

approach a business that has a "Help Wanted" sign in the window and inquire about a job.

The question posed to participants was: *How often have you done each of the following in the last few weeks?* They were given three response choices: *Never*, *Once*, or *More than once*. The same questions appeared on the baseline and follow-up questionnaires. Any increases between the two assessments can be taken as an indication that the lessons of the Employment strand had an effect on job search behaviors. Table 2.6 shows the data. "Pre Did 1+" indicates for the baseline measure the percentage who indicated they did the behavior *Once* or *More than once* in the previous few weeks. "Post Did 1+" provides the same information for the follow-up questionnaire. If the shift from baseline to follow-up was not statistically significant, the percentages are not shown in the table.

Table 2.6 Self Reports of Job Search Behaviors
In the Previous Few Weeks

Category	Item	Pre Did 1+	Post Did 1+	Gain	Sig.
Collect Job Info (Paper)	Read the classified ads	83.3%	89.8%	6.5%	.038
	Went to a library	41.7	61.2	19.5	.033
Collect Job Info (Networking)	Talked with friends or family				n.s.
	Talked with a teacher	55.6	62.5	6.9	.017
Describe Self in Writing	Wrote (or revised) your resume	51.5	77.5	26.0	.003
	Wrote a cover letter				n.s.
Present Self to Employer (low risk)	Filled out a job application	77.2	93.9	17	.038
	Sent resume to a company	33.3	57.1	23.8	.015
Present Self to Employer (medium risk)	Went into a business, asked if hiring				n.s.
	Responded to "Help Wanted" sign				n.s.
	Answered a classified ad				n.s.
Action Step – (high risk)	Had a job interview	55.6	77.6	22.0	.070
	Been offered a job	44.4	67.3	22.9	.034

NOTE: "Did 1+" = did once or more than once. The data are the percentage (n = 49) at pre and post that said they had done this job search behavior once or more than once in the previous few weeks. If the note "n.s." appears in the significance column, then the increase was not statistically significant at the .05 level or smaller using a Wilcoxon test of the difference between respondents' pre and post response. The *Prelude* group was excluded from these analyses since they were committed to one year of full-time education following WES and therefore were not actively seeking a job.

There are a number of behaviors that showed no impact—write a cover letter, talk with friends and family about job possibilities and all three medium risk activities associated with inquiring directly about a job to an employer. On the other hand, between 20% and 25% of those who studied the employment strand tried a wide range of job search behaviors, from preparing or updating their resume to sending a resume to a potential employer in response to a classified ad. Overall, the Employment strand instruction had the desired impact on at least 20% of the participants.

Summary and Discussion

Underemployed adults need to improve in many areas if they are going to secure a new or better job. This includes learning how the job market works and preparing a good resume and cover letter. Most importantly, they need to use this knowledge and skill and present themselves to potential employers. Based on our test of job seeking knowledge, the test groups were quite knowledgeable about the concepts taught in the WES Employment strand before they started their study. They averaged 74% on the pretest. Can adults improve their knowledge by studying WES? They can if they get good instruction. Students in the National Field Test did not improve their scores significantly, but adults in the *Prelude* group improved theirs by 15%. It is likely the two teachers for the *Prelude* group were able to provide more intense instruction than the typical teacher in the NFT, because they had additional administrative support and a more intense period of instructional time. In addition, *Prelude* students were *required* to attend the *Prelude* classes in order to be admitted to the vocational classes in which they were interested; this differs from most programs where attendance is strongly encouraged but not mandatory.

When it comes to filling out a job application, the average ABE student in our sample knew how to complete most sections of the sample application, though not well enough to impress many employers. After studying WES, the average student improved his/her score, though once again students in the *Prelude* program improved twice as much. Further analysis revealed the groups that were least familiar with job applications before studying WES improved tremendously—92% of them improved one-half proficiency

level or more on the standardized CASAS Form Task test. The lower increase for other groups is largely due to the fact that WES introduces basic information and skills to individuals who have little or no experience filling out applications. Students who scored in the higher levels on the baseline demonstrated they already knew the appropriate content to put in the various blanks of a job application and thus had less to gain from the WES introduction to the task.

A weakness in the research design does not permit estimating how much students learned about preparing a resume from their study of WES; there was no pretest. Based on just the posttest, it can be said that, after studying WES, students knew the basics of preparing a resume, but they still needed more work in two areas—describing the skills required in prior jobs and recognizing the necessity of including a section for references.

Finally, in the behavioral-motivation arena, it appears that studying WES helps adults formulate a plan to find a job and actually begin the search. Between 20% and 25% of the students increased their job-seeking activity (seek job information at the library, prepare a resume and send it to an employer, and get a job interview) during the time they studied WES.

The Employment strand covers a great deal of material. It can help adults improve their job-seeking skills, though it appears to contribute little to improving their knowledge of good job-seeking practices. The Employment materials are instructive and introduce many concepts to students, but they are not sufficient. Careful teaching tailored to student needs improves the impact. Those designing WES training should identify topics that could profit most from careful guidance by a teacher.

Chapter 3

Testing the *Communication* Strand

The Communication strand of WES covers both written and oral communication on the job. To successfully communicate in writing in an employment setting, individuals must possess knowledge about purposes of different types of business texts, the skills to extract, interpret, and utilize information from those texts, and the ability to generate specific job-related documents using appropriate language, content, and formatting. The WES Communication strand introduces students to a variety of business documents including memos, reports, business letters, notes, and job safety instructions. Students learn formatting of texts, specific content and style associated with document types (e.g., memos), along with reasons for using each type of document.

Communicating successfully with customers and coworkers requires individuals to understand and utilize appropriate interactional styles (e.g., how to behave and what to say to resolve a conflict with a coworker) as well as the ability to identify and interpret non-verbal cues. The WES Communication strand demonstrates how to interact with coworkers and clients, stresses appropriate forms of verbal and non-verbal communication, and provides learners with examples of positive and negative ways of communicating. An outline of Communication strand units can be found in Figure A.2 in the appendix.

The Communication strand was tested in 6 classrooms. A total of 50 students completed the strand, providing pre and post data for the study. Students from one center had to be dropped because the teacher failed to administer the posttest measure. The total with good data for both pretest and posttest was 39.

Impact on Knowledge and Skills

Four tailored knowledge and performance subtests were designed to assess skills taught in this strand. These tests assess student knowledge as well as their ability to perform various written communication tasks requiring increasingly complex cognitive tasks. The first test measures students' knowledge of appropriate written, verbal, and non-verbal communication practices. The other three involve performance-based tasks in which students must read and extract information from business texts and, in some cases, generate new text. As with the Employment strand, a knowledge test was designed to assess skills where a performance measure would be too difficult to implement in a large-scale, dispersed evaluation.

Knowledge Tests

A true-false knowledge test was developed to cover content taught about workplace communication. The test was divided into two sections—one covering written communication (10 items) and one covering verbal and non-verbal communication (10 items). Below is a sample of the questions asked in this test:

- The format used for a business communication should always be the same, regardless of audience or message.
- A person's body language can communicate messages through gestures, looks and posture.
- The main reason supervisors give feedback to employees about their work is to show they are in charge.

There were three response options: *True*, *False*, and *Don't Know*. Results of these tests are reported in Table 3.1. Students improved their scores on both the written and verbal/non-verbal communication sections of the test. These gains indicate students made advances in their content knowledge of the different forms of workplace communication presented in the WES materials. Student scores improved more in the written than in the verbal/non-verbal. This finding is not surprising because it is easier to gain knowledge about appropriate uses of standard types of written texts (e.g., work orders, technical manuals, etc.) than to learn how to correctly interpret behavior and body

language or know which styles of communicating are appropriate in different situations, particularly given the tremendous diversity in the ways people from different cultures interpret verbal and non-verbal interactions.

Table 3.1 Knowledge Tests of Good Practices in Written, Verbal, and Non-Verbal Communication

	No. of Items	**n**	**Pretest (% correct)**	**Posttest (% correct)**	**Diff.**	**Sig.***
Written	10	39	65%	79%	14%	0.000
Verbal/Non-Verbal	10	39	66%	73%	8%	0.022
Total	20	39	65%	76%	11%	0.000

* Significance measures come from a Wilcoxon test of the difference between respondents' pre and post responses.

Performance Tests

Three performance tests were used to determine if WES Communication students learned specific skills taught in the strand. These tests covered reading charts, filling out a form, and writing a memo.

Using a Chart

For this subtest students were asked to answer questions using information from a chart containing attendance patterns of children enrolled in a daycare program. This assessment was very similar to the activities presented in the workbook. Questions were asked about specific daycare activities, student and staff schedules, and costs and supply needs (the complete assessment is included in the Appendix). As Row 1 of Table 3.2 indicates, pre to post changes were not statistically significant and reflect only a slight increase of 2%. Item-level results are reported in Table A.5 in the appendix. These findings indicate that WES students require additional instruction and practice to master the skills associated with chart reading. The reasons for the minimal change are not clear, though teachers may have spent less time on teaching chart reading than on other workplace communication activities.

Table 3.2 Three Communication Skill Tests

	Points Possible	n	Pre Mean	Post Mean	diff.	Sig.*
Chart Task	6	39	3.79 63%	3.92 65%	0.13 2%	0.424
Form Completion Task	12	39	9.28 77%	9.51 79%	0.23 2%	0.424
Memo Task	4	39	2.03 51%	2.29 57%	.26 6%	0.096

* Significance is from a paired comparison T-test. Percentages are calculated by dividing the mean by the total points possible.

Filling Out a Form

This test asked students to complete a room request form for a proposed meeting. Students were required to locate the appropriate information in the text provided to them, write it in the form (and/or place a checkmark next to the correct information), and determine what additional information was needed to complete the form. (The complete assessment is included in the Measurement Appendix). This test required the additional cognitive task of transferring information from one format to another. The room request form was scored for accuracy and completeness. The assessment also included two additional questions about identifying and obtaining missing information.

The results are shown in Row 2 of Table 3.2. Overall, students performed only slightly better on the post measure than they did on the pretest, again improving just 2%. But the baseline scores were quite high to begin with—9.28 out of 12 or 77%, indicating that students were already fairly skilled in how to complete this type of form. Post-test scores changed noticeably in only two items: *Name of person requesting room*, which increased by 14%, and *Date of Request*, which improved by 12%. These were also the two items on which pretest scores were lowest, indicating students showed the greatest gains in those areas where there was the greatest need. A breakdown by item of this measure can be found in Table A.6 in the appendix.

Writing a Memo

In this task students were asked to create a memo preparing a department for an upcoming fire inspection. Students were told details about the inspection and then given an office memo form with spaces for TO, FROM, DATE, and SUBJECT. The rest of the page was blank.

Memos were scored holistically on a 0-4 point scale using a rubric developed by the research staff. Elements attended to in the rubric include heading (to, from, date and subject), content, mechanics, and organization. In scoring memos, errors were identified as missing or incorrect information. Since students had limited time in which to complete the task, minor errors in mechanics were not penalized. Scorers were provided with descriptions of each of the four levels and examples. The description of a level "4" memo is provided below. The task and the full scoring rubric are included in the Measurement Appendix.

Requirements for a Memo to Receive a Score of 4

> This memo is mostly accurate, although it may include a few minor errors. Both heading and content information are totally correct (e.g., they include all of the appropriate information in the appropriate places). The body of the memo is well organized and easy for the reader to follow in a consistent format. Overall, the memo has mostly correct grammar, spelling, punctuation and capitalization.

This task was the most cognitively complex task of the performance-based tests, requiring students to read a text, determine the relevant information, summarize that information, and then generate new text explaining the procedure using the appropriate memo format. Not surprisingly, student baseline performance on this task showed considerable room for improvement (see Row 3, Table 3.2). The mean rubric score was 2.03 on a 4-point scale. Student scores showed a small, non-significant gain at the posttest. This finding is not unexpected as this assessment examined performance-based gains on a complex task. While both the video and the workbooks teach about reading and writing memos, WES provides only limited opportunity for students to actually put this knowledge into practice. To be more successful, students need multiple opportunities to practice writing memos.

Summary and Discussion

In their study of Workplace Communication students improved a small amount in their ability to recognize good practices in written, oral, and non-verbal communication in the workplace. They did not improve their skills in the use of common forms used to communicate in writing in the workplace. In terms of recognizing good practices, they learned more about written communication (e.g., the variety of formats used for business messages, the meaning of "jargon", etc.) than oral communication (e.g., eye contact with customers is important, when you are part of workgroup you solve problems together, etc.). The knowledge gain for written communication was 14%, for oral and non-verbal it was 7%. Students may have learned more than is suggested by these modest increases. It is difficult to capture in a written test the kind of incidental knowledge that might have been learned in this strand. The coverage in this strand is broad and what is taught about any one area is not very deep.

Looking beyond knowledge *about* communication practices to skills at using various forms of written communication, there were no significant gains at all. The students in the field test were fairly skilled in filling out a form before they began studying WES and there was little room to improve. With two other skills—writing a memo and extracting information from a chart—participants' skills were low to begin with and did not improve significantly in the course of studying the Communication strand. But these skills are quite complex. While the WES materials familiarize students with these forms, there is insufficient instruction, or opportunity to practice and get feedback, built into the materials and tasks. For example, in school-based mathematics programs, the topic of extracting information from tables and charts is covered over many chapters and students receive numerous opportunities to practice the skills and learn the content. Similarly, writing a good office memo requires much more than simply knowing what a memo format looks like. The quality of a memo depends on a set of underlying skills having to do with organizing information and presenting it in a compelling way—skills that require considerable time and practice to develop.

The Communication strand materials introduce many important concepts regarding workplace communications, and this knowledge can provide a person with a road map to the area. But improved skills in any one of these areas, from writing a memo to interpreting accurately the wishes of a customer or a manager, require additional instruction and practice that only a teacher can provide.

Chapter 4

Testing the *Reading* and *Math* Strands

The WES Reading strand is designed to introduce students to specific types of workplace texts, help them understand how to read those materials, and provide them with approaches and strategies for reading. The four units help students understand the various purposes for on-the-job reading activities, introduce different types of workplace documents (e.g., charts, instruction manuals, memos, reports, directories, and references), explain the types of information available in the documents, and provide information-seeking techniques (e.g., scanning, skimming, etc.). The strand does not teach basic reading skills.

The WES Math strand teaches students the types of math utilized regularly in workplace settings. WES also instructs students in how to complete certain types of workplace math problems, though the focus of the materials is on helping students understand the purposes and applications of using math in the workplace. An outline of the course contents of both strands is provided in Figures A.3 and A.4 in the appendix.

Correlation of WES with CASAS Reading and Math Tests

After completing content analyses of the math and reading strands and reviewing various adult literacy standardized tests, researchers determined the CASAS ECS math and reading tests were the closest match to the WES reading and math strand contents. Given the new NRS requirements, using the CASAS standardized tests was considered the best strategy for demonstrating the potential of WES to enhance math and reading skills.

In any assessment situation where standardized tests are used to measure student learning, the match between the tests and the curriculum is not likely to be exact—unless, of course, the tests have been developed to measure a specific curriculum. The CASAS

ECS reading test is intended to assess student ability to understand the types of reading activities that occur in workplace settings (e.g., tables, time sheets, cleaning instructions, maps, etc.). The CASAS Math Assessment covers basic mathematical skills (e.g. multiplying and dividing whole numbers, adding, subtracting and multiplying both fractions and decimals) and applied math skills likely to be used in workplace settings. Most of the problems are presented in situations a worker might face. This includes items such as reading tables and graphs for information, completing bank deposit slips and finding the area of a space to determine how much material it takes to cover a certain amount of floor space.

CASAS Skill Levels and Level Tests

To understand the results reported in this chapter, it is necessary to understand the CASAS concept of skill levels. Within each content area, CASAS has parallel tests (Level A, B, C, D) designed for students of differing abilities. Student ability or skill levels as defined by CASAS are presented in Figure 4.1. These descriptors are quite similar to those used in the NRS and as such are reflective of the types of definitions used across the field of adult education to describe learner skills at various Adult Basic Education (ABE) and Adult Secondary Education (ASE) levels. Figure 4.1 presents the descriptors associated with each skill level. Full descriptions of Levels B-D are provided in the appendix.

Figure 4.1 CASAS Skill Level Descriptors for ABE*

Level	Descriptor	Scaled Score Range
E	Advanced Adult Secondary	≥ 246
D	Adult Secondary	236–245
C	Advanced Basic Skills	221–235
B	Intermediate Basic Skills	211–220
	Beginning Basic Skills	200–210
A	Beginning Literacy/Pre-Beginning	≤ 199

* Reproduced from the CASAS Resource Catalog, 2000.

It is important to note that the scaled score ranges assigned by CASAS to each skill level are not the same. For example, the scaled score range for Level C is 14 points whereas

the range of points for Level D is only 9. Therefore, a student starting at the bottom of the Level C would potentially have a more difficult time advancing to the next level than would the Level D student starting at the bottom of Level D. In addition, if results are measured only in terms of advances between levels, a student starting near the top of one level would require potentially less effort to meet the "one educational functioning level" advancement requirement than would a student starting lower on the scale in the same level. Thus, while pre-post change in CASAS scores in the Reading and Math strands can be discussed in terms of level changes, a finer grain picture of student change can be seen by examining pre-post results at the scaled-score level.

Testing the Reading Strand

The Reading strand was tested in 7 classrooms. A total of 71 students enrolled in the Reading strand and 43 completed the strand and provided pre and post data for the study. All students who participated in the Reading strand first completed the ECS Appraisal Form 130 placement test to determine which ECS test level (A–D) they should take. Students were then pre- and post-tested using the appropriate test. Only those students whose scores placed them in the upper-B level to low-D level were accepted into the study. These levels loosely correspond to LiteracyLink®'s target population for WES, though they are somewhat broader than the ideal 5th through 8th grade levels for which the WES materials were developed. CASAS categories are based on level descriptors rather than on specific grade-level equivalents, making an exact match difficult.

The majority of students that participated in the Reading strand had initial Appraisal scores placing them in either the C or D levels. Only two of the students reading in the B-level range completed the course. In addition, 3 of the 22 students who completed Level D tests had baseline test scores outside what CASAS considers their "accurate range" for testing. These students were dropped from the Reading strand analysis. Table 4.1 shows the pre-post change in scaled score points. It also shows the number for whom the point gain would result in their reaching the next highest level.

Table 4.1 CASAS Reading Test Scaled Scores by Level

		Pre-Post Change (Scaled Scores)				Change
Baseline Test	**n**	**No Change***	**1–3 pt. Gain**	**4–9 pt. Gain**	**10–15 pt. Gain**	**Resulted in Level Increase**
Level B	2	0	0	2	0	2 100%
Level C	19	11	4	4	0	2 11%
Level D	19	7	2	6	4	6 32%
TOTAL	40 100%	18 45%	6 15%	12 30%	4 10%	10 25%
				55%		

*This category includes scores that decreased from pre to post.

CASAS anticipates that after 100 hours of instruction students will improve approximately 5 points on the CASAS reading test that matches their reading abilities. Given the shorter length of the WES Reading strand instruction (24 hours), researchers expected student would make gains of 3 points or less. For more than half of the sample (60%), this expectation proved accurate.

More than half of the students (n=22; 55%) had scores that increased from pre to posttest; meeting the NRS standards for student progress. Forty percent of the students gained 5-15 points, a gain that CASAS expects only after as many as 75 hours of additional instruction. Equally impressive is the fact that one quarter (n=10; 25%) of the students advanced a full educational functioning level. These results are quite positive and point to the possibilities for considerable improvement in workplace reading skills when the Reading strand materials are fully utilized in a “best practices” instructional setting. These results also indicate that WES has the potential to positively impact student learning as measured by a standardized test like the CASAS. This information is valuable to administrators seeking ways to efficiently meet the demands of NRS.

Testing the Math Strand

The Mathematics strand was tested in 7 classrooms. A total of 51 students completed the strand, providing pre and post data for the study. Students were administered a CASAS

math test (levels B-D) based on their scores on the CASAS Appraisal Form 130. In assessing the Math strand, evaluators did an item-level comparison of the content of the CASAS math tests with the WES Math strand instructional materials. While the fit was good for the most part, there are several items on the CASAS math tests that are not addressed in the WES instructional materials. Differences reflect areas in which WES does not teach content covered in the CASAS tests or areas in which the test item required a complex series of operands not covered in WES. Yet adjustments to student scores to account for non-related items revealed no significant differences in student scores. Therefore, the full, scaled scores from the CASAS math tests were used.

Table 4.2 reveals that just over half (n=26; 51%) of Math strand students had scaled scores that increased from pre to post testing. Again, all of these students would be considered to have made progress by NRS standards. Forty-one percent of the students gained 5-15 points. Twenty-seven percent of the students advanced to the next educational functioning level. These findings indicate the WES math strand has the potential to greatly impact student learning of math skills. WES students were provided with the opportunity to study the Math strand materials for approximately 30 hours, less than 1/3 the number of instructional hours CASAS suggests will show an average 5-point gain. In that limited time frame, the increases observed are indeed a significant improvement.

Table 4.2 CASAS Math Test Scaled Scores by Level

		Pre-Post Change (Scaled Scores)				**Change**
Baseline test	**n**	**No Change***	**1–3 pt. Gain**	**4–9 pt. Gain**	**10–15 pt. Gain**	**Resulted in Level Increase**
Level B	8	4	0	3	1	2 25%
Level C	37	18	5	11	3	12 32%
Level D	6	3	0	2	1	0
TOTAL	51 100%	25 49%	5 10%	16 31%	5 10%	14 27%
				51%		

*These numbers include scores that decreased from pre to post.

Summary and Discussion

In the reading and mathematics areas the results were quite impressive. Impact was assessed using two standardized tests that are widely accepted in adult education—the CASAS ECS Reading and Math tests. The test developers expect a learner should increase his or her score approximately five points with 100 hours of instruction. In both the reading and math areas of WES instructional time was much shorter—24 hours for reading and 30 hours for math. More than half of the students showed gains in their reading and math scores in that limited instructional time. Approximately forty percent showed scaled score gains of 5 points or more; about one-fourth had gains that moved them up to the next CASAS skill level. This shows impressive learning potential. But a note of caution is in order. Almost half of the students did not show any increases in their reading and math scores. There may be great potential in the materials for some, but more research is needed to understand why other students did not demonstrate learning gains on the assessments.

Chapter 5

Impact on Further Education

As it became clear WES could enhance participants' work-related knowledge and confidence in their skills, it seemed natural to ask whether studying WES could help low ability ABE students have a more successful experience in a regular vocational program. The Coordinator of Academic Affairs at Brooklyn EOC was interested in testing this hypothesis. Working with the research team, she selected 22 applicants wait-listed for the center's vocational track program and whose TABE reading or math scores fell just below the cutoff for admission (7th grade). The coordinator felt these students would benefit from having employment-related courses prior to their vocational courses since their job-related experiences tended to be limited. Thus, she offered them the opportunity of being admitted to the regular vocational classes if they completed both the Employment and Math strands. She called this program *Prelude to Success* and told the students this was the experience they needed to succeed in Brooklyn's vocational classes.

The vocational program at Brooklyn runs for three 10-week semesters. The research plan involved tracking the WES students through their first semester and comparing their performance in school with the performance of a matched set of controls, similar in age and gender and having TABE reading and math scores as close as possible to the *Prelude* students. Their performance would also be compared with all other students in the vocational track classes. The research plan is shown below.

Figure 5.1 Research Design for *Prelude to Success* Experiment

Group	Feb	March	April	May	June
1. Prelud*e* Group (22)	WES Emp. & Math Strands	First 10-Week Semester for Vocational Track Students			
2. Matched Controls (16)	nothing				
3. Others in Vocational Program (63)	nothing				

Seventeen of the 22 *Prelude* students completed both strands and all but one of those 17 enrolled in the first 10-week Brooklyn EOC semester. Each *Prelude* student was matched with a non-*Prelude* counterpart based on 4 criteria. Students were first grouped by gender and then matched based on their age and TABE reading and math scores.

Table 5.1 Characteristics of the Vocational Preparation Groups

		Prelude Students	**Matched Controls**	**Other Students**	**Total**
Total	n	16	16	63	95
	%	100%	100%	100%	100%
Gender	Male	10	10	19	39
		63%	63%	30%	41%
	Female	6	6	44	56
		37%	37%	70%	59%
Age	Mean	32	41	38	40
	Range	29-54	23-51	18-75	18-75
TABE	Reading	8.95	9.31	9.62	9.46
	Math	8.38	8.01	8.55	8.43

As Table 5.1 indicates, students in all three groups had similar TABE scores for both math and reading. The controls and other vocational students had higher average reading scores (by .35-.67 grade difference). *Prelude* students' average math scores placed them between the control and other vocational student groups. However, none of the groups had significantly different average TABE scores, indicating the groups were well matched in these areas.

The performance of the three groups is shown in Table 5.2. Overall, 37% of those who entered the vocational program dropped or had a failing average by the end of the first semester. The average for *Prelude* students was slightly lower. However, the matched controls were lower yet—19%. The other vocational students dropped or failed at a rate of 43%. These results are difficult to interpret.

Table 5.2 Attrition Rates of Spring 2001 Vocational Students

Group	n	Passed	Failed or Dropped
WES *Prelude* Students	16 100%	11 69%	5 31%
Matched Controls	16 100%	13 81%	3 19%
Other Vocational Students	63 100%	36 57%	27 43%
Total	95 100%	60 63%	35 37%

Students' end-of-semester grade-point averages are shown in Table 5.2. Grades were calculated for those students who "passed" the semester by earning an overall average of ≥65% on their final grades for the semester. A comparison of average final grades revealed that *Prelude* students had final grades 2-3% higher than the other groups, though this advantage was not statistically significant. These findings indicate that even though *Prelude* students had lower baseline TABE reading scores—low enough to exclude them from normal admission to the vocational program—their performance in class was as good as all other students.

Table 5.2 Final Grades

Group	n	Average Grades
WES *Prelude* Students	11	79.9
Matched Controls	13	77.5
Other Vocational Students	36	77.0
Total	60	77.6

Note: Average of final grades in all vocational courses taken during the semester.

Overall, while study numbers are quite small, these findings suggest that a WES *Prelude* experience can facilitate school success for at-risk adult learners who ordinarily would not qualify for admission to the very training they need to improve their chances for improved employment.

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Appendices

Content Outlines of WES Strands

Figures A.1 – A.4

CASAS Level Descriptors

Figures A.5 – A.6

Supplementary Data Tables

Tables A.1 – A.6

Measurement Appendix

(Bound Separately)

Figure A.1 Outline of *Workplace Essential Skills* Employment Strand

Unit #	Program Lesson	Skill
1.	**Planning to Work**	Thinking About Work
		Making a Career Plan
		Researching Jobs and Careers
2.	**Matching Skills & Jobs**	Assessing Your Employability
		Finding Job Leads
		Making the Job Search Your job
3.	**Applying for Jobs**	Figuring Out the Application Process
		Learning How Employers Screen
		Job Seekers
		Completing Job Application Forms
4.	**Resumes, Tests, & Choices**	Understanding the Purposes of Resumes
		Deciding Which Job Openings to Pursue
		Comparing Job Opportunities
5.	**Interviewing**	Exploring the Interview Process
		Preparing for an Interview
		Interviewing and Follow-Up
6.	**Ready for Work**	Understanding Your Employer's Expectations
		Learning the Meaning of "Work Ready"
		Working as a New Hire
7.	**Workplace Safety**	Understanding Safety Issues
		Recognizing Safety Issues
		Learning How to Protect Yourself
		and Your Co-workers
8.	**Learning at Work**	Learning on the job
		Taking Charge of Your Own Training
		Training over the Long Term

Figure A.2 Outline of *Workplace Essential Skills* Communication Strand

Unit #	Program Lesson	Skill
9.	**The Language of Work**	Speaking and Listening
		Identifying Nonverbal Communication
		Developing Effective
		Communication Skills
10.	**Communicating with Co-Workers & Supervisors**	Communicating Successfully with Co-Workers
		Communicating with Supervisors
		Resolving Conflicts with
		Co-Workers and Supervisors
11.	**Working Together**	Developing Teamwork Skills
		Participating on a Work Team
		Being Part of an Effective Team
12.	**Communicating with Customers**	Understanding the Importance of Customer Satisfaction
		Providing for Customers' Needs
		Working with Difficult Customers
13.	**A Process for Writing**	Becoming an Effective Writer
		Understanding Workplace Writing
		Using Appropriate Language
14.	**Supplying Information: Directions, Forms, & Charts**	Writing Down Information
		Working with Forms
		Using Charts Effectively
15.	**Writing Memos & Letters**	Planning Written Communication
		Organizing and Writing First Drafts
		Writing and Distributing Final Drafts

Figure A.3 Outline of *Workplace Essential Skills* Reading Strand

Unit #	Program Lesson	Skill
16.	**Reading for a Purpose**	Reading for Different Purposes
		Using Different Approaches to Reading
		Using Strategies to Understand
		What You Read
17.	**Finding What You Need: Forms & Charts**	Understanding Forms
		Understanding Charts
		Using Forms and Charts
18.	**Following Directions**	Reading Written Instructions
		Interpreting Pictorial Instructions
		Following Instructions
19.	**Reading Reports & Manuals**	Becoming Familiar with Memos, Reports, and Workplace References
		Finding the Information You Need
		Using References Effectively

Figure A.4 Outline of *Workplace Essential Skills* Math Strand

Unit #	Program Lesson	Skill
20.	**Number Sense**	Working with Place Value
		Grouping, Sorting, and Using Patterns
		Estimation and Number Sense
21.	**Solving Problems**	Adding and Subtracting
		Multiplying and Dividing
		Estimating and Problem Solving
22.	**Fractions, Decimals, & Percents**	Reading Decimals
		Understanding and Comparing Fractions
		Understanding Proportion and Percent
23.	**Measurements & Formulas**	Using English Measurement
		Using metric Measurement
		Formulas and Problem Solving
24.	**Trends & Predictions: Graphs & Data**	What Is Data?
		Data and Statistics
		Reading a Graph

Figure A.5 CASAS Basic Skill Levels for Writing*

Proficiency Level 2: Beginning Literacy ABE. Weighted Score Range 10-14.

Individuals at this level generally can write letters, numbers and a limited number of basic sight words and simple sentences related to immediate needs. Other skills may include: filling in basic personal information on simplified forms including signature and date; writing very simple notes (e.g., writing a note to a co-worker or child's teacher); making simple entries on a work log form; completing a simple inventory form. Can handle only the most basic written communication in English in routine entry-level jobs in which all tasks can be demonstrated.

Proficiency Level 3: Beginning Intermediate Basic Skills ABE. Weighted Score Range 15-19.

Individuals at this level generally can write simple notes and messages based on familiar situations. Other skills may include: completing short work orders; filling out forms requiring basic personal information; taking simple phone messages. Can handle jobs or job training that involve some simple written communication.

Proficiency Level 4: Advanced Basic Skills ABE. Weighted Score Range 20-22.

Individuals at this level generally can write short routine work memos or reports. Other skills may include: writing e-mail messages; filling out basic medical forms and job applications; describing basic work procedures in writing; completing incident report forms; making log entries to document work activities; taking notes and phone messages; writing personal notes or letters. Persons at this level are generally able to begin General Education Development (GED) preparation, and *may* be able to pass the writing section of the GED test.

Proficiency Level 5: Adult Secondary. Weighted Score Range 23.

Individuals at this level generally can perform writing tasks, such as most letters, logs, memos, and forms, with reasonable accuracy to meet most personal and employment-related needs. Other skills may include: taking notes from meetings and recorded messages; describing work or training procedures including basic safety directives, job aids, and maintenance instructions; stating personal and employment goals. Persons at this level generally are able to successfully complete the writing section of the Tests of General Educational Development (GED Tests).

*Reprinted from CASAS Basic Skill Levels for Writing (Feb., 2001).

Figure A.6 CASAS Skill Level Descriptors for ABE*

D	**Adult Secondary (Scaled Score: 236–245)** Can read and follow multi-step directions; read and interpret common legal forms and manuals; use math in business, such as calculating discounts; create and use tables and graphs; communicate personal opinions in written form; write an accident or incident report. Can integrate information from multiple texts, charts, and graphs as well as evaluate and organize information. Can perform tasks that involve oral and written instructions in both familiar and unfamiliar situations.
C	**Advanced Basic Skills (Scaled Score: 221–235)** Can handle most routine reading, writing, and computational tasks related to their life roles. Can interpret routine charts, graphs, and labels; read and interpret a simple handbook for employees; interpret a payroll stub; complete an order form and do calculations; compute tips; reconcile a bank statement; fill out medical information forms and job applications. Can follow multi-step diagrams and written instructions; maintain a family budget; and write a simple accident or incident report. Can handle jobs and job training situations that involve following oral and simple written instructions and diagrams. Persons at the upper end of this score range are able to begin GED preparation.
B	**Intermediate Basic Skills (Scaled Score: 211–220)** Can handle basic reading, writing, and computational tasks related to life roles. Can read and interpret simplified and some authentic materials on familiar topics. Can interpret simple charts, graphs, and labels; interpret a basic payroll stub; follow basic written instructions and diagrams. Can complete a simple order form and do calculations; fill out basic medical information forms and basic job applications; follow basic oral and written instructions and diagrams. Can handle jobs and/or job training that involve following basic oral and written instructions and diagrams if they can be clarified orally.
	Beginning Basic Skills (Scaled Score: 200–210) Can fill out simple forms requiring basic personal information, write a simple list or telephone message, calculate a single simple operation when numbers are given, and make simple change. Can read and interpret simple sentences on familiar topics. Can read and interpret simple directions, signs, maps, and simple menus. Can handle entry level jobs that involve some simple written communication.

*Reported from the CASAS Resource Catalog 2000. Levels A and E are not included because none of the WES students had scores placing them in these levels.

Table A.1 Demographics of Participants Who Completed the Study

Demographic	Total†	Employ-ment	Communi-cation	Reading	Math
Total No. of Learners	137 (100%)	71* (100%)	50* (100%)	43* (100%)	51* (100%)
Age					
≤ 35	59 (43%)	20 (28%)	25 (50%)	22 (51%)	22 (43%)
> 35	69 (50%)	41 (58%)	25 (50%)	21 (49%)	29 (57%)
Unknown	9 (7%)	9 (13%)	0 (0%)	0 (0%)	0 (0%)
Gender					
Males	45 (33%)	25 (35%)	15 (30%)	11 (26%)	19 (37%)
Females	92 (67%)	46 (65%)	35 (70%)	32 (74%)	32 (63%)
Educational Attainment					
≤ 8th grade	7 (5%)	2 (3%)	2 (4%)	4 (9%)	3 (6%)
Some H.S.	36 (26%)	13 (18%)	19 (38%)	18 (42%)	16 (31%)
H.S. Diploma or GED	45 (33%)	38 (54%)	25 (50%)	16 (37%)	26 (51%)
Unknown	29 (21%)	18 (25%)	6 (12%)	5 (12%)	6 (12%)
Employment Status					
Unemployed	83 (61%)	39 (55%)	27 (54%)	32 (74%)	27 (53%)
Part Time	20 (15%)	10 (14%)	13 (26%)	7 (16%)	9 (18%)
Full Time	16 (12%)	7 (10%)	7 (14%)	2 (5%)	11 (22%)
Unknown	18 (13%)	15 (21%)	3 (6%)	2 (5%)	4 (8%)

†Unduplicated total.
*Note that the total number of finishers for the four strands exceeds 137 because students could study more than one WES strand.

Table A.2 Computer Experience of Completers

Demographic	Total†	Employ-ment	Communi-cation	Reading	Math
Total	137(100%)	71 (100%)	50 (100%)	43 (100%)	51 (100%)
Computer Experience					
Never use	13 (11%)*	8 (14%)	4 (8%)	4 (10%)	5 (10%)
Use occasionally	72 (58%)	33 (57%)	31 (63%)	26 (62%)	28 (57%)
Use often	38 (31%)	17 (29%)	14 (29%)	11 (26%)	15 (31%)
Computer Access					
Home computer	60 (48%)	27 (46%)	25 (51%)	22 (52%)	32 (64%)
Home computer with Internet connection	43 (50%)	21 (49%)	18 (55%)	14 (48%)	19 (50%)
Other Access					
Easy access to computer outside home	84 (76%)	41 (75%)	28 (67%)	22 (65%)	32 (82%)
Computers and Employment					
Computer used at work	43 (35%)	23 (40%)	15 (31%)	12 (29%)	19 (40%)
Familiarity with Computer Applications and Actions					
Word processors	48 (40%)	26 (49%)	17 (35%)	14 (33%)	24 (53%)
Spreadsheet programs	27 (23%)	13 (26%)	7 (14%)	10 (24%)	8 (18%)
Computer games	53 (44%)	34 (63%)	17 (35%)	10 (24%)	25 (54%)
Fixing things on computers	40 (34%)	16 (30%)	13 (27%)	8 (19%)	19 (43%)
Knowledge of Internet					
Have never used	42 (40%)	20 (49%)	18 (38%)	19 (46%)	9 (27%)
Have a little experience	43 (41%)	15 (37%)	22 (47%)	17 (42%)	16 (49%)
Have a lot of experience	20 (19%)	6 (15%)	7 (15%)	5 (12%)	8 (24%)

†Unduplicated total.

*Percents are based on the number of students who responded to a given question. For example, 123 of the 137 students who completed the survey answered the question on computer experience. The 13 who responded “never use” constitute 11% of the 123 respondents who completed that item.

Table A.3 Subscales for Good Practices in Job Seeking (N=60)

Section	Total Points	Pre Mean	Post Mean	Diff.	% Increase/ Decrease	Sig.
Job Readiness/Search	12	8.95	10.22	1.27	11%	.001
Job Applications	8	5.64	6.59	0.95	12%	.002
Interviewing	8	6.46	7.07	0.61	8%	.019
Resumes & Cover Letters	8	5.75	6.61	0.86	11%	.003
On the Job	8	6.39	6.90	0.51	6%	.035
Workplace Safety	8	6.51	7.00	0.49	6%	.052
Learning at Work	8	6.22	6.66	0.44	6%	.133
Total	**60**	**45.95**	**51.05**	**5.10**	**9%**	**.002**

Table A.4 Breakdown by Category of CASAS *Form Task* Results (N=60)

	Total Points	Pre Mean	Post Mean	Diff	% Increase/ Decrease	Sig.
Categories						
Content	15	11.20	12.73	1.53	14%	.000
Spell, Capitalization, & Punctuation	4	3.28	3.41	0.13	4%	.052
Legibility & Appearance	4	2.68	2.97	0.28	11%	.000
Total	23	17.16	19.10	1.94	11%	.000
Score without S/P/C	19	13.88	15.69	1.81	13%	.000
Level Score Total	5	3.24	3.53	.29	9%	.001

Table A.5 Item-Level Results for the *Using a Chart* Task (N=39)

	Points Possible	Pre Mean	Post Mean	diff.	% Change	Sig.
Students at lunch on Monday?	1	0.56	0.50	-0.06	-6%	0.058
Staff needed for Thursday p.m.	1	0.59	0.68	0.09	9%	0.16
Staff needed for Thursday a.m.	1	0.69	0.80	0.11	11%	1
Leah cost one week	1	0.70	0.73	0.03	3%	0.57
Leah one week	1	0.74	0.71	-0.03	-3%	1
Students at lunch on Wednesday?	1	0.81	0.94	0.13	13%	0.325
Total	**6**	**3.79**	**3.92**	**0.13**	**2%**	**0.424**

Table A.6 Item-Level Results for the *Form Completion* Task (N=39)

Item	Points Possible	Pre Mean	Post Mean	% Change	Sig.
Name of requester	1	.19	.33	14%	0.058
Date of request	1	.44	.56	12%	0.325
Equipment	1	.64	.67	3%	0.744
Handling missing information	1	.86	.78	-8%	0.183
Refreshments	1	.87	.92	5%	0.324
Missing information	1	.87	.92	5%	0.423
Time needed: end	1	.89	.87	-2%	0.711
Room setup	1	.92	.97	5%	0.324
Type of room	1	.94	1.00	6%	0.16
Date needed	1	.94	.94	0%	1.00
Purpose	1	.95	.95	0%	1.00
Time needed: start	1	.97	.95	-2%	0.57
Total	**12**	**9.28**	**9.51**	2%	**0.424**