Comprehensive
Adult
Student
Assessment
System

An Application Submitted to the Program Effectiveness Panel of the National Diffusion Network, U.S. Department of Education

SUMMARY DOCUMENT

January 1993

DESCRIPTION OF PROGRAM

A. Goals

The Comprehensive Adult Student Assessment system (CASAS) is a competency based curriculum management and assessment system. It is designed by field practitioners to assist adult and alternative secondary programs in providing effective curriculum and assessment materials and procedures for their students. The system integrates basic skills curriculum, instruction and assessment within a functional adult life skills context. Implementation of CASAS helps students achieve higher learning gains, persist toward identified goals, and attain these goals [such as General Educational Development (GED), High School Diploma, job, personal goals].

B. Purpose and Needs Addressed

Reading, writing, speaking, listening, and computation are crucial skills needed to function competently in everyday life. Adult and alternative education programs, including Adult Basic Education (ABE), English as a Second Language (ESL), Adult Secondary Education (ASE), special education and employability programs target adults who are locked out of good jobs, community participation, and the democratic process because they lack adequate basic skills.

These programs need an organized, student responsive adult basic education system that effectively meets a broad range of student basic skill needs and diverse goals. Teachers must have the relevant curriculum, strategies and assessment tools to place students into the appropriate program and learning level, assess progress toward goals, and certify competency attainment. Students must see the direct relationship of curriculum and assessment to their goals. Students persist in programs and meet their learning goals at higher rates when they see the relevance of the learning to their goals. When they do not, they are more likely to drop out.

The problems of literacy in reading, writing and mathematics among working age adults are a national concern. "Seventy-five percent of the American workforce in the year 2000 are adults today, and 20-30 million have serious problems with basic skills." (Chisman, 1989) The National Education Goal #5 states: "By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship." Americans need to invest in adult learning--the rapid and complex global changes taking place in technology demand this investment.

The Secretary's Commission on Achieving Necessary Skills (SCANS) Report indicates that more than half America's young people leave school without the knowledge needed to find and hold good jobs. The Commission's findings and recommendations have fueled the discussion of how prepared the workers of today and tomorrow really are. Adult literacy is a high priority because the nation cannot afford an illiterate and incompetent workforce.

CASAS provides adult basic education programs with the training, curriculum resources and a comprehensive assessment system to address the diverse needs of this adult population and provide a relevant learning program that enables students to persist in program and achieve their goals.

C. Intended Audience

CASAS is intended for adult and alternative secondary education programs that serve persons functioning at or below a high school level, including limited English proficient adults who lack a high school diploma or the basic skills to function effectively in the workplace and in their daily lives. The system was initially implemented in adult basic education programs funded under the Federal Adult Basic Education Act and has expanded over the years to include employability and workplace learning programs, welfare reform programs, and family literacy programs.

In the program year ending June 30, 1990 federally funded adult basic education programs served 3.7 million students, with California serving one third of this total. Fifty-seven percent of the students were female; approximately 43 percent were between 16-24 years old, 62 percent of students were white, 17 percent were Black, and 13 percent were Hispanic.

National adult education demographics portray a fragmented infrastructure of programs operating in a multitude of learning sites dedicated to serving the "most in need" students. These programs are staffed by predominantly part-time teachers who, with a great deal of autonomy and dedication, face wide-ranging and daunting curricular and situational demands.

There are 2,800 adult and alternative education programs at 24,325 sites across the country, most administered by local education agencies. Approximately 77 percent of all programs have enrollments of fewer than 500. Sites vary widely in size from small tutoring programs to learning centers serving over 10,000 adults. Twenty-seven percent of programs are offered in correctional facilities, 25 percent in places of employment and community centers, and 6 percent or fewer offer programs in private residences, churches, and public libraries. The delivery system includes many part-time teachers in off-campus locations with few resources to assist them. More than 80 percent of adult education teachers work part time. Most students enroll on a voluntary basis and leave when they meet their goals--or before if the instruction is not meeting their needs. The typical student attends class 5-13 hours per week.

D. Background, Foundation, and Theoretical Framework

In 1978, a statewide assessment of Adult Basic Education programs in California was conducted by the California Department of Education, Adult Education Unit. This study indicated that most Adult Basic Education programs lacked uniform standards, were characterized as having high student attrition rates, traditional school age curricular materials and ineffective student assessment procedures. A review of national research on effective adult education programs and practices led the California Department of Education to adopt a competency based approach to the delivery of adult basic education. Emphasis was placed on the mastery of basic skills in a functional context related to adult students' goals and needs, and curriculum alignment, the integration of curriculum, instruction and assessment. The assessment system needed to provide accountability to the individual student and also to report group achievement of skill levels and competency attainment for all program levels in adult basic education, including high school/GED. A statewide comprehensive curriculum management and assessment system was needed to place students accurately into appropriate programs and program levels, to determine where instruction should begin, to monitor progress toward educational goals, and to certify competency attainment. The state also required accountability data to ensure that students were progressing and meeting specified goals and to provide program impact reports to the legislature and to the federal government.

In 1980, the California Department of Education provided strong leadership to local adult education program providers by funding the California Adult Student Assessment System (CASAS) to meet these needs. Initially funded by Federal Adult Basic Education Act, Section 310, P.L. 91-230, as amended, CASAS was established as a consortium of local adult basic education programs. The CASAS Consortium included 48 districts and agencies, including adult schools, community colleges, community based organizations, correctional institutions and was coordinated by CASAS staff from the San Diego Community College District Foundation, now the Foundation for Educational Achievement.

The CASAS Consortium developed, field tested, and implemented a comprehensive, statewide curriculum management and assessment system that accurately:

- places students into the appropriate program and level
- provides a student learning plan based on needs and goals
- monitors both group and individual progress
- certifies competency attainment and is linked to high school completion and job training
- integrates curriculum, instruction, and assessment (curriculum alignment)
- provides relevant data to local adult education programs for program planning, evaluation and allocation of resources
- provides relevant data to state and federal funding sources for program accountability and program evaluation
- is adaptable to diverse adult and alternative student populations and program delivery systems

The Consortium consisted of experienced adult and alternative education practitioners who invested their time, energy, expertise, and imagination to develop relevant products and processes that assure a quality education for the adult and alternative student who is least educated and most in need of functional skills and training. This involvement in the development and field testing by active adult and alternative education practitioners has resulted in widespread implementation and dissemination at a more rapid rate than is usually expected of innovations.

In 1984, CASAS was nationally validated by the U.S. Department of Education, Joint Dissemination Review Panel. In 1985 the name was changed to the Comprehensive Adult Student Assessment System, the only adult program of its kind in the United States.

Since 1984, CASAS has been implemented beyond adult basic education programs. State social services are using the functional basic skills appraisal with welfare participants to determine the need for referrals to basic education programs and to report aggregrate basic skills data to legislators and policymakers. Job Training Partnership Act (JTPA) funded programs are using CASAS for employability programs. CASAS has been implemented in continuation high schools, alternative high school completion programs, juvenile court schools, correctional facilities and comprehensive high school programs serving special needs students. Adult special education programs use CASAS to focus on competencies for independent living and employability.

Education programs in 48 states outside California have implemented CASAS with diverse student populations. Local agency and state staff of these educational programs serve as members of the CASAS National Consortium which provides for ongoing development, field testing and evaluation of the system.

The CASAS system has been designed to accommodate new populations served by these programs and new national and state initiatives related to adult literacy, workforce basics, immigration and naturalization, welfare reform, the homeless, family literacy, and employment preparation for at-risk youth and displaced adult workers. Current national studies that utilize CASAS are National Even Start Family Literacy Programs, National Evaluation of Adult Education Programs, and National Evaluation of JOBS.

Theoretical Framework

In the mid 1970s, competency based adult education gained national recognition as a major breakthrough in adult education theory and practice. The Adult Performance Level (APL) study, a ground-breaking national study commissioned by the U.S. Office of Education and conducted by the University of Texas, identified skill areas and competencies necessary for adults to function in everyday life. The study concludes that approximately 64 million American adults might be functionally illiterate. At the same time, the Department of Defense funded research (Sticht, 1975) to determine the literacy requirements of army jobs. This provided a solid research base for analyzing the literacy skills required in a variety of army work situations. Other research (Knowles, et. al., 1980) pointed out the importance of taking into consideration the full range of abilities and knowledge adults bring to a learning experience. Together, each of these developments signaled a new turn toward using the functional context and needs of the student as the starting point for curriculum development, instruction and assessment.

The New York State External High School Diploma Program (1972) credentialed adults who had acquired skills through their life experiences and could demonstrate these skills. Several states adopted this model, and it was approved by the Joint Dissemination Review Panel and disseminated by the National Diffusion Network.

CASAS has built on this previous research and incorporated a commonly accepted definition of competency based education as a "performance-based process leading to demonstrated mastery of basic and life skills necessary for the individual to function proficiently in society." (National Center for Educational Statistics, 1982). CASAS emphasizes a functional life skills approach including "prescribed outcomes, pre- and post-assessment, functional literacy content, and certification of mastery, variable structures or processes, and an adult learner orientation." (Kasworm, 1980) The California Department of Education funded CASAS to develop a curriculum management and assessment system to support the implementation of these key elements into adult basic education programs.

The development of the CASAS assessment components is based on the measurement methodology of Item Response Theory (IRT) Rasch Model, and item bank concepts. IRT is utilized for item and test development because of its superior psychometric qualities (Wright and Stone, 1979). IRT defines the relationship between the trait or ability being measured and observable test performance in terms of a mathematical model. The student's ability is a function of the test item difficulties, the discriminating power of the items, and the probability of students getting items correct by chance.

CASAS has developed an item bank of more than 5,000 field tested and calibrated functional basic skill test items, each with an established difficulty level. Tests developed from this item bank can provide more relevant information than the use of classical techniques alone. Test results relate to what a student knows and can apply in an adult functional context, rather than referencing grade level equivalent norms established for children.

E. Features: How the Program Operates

• **Scope.** CASAS links curriculum, instruction and assessment, allows for monitoring of individual and group progress across program levels, and assesses those competencies needed by students to attain their goals. (See diagram of CASAS components and key elements, Appendix A.) It can be customized to reflect the specific needs and goals of individual students served by programs. The CASAS system components include:

1) The CASAS Competency List and *CASAS Instructional Materials Guide* to:

- Identify competencies needed by students to reach their goals
- Select and use appropriate instructional materials
- Use a variety of instructional strategies

The CASAS Competency List contains 286 competency statements within the areas of Consumer Economics; Community Resources; Health; Occupational Knowledge; Government and Law; Learning to Learn; and Domestic Skills. The list is updated and revalidated annually by the national consortium. (See Appendix B for partial listing of competencies.)

The *CASAS Instructional Materials Guide* and *Quick Search* are resources for teachers to select and use commercially available instructional materials which present basic skills in relevant adult functional contexts. These resources provide an important link between curriculum, instruction, and assessment. Materials are coded to the CASAS Competency List by type of program (ABE/ESL), by four instructional levels, and by specific chapters or modules. Materials included meet established criteria, and they are updated annually. (See Appendix C for sample pages from the Guide.)

2) CASAS assessment materials and procedures assist to:

- Place students into appropriate program and level
- Prepare student learning plans
- Monitor, record, and report student progress
- Counsel students for change of program/goal attainment

CASAS provides a major breakthrough in assessment for adult education programs. Before CASAS, programs were predominantly using standardized academic basic skill tests normed on children and reporting scores in grade levels. CASAS test results are reported on an equal interval scale. The CASAS assessment components include standardized measures of functional basic skills in reading, math, and listening comprehension, utilizing an item bank, as well as performance-based and alternative assessment instruments and strategies to measure oral communication skills, life skills and employability skills. CASAS standardized tests include:

- Appraisal tests to place students into program and instructional level
- Progress tests to monitor student learning gains in reading, math, and listening comprehension
- Certification tests to verify attainment of competencies at specified instructional levels and exit from program or program level

Tests measure specific competencies and have an established difficulty range. A technical manual and users guides provide technical information related to test construction, field test studies, validity and reliability, and other information related to appropriate use of the assessment components.

This assessment permits the measurement of student progress on an equal interval scale, independent of norm groups. The tests also provide criterion/content information about student mastery and are referenced to specific competency statements. Test results provide reliable data on individual student progress as well as group progress after an instructional intervention. (See Appendix D for sample test items.)

3) CASAS Training and Technical Assistance for Program Administrators, Coordinators and Instruction Staff

A key system component is the intensive teacher training and support. The training program is set up according to a four step process which utilizes staff and trainer time in the most efficient manner.

- Pre-training information, awareness sessions and planning tasks are completed by the agency team before training takes place. This pre-training step with the key staff reduces the need for a longer training workshop.

- One to two days of initial training are provided for all staff involved in the implementation and include all key elements, linking curriculum, assessment and instruction, using appraisal and pre-post tests, using results for placement and monitoring progress, and planning curriculum.
- One to two days of additional training and technical assistance are provided after initial implementation.
- One-day evaluation workshop is provided to review the implementation process, review student appraisal and progress data, and to make adaptations if needed.

Additionally, CASAS uses certified trainers on a regional basis to provide implementing programs with ongoing assistance and to provide more direct assistance to agencies in the region.

• **Curriculum, Instructional Approach, and Learning Materials.** Teachers are trained to use the *CASAS Instructional Materials Guide (and Quick Search)* to select instructional materials that are relevant to the needs and goals of their students. CASAS assists teachers in moving from the role of lecturer to the role of facilitator of student learning with the emphasis on the student. Students take responsibility for their own learning, participate in the development of their learning plan, know what competencies need to be demonstrated to attain their goals, and monitor their own progress toward these goals. This system is effective for both group and individual settings based on individual student needs. Classroom activities are developed based on real life situations. Curriculum materials are supplemented with materials such as utility bills, medicine labels, classified advertisements, and items that enable the students to function more proficiently in society.

• **Staff Activities and Staffing Patterns**. The local program director usually arranges for the adoption, including policy approvals, contract arrangements, program preparation and identifying staff who will participate in the training and implementation. During the first phase of training a program staff person is designated to serve as the CASAS site coordinator. This person is directly involved with implementing the system and assumes a leadership role throughout the implementation. The site coordinator serves as the liaison between the program and the CASAS staff, provides assistance and support to new staff members, and is encouraged to pursue certification as a CASAS trainer.

• **Staff Development Activities.** Most adult education programs do not have access to sustained quality staff development support for instructors. Prior to implementation programs must make a commitment to participate in the four step training schedule previously described. In addition, it is expected that programs will provide staff time for planning, for selection of curriculum materials, for developing student learning plans and reviewing assessment data as well as collecting formative evaluation data.

• **Management Activities.** CASAS provides teachers with tools to use assessment results and target appropriate instruction for each student. The CASAS Class Profile displays assessment results by class. Results can be shared with the students on a class and individual basis. The CASAS Test Content by Item List for each CASAS test provides the link between individual assessment results and curriculum materials. An individualized learning plan is then developed, focusing on the competencies needed to attain specific goals. (See Appendix E for sample Class Profile and Test Content by Item List.) The CASAS TOPSpro provides software to score and report student test data from scannable answer sheets. TOPSpro is designed to report information on an individual, class or program level.

• **Monitoring and Evaluation Procedures.** At the time CASAS was developed, most programs in California and nationally were using academic tests normed on children. Grade level results for adults has come under increasing scrutiny (Venezky, 1992; Sticht, 1988; Kirch & Guthrie, 1977-78). A sixth grader who reads at a grade six reading level and an adult whose test results indicate a grade six reading level will have widely different reading abilities and life experiences. The content of tests used in many programs has not reflected the curriculum or instruction. This has made monitoring and evaluation of adult education programs problematic.

CASAS tests are used to monitor student performance across a continuum of program levels and programs. Teachers can document the competencies students master at specific difficulty levels. The descriptive functional scale levels listed below have been established to assist in the interpretation of test results. The scoring and interpretation provide key information to help make decisions affecting placement, monitoring of progress, and certification of students.

BELOW 200 Difficulty with basic literacy and computational skills needed for employment and in the community, including providing basic personal identification in written form (e.g. job

applications), computing wages and deductions on paychecks, and following simple basic written directions and safety procedures. (A Level--Beginning)

200 - 219 Low literacy skills. Difficulty pursuing other than entry-level jobs requiring minimal literacy skills. Can fill out simple job application forms and can demonstrate basic computation. (B Level--Intermediate)

220 - 234 Above a basic literacy level. Able to handle basic literacy tasks and basic functional math skills. Difficulty following more complex directions. Functioning below high school level. (C Level--Advanced)

235+ Functioning at or above a high school entry level. Can usually perform work that involves following oral and written directions in familiar and some unfamiliar situations. Can profit from instruction in General Educational Development (GED) preparation and, in a short time have a high probability of passing the GED test.

Standardized tests are one of several assessment components in the system. Teachers are also trained to incorporate other assessments including observational checklists, writing assessment, performance assessments and an oral communications assessment to assist with monitoring of student progress.

F. Significance of Program Design as Compared to Similar Programs

There is no other comprehensive curriculum management and assessment system appropriate for adult students. CASAS was created to fill the void in curriculum management and adult functional basic skills assessment based on research of effective educational programs for adult students. It is the only system that provides an accurate measurement continuum from adult special education through high school completion that is linked to curriculum and instruction.

The most widely used tests in adult basic education were normed on children, do not accurately assess the lower levels of adult basic education, do not provide listening comprehension assessment for the limited English proficient, and are not linked to a functional adult life skills curriculum. Use of grade-level designations in these tests are misleading for adults in that they assume similar experiential and background knowledge. The National Assessment for Educational Progress Young Adult Survey in 1985 used functional context items and scaled scores as opposed to grade levels to define young adults' abilities in prose, document, and quantitative literacy. The Education and Testing Service (ETS) is now using a similiar scale with the National Adult Literacy Survey (NALS) and Test of Applied Literacy Skills (TALS). No assessment other than CASAS measures the lower literacy levels, is able to be customized to measure specific competencies at a specified difficulty level, and is linked to a system of curriculum and instruction. All of the above validate the important contribution that CASAS has provided for adult education. Programs using CASAS are able to provide education that is relevant to the adult student.

POTENTIAL FOR REPLICATION

A. Settings and Participants

CASAS was originally established as a consortium of local education agencies in California that provide adult basic education to diverse student populations with enrollments ranging from 30 participants or fewer to large, urban schools with enrollments of 10,000 or more students. These programs included unified school districts, community college districts, hospitals, correctional institutions and private non-profit organizations. The participation of these agencies in the development and field testing activities resulted in widespread implementation and dissemination of CASAS both within and outside California. The CASAS Consortium has now expanded to a national consortium and other programs including family literacy, welfare reform, workplace literacy, homeless education, and immigrant education.

Students participating in the initial CASAS field testing included a full range of adult and secondary students enrolled in ABE, ESL, and high school continuation programs serving students who are Black, Hispanic, Native American, Vietnamese, Chinese, Laotian, Korean, and Caucasian. Student ages ranged from 16 year olds to senior citizens and included various income levels. Program participants included native English speakers as well as individuals whose primary language is other than English.

B. Replicable Components and Documentation

During federal fiscal years 1991 and 1992, CASAS staff and certified trainers conducted trainings in more than 35 states with 114 adult and alternative education programs for almost 2,000 staff. Programs included ABE, ESL, high school, family literacy, special education, workplace preparation and training for youth and adults, correctional education, and homeless education programs.

The CASAS process, support materials, and trainings are well documented, and the system can be easily replicated in a variety of educational settings. CASAS certified trainers, staff, and consortium members have developed replicable support materials.

The process includes: 1) identifying competencies necessary for students to meet their goals, 2) linking those competencies to curriculum materials, and 3) linking those competencies to assessment. CASAS materials and processes that support the implementation include the CASAS Competency List, the *CASAS Curriculum Materials Guide,* CASAS assessment materials and procedures, and training and technical assistance. (Previously described in Section E in Description of Program.)

CASAS has implemented a rigorous process to ensure that there are qualified national, state and local trainers to meet the growing needs of adult and alternative education programs. The trainer certification process involves local agency certification and then training and evaluation for state and national certification. CASAS currently has 68 certified trainers with 25 certified at the national level, 7 state level trainers of trainers, and 36 state level trainers.

C. User Requirements

The following are minimal but critical requirements for new programs:

a. Programs must make a commitment to implement the key elements of CASAS.
b. Program staff must participate in implementation training and technical assistance.
c. Programs must have a core staff consisting minimally of a program coordinator, lead instructor, and clerical support staff.
d. Programs must have storage facilities such as a locked file cabinet for test security.

D. Costs for Implementation and Operation

CASAS is implemented at the program level, usually consisting of several sites, levels and multiple student populations. The following chart displays first-year installation and maintenance costs in subsequent years. Cost figures are based upon a program with two sites serving approximately 500 students in multiple classrooms and learning labs.

Item	**Start-up**	**Operation**
Personnel		
Program Coordinator (200 hours)	3,600	
Clerical Support (100 hours)	700	700
Training (days and travel)	2,400	1,100
Equipment	300	
Materials and Supplies	2,595	430
Total Cost	**9,595**	**2,230**
Cost Per Student	**19**	**5**
Other (Optional)		
CMMS[1]	200	
Staff Training[2] ----		
Scanning Equipment	2,500	
Total Cost	**12,295**	**2,230**
Cost Per Student	**25**	**5**

[1]CMMS CASAS Micro Management System has been replaced by TOPSpro (Tracking of Students and Programs)

[2]If program staff read the CMMS User's Guide, on-site training is not usually necessary. However, CASAS will provide training to agencies upon request. (This statement also holds true for TOPSpro installation)

EVIDENCE

The following claim statements reflect three basic experimental hypotheses: 1) students learn at a faster rate in fully implemented CASAS classrooms when compared to low implementing classrooms, 2) students are more likely to remain in CASAS supported adult education programs than in comparison programs, and 3) students are more likely to attain goals in CASAS supported classrooms than in comparison classrooms.

Claim Statements

1. **Students enrolled in adult and alternative education programs that have implemented key elements of CASAS demonstrate significant learning gains in comparison with students enrolled in adult and alternative education programs that have not implemented key elements of CASAS.**

2. **Students enrolled in adult and alternative education programs that have implemented key elements of CASAS demonstrate increased hours of participation in comparison with students enrolled in adult and alternative education programs that have not implemented key elements of CASAS.**

3. **Students enrolled in adult and alternative education programs that have implemented key elements of CASAS achieve increased goal attainment in comparison with students enrolled in adult and alternative education programs that have not implemented key elements of CASAS.**

DESCRIPTIONS OF FOUR MAJOR STUDIES USED TO SUPPORT CLAIMS

The major sources of evaluation evidence are drawn from the National Evaluation of Adult Education Programs and from three individual studies on CASAS implementation from California, Oregon, and North Carolina. Each study is described briefly below. Under each claim the studies are described in more detail in terms of design, sampling procedures, instrumentation, data collection / analysis, and results.

National Study

The U.S. Department of Education has funded a four-year study, the National Evaluation of Adult Education Programs, to evaluate the potential of programs supported by the Federal Adult Basic Education Act for significantly reducing deficits in adult populations with respect to literacy, English proficiency, and secondary education. This study is being conducted by Development Associates, Inc. with assistance from CASAS.

A stratified sample of 150 local programs was identified from national survey results of 2,619 local programs (93 percent) receiving federal funds in the program year ending June 30, 1990. The sampling plan involved both random and PPS sampling and was developed in consultation with sampling experts. A random sample within programs of new students who enter over the course of a year was included. CASAS developed the student level data collection forms, including gathering and compiling student learning gains data. The diversity of sampling techniques including stratification for program size and type, student population, and geographic location, permits the extension of research findings to the population from which the sample was derived. Measures taken to assure that the sample is representative of the adult education student and program population also increase the chances that CASAS adopters can replicate the results that support claim statements. Evaluation data for all three claims was drawn from all sampling agencies that elected to use CASAS assessment instruments to report student learning gains.

California Study

The California Department of Education commissioned an in-depth study to examine the impact of the mandate to implement competency based education in adult basic education programs in California. More than 80 percent of the students served attend ESL classes. Students are predominately Hispanic, followed by Asian and Indo-Chinese.

Eleven agencies in California, representative in terms of geographical location and CASAS implementation level, were identified. The sample was selected according to variation on three dimensions: 1) agency size (large, medium, and small), 2) geographical location (north, south, rural, urban), and 3) level of implementation (high, medium, low). An agency's level of implementation was determined by its progress toward implementing the key elements of a program as assessed by a panel of experts who had visited the eleven agencies and its rating on the Institutional Self-Assessment Measure (ISAM). On-site visitations by two field-based researchers using interview protocols and

classroom observation tools that focused on the key elements of CASAS validated the agency's ranking. Evaluation data for claims #1 and #2 was drawn from this statewide evaluation study. In addition, the Teaching Improvement Process (TIP) and the Instructor Survey were used for this study.

Oregon Study

A multi-agency state task force recommended that the basic skills assessment of Oregon's welfare clients participating in new reform programs meet several requirements: assess reading and math in a functional rather than academic context, be adult oriented, focus on employability skills, and be easily administered. Therefore, Oregon contracted with CASAS to provide a functional basic skills assessment system for reading and math, which Oregon named BASIS (Basic Adult Skills Inventory System).

Implementation of CASAS started with seven welfare reform pilot sites and has been expanded to include all welfare projects. State corrections began using CASAS assessment in its four main facilities in January, 1990 and has expanded to include all state facilities. Nine JTPA agencies use CASAS in youth and adult programs. Eleven of 16 community colleges are implementing CASAS. Oregon used the California study model to determine the level of CASAS implementation, and evidence for claim #2 is drawn from this study.

North Carolina Study

Rockingham Community College (RCC) in North Carolina took a leadership role in implementing the key elements of CASAS in its county-wide adult literacy program and adult education programs offered at various learning centers and in the workplace. RCC determined that the CASAS system represented the greatest innovation for increasing student learning gains, persistence in program, and goal attainment (GED).

The North Carolina data provides baseline information on student gains, persistence and GED completion rates prior to CASAS implementation and comparison data for the following two CASAS implementation years. Evaluation data for claims #2 and #3 is derived from the North Carolina study.

CLAIM #1 - Learning Gains

The evaluation evidence distinguishes between program level adoptions of CASAS and classroom level implementation of CASAS. It was determined that analysis of learning gains would require assessment of the degree to which individual classrooms had implemented CASAS since it was suspected that the extent of implementation may vary among classrooms within adult education programs. The most powerful evidence in support of claim #1 is based upon actual classroom observation and assessment to rate degree of CASAS implementation. Supplemental evidence also is presented based upon aggregate program level data.

Claim #1

1. **Students enrolled in adult and alternative education programs that have implemented key elements of CASAS demonstrate significant learning gains in comparison with students enrolled in adult and alternative education programs that have not implemented key elements of CASAS.**

The primary evidence for this claim is based on the Teaching Improvement Process (TIP), a standardized classroom observation instrument. The TIP was developed by a team of researchers who conducted the California study of teacher effectiveness in implementing key elements of instruction and curriculum management. The researchers observed and documented more than 100 adult education classrooms. This sample offered a wide variety of settings, programs, and instructional levels. Following a multi-stage process of review and revision, six categories emerged that could be used consistently to characterize and discuss individual, everyday teaching performances. The six categories are:

- Overall organization of the learning activity
- Lifeskill competency application
- Teacher monitoring of student performance
- Teaching to a variety of learning styles
- Appropriateness of materials
- Classroom grouping strategies

Design and Sample

To test claim #1, classrooms were selected at random to control for teacher, program and other independent environmental variables that could influence student gains while isolating the treatment (CASAS). Classrooms were then rated as to degree of CASAS implementation. Student learning gains from (treatment) classrooms were then compared to student learning gains from classrooms that demonstrated low implementation ratings. This rigorous design was selected to increase the probability that classrooms were equivalent in all respects except for the degree of CASAS implementation and to provide an appropriate comparison group. It can be stated with confidence that low implementing classrooms were comparable to experimental classrooms.

Instrument and Procedures

The TIP instrument has strong indications of interrater reliability among trained users of the instrumentation. Two measures of reliability have been developed: Coefficient of Consistency and Coefficient of Quality.

Coefficient of Consistency: .91

This measure indicates that in more than 130 cases of paired observations, pairs of trained observers have scored teaching performance in terms of all six TIP categories exactly the same, or not more than one interval away from one another 91 percent of the time.

Coefficient of Quality: .89

This measure indicates that in more than 130 cases of paired observations, pairs of trained observers have agreed in their scoring of teaching performances in terms of all six TIP categories as "average or above average" (2, 2.5, or 3) or as "below average" (1.5 and 1) 89 percent of the time.

Data Collection and Analysis

Overall results were aggregated and two subgroups of teachers were identified--those who ranked in the upper third of composite TIP scores (14.5 and above out of a total possible score of 18, N=25) and those who ranked in the lower third of composite TIP scores (10.5 and below, N=21). Student learning gains were determined by CASAS pre/post progress tests.

TABLE 1 - California Study (TIP Data) - Learning Gains

CASAS Pre-Post Student Learning Gain	Mean Gain (Scaled Score)	N (No. of Students)
HIGH (Above 9)	6.0*	454
LOW (9 & below)	3.2	111

*p < .05

The data provided suggests that there are some significant relationships between teacher performance as measured by the TIP and student performance as measured by CASAS pre/post progress tests. Specifically, teachers who have been scored as "high" overall in a composite TIP measure (above "9") have shown for their classrooms significantly higher mean CASAS student learning gains (mean gain of 6.00) than teachers who have been scored as "low" (whose students have shown mean gains of 3.21.)

The data also suggests significant relationships between teachers who have been scored as "high" ("2", "2.5", or "3") in certain TIP categories and higher mean student gains. These categories are 1) Overall Organization of Learning Activity, and 2) Teacher Monitoring of Student Performance.

Supplementary Evidence

Evidence on learning gains is additionally supported by aggregate program level data from three of the four studies described previously -- the National Study, the Oregon Study and the California Study.

National Study

The evaluation evidence is drawn from the stratified random sample of 65 local programs that elected to use CASAS assessment. [3] CASAS implementation ratings served to isolate the treatment sample while identifying an equivalent comparison group. Since the programs identified in the study were selected at random, there is reason to believe that

[3]Programs were encouraged but not required to test students for purposes of the National Study.

programs shared in common the variables that influence learning gains except CASAS implementation. Programs that were selected as a comparison were identified as appropriate because there was a strong rationale to consider their student population and educational delivery system equivalent to the treatment (CASAS) population in all respects except CASAS implementation.

The programs were divided into two categories - programs that have implemented key elements of CASAS and programs that administered a CASAS test only for the purpose of the National Study. CASAS implementors were identified by a panel of experts based on technical assistance and training received and on-site program verification. All answer sheets were collected and scored by CASAS staff. Mean test score gains and standard deviations were compared for all students in these selected programs. There were controls for hours of attendance and hours of participation.

TABLE 2 - National Study Programs - Learning Gains

	Average Learning Gain	Std. Deviation	N
CASAS ESL Implementors	5.1*	6.8	118
CASAS ESL Non-Implementors	3.1	8.6	281
CASAS ABE Implementors	5.3*	7.6	49
CASAS ABE Non-Implementors	2.8	6.3	92

*p < .05

Analysis of mean gain scores for programs with ESL and ABE students as measured by CASAS pre/post progress tests, showed that students enrolled in programs that implemented the key elements of CASAS achieved an average gain on a CASAS progress test two times greater than that achieved by students enrolled in programs that only administered the CASAS test for purposes of the National Study.

Oregon Study

The Oregon study also used a comparison group design with programs that had implemented key elements of CASAS and programs that used the assessment system only for reporting purposes. Oregon used CASAS standardized pre/post progress tests to measure student learning gains. The mean learning gain for all students in the comparison groups was computed. The results of the Oregon study indicate that after approximately 70 hours of instruction, students enrolled in programs that implemented the key elements of CASAS achieved an average gain greater than the comparison group.

TABLE 3 - Oregon Study - Learning Gains

		Mean Gain	Std. Deviation	N
READING	CASAS Implementors	8.1	6.7	54
	CASAS Non-Implementors	6.9	5.6	32
MATH	CASAS Implementors	12.2*	9.3	161
	CASAS Non-Implementors	7.9	7.5	50

*p < .001

California Study

The California study also used a comparison group design. The sample population included the entire student population from three programs identified as implementing key elements of CASAS and three programs identified as not implementing key elements of CASAS based on the overall study design described. The results of CASAS pre/post progress tests were analyzed by comparing the average of the mean score gains after approximately 100 hours of instruction for these comparison groups. Additionally, the gains were compared between the comparison groups by program and level. The results of the California study indicate that students enrolled in programs that implement key elements of CASAS achieved an average gain on the CASAS pre/post progress tests greater than that achieved by students enrolled in programs that did not implement the key elements of CASAS.

TABLE 4 - California Study - Learning Gains

	Mean Gain	Std. Deviation	N of Agencies
CASAS Implementors	4.93	7.79	3
CASAS Non-Implementors	3.53	8.39	3

To investigate this further, the breakdown of mean gain scores by program level presented in the table below confirms the direction of the difference in scores between implementing and non-implementing programs comparable in size and population.

TABLE 5 - California Study - Learning Gains by Program Level

	Implementation Rating	Mean Gain	Std. Deviation	N
Beginning	CASAS Implementors	6.39	10.28	73
	CASAS Non-Implementors	5.13	10.67	79
Intermediate	CASAS Implementors	4.23	6.71	90
	CASAS Non-Implementors	2.43	9.47	70
Advanced	CASAS Implementors	9.21*	8.89	19
	CASAS Non-Implementors	7.75	5.09	34

*p < .10

California Study - Instructor Survey

The Instructor Survey was designed to document, in a systematic way, the changes that were being reported at the classroom level by teachers as they implemented CASAS. The following key elements of CASAS are assessed in the survey:

- Teaching modes or methods of presentation
- Choice of new materials and use of old materials
- Frequency of testing / assessment
- Focus of instruction, academic / life skills
- Student interaction and enthusiasm
- Attitude toward testing / assessment
- Use of community resources
- Communication with other instructors on program issues
- Use of classroom aides

Respondents were teachers representing federally funded adult basic education programs in California and were from small, medium and large programs. The variables of teaching assignment, teaching status, experience in adult education, and academic preparation were representative of adult educators statewide. Many programs submitted additional surveys because more than four teachers were involved. This increased the sample size by 115 percent over the expected number of 80 surveys. One hundred seventy-two Instructor Surveys were returned and analyzed by an external evaluator. Eighty-seven percent of the teachers reported positive program changes. The most powerful findings of the survey confirm that increased level and duration in use of the CASAS system are likely to result in positive change. While the evidence consists of self-report surveys that may be open to interpretation, there is no reason to believe that teachers would falsely report positive change on an anonymous survey. It is more plausible that teachers would use this opportunity to document concerns about changes that directly affect their classroom environment and workload.

CLAIM #2 - Student Persistence

One of the most critical issues in adult and alternative education is the high rate of student attrition (Quigley, 1992; Baldwin, 1991; Jackson-Mayer, 1987). Some studies have reported student attrition in excess of 60 percent in many ABE / GED courses and more than 70 percent in some state literacy programs. Adult students are "voluntary students." Many enter programs with short term goals but must participate long enough to achieve the skills needed to attain their goals. The National Study examines persistence at 70 and 140 hours, a reasonable length of time for

some students to attain short term goals. This represents only three to six weeks of full-time attendance. The California study uses 100 hours which is equivalent to four weeks of full-time participation. However, since most adult students attend on a part-time basis, hours reported in these studies represent more weeks of participation in program, typically 11-18 weeks. Programs using CASAS have demonstrated significant increased hours of participation.

Claim #2

Students enrolled in adult and alternative education programs that have implemented key elements of CASAS demonstrate increased hours of participation in comparison with students enrolled in adult and alternative education programs that have not implemented key elements of CASAS.

For the purposes of this claim, persistence is defined as hours of participation in program. The data that supports this claim is compiled from the National Study, with supplementary evidence from California's study of CASAS implementation, and the North Carolina study of the effects of CASAS implementation.

National Study

Design, Sample, Instruments, and Procedures

Same as described under claim #1.

Data Collection and Data Analysis

All programs participating in the National Study that agreed to use CASAS tests to assess their students were asked to administer a pretest at intake, a post-test at 70 hours and a second post-test at 140 hours. Column one of Table 6 shows the number of students who tested at both pretest and 70 hours. Column two shows those students who were also tested a third time at 140 hours. The rate of persistence in student attendance for implementing and non-implementing agencies is compared in column three. The interval from 70 to 140 hours has historically been the period of greatest attrition in adult education in California (see Appendix F for base line data over six years).

TABLE 6 - National Study - Persistence Rates

	N for Pretest & 70 Hour Posttest	N for Pretest, 70 Hour Posttest & 140 Hour Posttest	Percentage of Persistence from 70 to 140 Hours
CASAS Implementors	343	155	45.2*
CASAS Non-Implementors	759	110	14.5

*$p < .05$

When persistence in student attendance is measured at 140 hours, in the National Study, CASAS implementors retain 31 percent more of their students than non-implementing programs. Overall persistence rates may appear low compared to K-12 programs, but students in adult education programs encounter many barriers to continuing their education (See Appendix F.)

SUPPLEMENTARY EVIDENCE

Evaluation evidence on persistence is also well documented in the California and North Carolina studies.

California Study

The California study involved a comparison group design of one large program implementing key elements of CASAS with a comparable non-implementing program in terms of size and population. Programs reported persistence according to state guidelines of students pretested and remaining in class after 100 hours of instruction for the post-test. The implementing agency had a higher student retention rate than did the non-implementing program that was comparable in size and student population.

TABLE 7 - California Study - Persistence Rates

	Retention Rate	Number of Classes
CASAS Implementor	66.5%	33

CASAS Non-Implementor	47.4%	43

The direction of the difference remains consistent when compared by program level.

TABLE 8 - California Study - Persistence Rates by Program Level

	Implementation Rating	**Average (%)**	**Number of Classes**
Beginning Level	CASAS Implementor	72.8*	5
	CASAS Non-Implementor	42.4	25
Intermediate Level	CASAS Implementor	59.7	17
	CASAS Non-Implementor	55.6	11
Advanced Level	CASAS Implementor	59.7	5
	CASAS Non-Implementor	51.5	3

*$p < .05$

North Carolina Study

Persistence rates for RCC students were attained by recording baseline data from 1988-89 before the implementation of the key elements of CASAS. Each consecutive year was compared to the 1988-89 base year. All ABE classes are included. The sample includes all students enrolled in these classes. RCC reports student persistence according to state guidelines and reporting forms. An outside evaluator collected and analyzed all data for RCC.

During the study period, RCC experienced significant gains in the number of students enrolled and student participation hours. The following table shows enrollments and participation rates over a three-year period.

TABLE 9 - North Carolina Study - Persistence Rate

YEAR	ABE	ESL	GED	Total Students	Persistence Rate
June '88 - May '89	331	61	362	754	34%
June '89 - May '90	354	61	478	893	47%*
June '90 - May '91	790	70	466	1326	66%*

(Program numbers refer to number of students enrolled.) *p < .05

These figures demonstrate the impact of the CASAS system in attracting participants and in more effectively meeting their needs as evidenced by an almost double retention rate at the end of the second year of the installation of CASAS.

When the increased success rate is applied to the increased number of students, the improvement is even more dramatic. In 1988-89, the programs attracted 754 adults and retained 256 of them. In 1990-91, the same programs attracted 1,326 adults and retained 875 of them. This is an increase of 242 percent in the number of adults retained in 1990-91 compared with 1988-89. Equally impressive is the 139 percent increase in ABE students in 1990-91 compared with 1988-89, confirming that the fully implemented CASAS system at RCC was successful in providing services to adult and alternative students who were most in need.

CLAIM #3 - Goal Attainment

Adult educators are focusing more research on the identified goals and goal attainment of their adult students. This is one critical aspect of the high attrition pattern documented in adult basic education programs. Adults come with a variety of short term goals (Beder, 1990) and programs must be responsive to providing relevant instruction and counseling that allows students to redefine these goals for more long term educational goals to help them participate more fully in their communities. If students perceive their needs are not being met, they leave the program. There is positive evidence that implementation of the key elements of CASAS yields an increased level of goal attainment.

Claim 3

Students enrolled in adult and alternative education programs that have implemented key elements of CASAS demonstrate increased goal attainment in comparison with students enrolled in adult and alternative education programs that have not implemented key elements of CASAS.

The evidence for this claim comes from the National Study and the North Carolina study.

National Study

Design, Sample, Instruments and Procedures

The comparison group design is drawn from the sample previously described under claims #1 and #2, with a subsample of ABE students. Continuous update information is collected from participants in the study, including program status (active / inactive). Update forms from inactive students include goal attainment information.

Data Collection/Data Analysis

The update information was analyzed by CASAS staff. The data included all ABE students during approximately a 16 week cycle. This roughly equates to a semester program in some adult education programs.

Results

ABE students, at the advanced literacy level, in programs that have implemented the key elements of CASAS indicated they had attained their goals at a rate of more than two times higher than students in programs that only gave the CASAS test for the purposes of the study. No differences were found at the beginning levels. However, this is expected since students with such low literacy levels require more instruction to reach their goal.

TABLE 10 - National Study - Goal Attainment

	Implementation Rating	Met Goal	N
ABE Advanced	CASAS Implementor	22%*	183
	CASAS Non-Implementor	10%	458

*p< .001

North Carolina Study

Design and Sample

The design and sample were the same as described under claim 3. The sub-sample is drawn from students who were enrolled to obtain a GED.

Instrument, Procedures, Data Collection and Data Analysis

Same as described under claim #2.

Results

During the study period RCC experienced an increase in the number of students taking the GED test and their success rates. The following table provides data on those taking the GED test and the success rates over a three year period.

TABLE 11 - North Carolina Study - Goal Attainment (GED Completion)

YEAR	# Tested	# Failing	# Passing	Success Rate
July '88 - June '89	205	45	160	78%
July '89 - June '90	219	57	162	74%
July '90 - June '91	254	29	225	89%*

*p< .05

Using 1988-89 as the base year, the 1990-91 program year showed an increase of 49 persons or 29 percent taking the GED test and an increase of 65 persons or 41 percent passing the test. During the period July 1989 to June 1990, CASAS was installed in only one half of the GED programs. The success rate of 89 percent achieved in the 1990-91 program year exceeds by 19 percent the national GED success rate of 70 percent.

Interpretation and Discussion of Results for all Claims

Rival hypotheses could attribute the significant learning gains, increased participation, and higher goal attainment experienced by students enrolled in programs that implement the key elements of CASAS to other factors not identified or isolated. However, in the data from the National Study, the strength of the design, the randomness and stratification, combined with the large N make it difficult to attribute that kind of variance to other differences. The California, Oregon, and North Carolina studies represent very diverse student populations. In the California study, 80 percent of the population were limited English proficient students, while the North Carolina and Oregon data represented primarily native speakers of English. Another rival hypothesis is that the CASAS test created some positive expectancy on the part of the experimentals--causing the observed differences. However, the controls were also given the CASAS tests. In summary, the argument of educational significance of the claims and evaluation evidence is based upon finding that the treatment is capable of increasing student learning rates, hours of participation, and achievement of goals.

Educational Significance of Results

CASAS makes a significant contribution toward improving the effectiveness and relevancy of adult basic education programs serving those adult students who are least educated, most in need, and hardest to serve. It provides students with relevant adult life skills curriculum and assessment matched to students' needs and goals. It facilitates greater student learning gains, better participation, and higher rates of goal attainment. It provides teachers with the tools and processes to identify individual student needs and goals, and provides relevant curriculum, instruction and assessment. It provides program staff and policymakers with data to improve programs and respond to the need for accountability.

In a field of education that has traditionally lacked program impact data, CASAS has made a significant contribution in documenting the educational outcomes of adult education programs and classrooms.