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ABSTRACT

A third-party evaluation was conducted of the first year of the Exploring Careers through Experiential Learning project (ExCEL). ExCEL is a planned adaptation of the Northwest Regional Education Laboratory model (NWREL) to meet the needs of students in Prince William County, Virginia, and to assist high school students in successful transition to adulthood. Career development, life skills, and basic skills are emphasized as well as extensive student exposure and experience in community learning sites. Student growth is facilitated primarily through six student learning activities: career explorations, learning levels, life skills projects, functional competencies, student journals, and employer seminars and sponsored field trips. Data was collected concerning five process objectives (selection and preparation of staff, preparation of learning resources, selection of students, preparation of student learning plans, and implementation of learning activities), and concerning student outcomes and participant perceived effects. In addition, the evaluators addressed the area of avoidance of sex-role stereotyping in the program. Recommendations made concerned the increased recruitment of the economic sector to serve as community learning sites, additional staff training in individualizing instruction, and greater opportunities for students to investigate nontraditional careers and observe nontraditional role models in work situations. (TA)

ExCEL,

Exploring Careers Through Experiential Learning:

Year One Evaluation Report

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EXCEL,

EXPLORING CAREERS THROUGH EXPERIENTIAL LEARNING

YEAR ONE EVALUATION REPORT

EXECUTIVE SUMMARY

Exploring Careers through Experiential Learning (ExCEL) was funded as a priority area 1 program under the Vocational Education Act, Part D, as an exemplary demonstration of the National Institute of Education's Experience-Based Career Education. ExCEL is a planned adaptation of the Northwest Regional Education Laboratory Model of Experience-Based Career Education to meet the needs of students in Prince William County, Virginia. Programs were based at two high schools, Stonewall Jackson and Woodbridge Senior High Schools.

ExCEL has been designed to assist high school students in their successful transition to adulthood. Career development, life skills, and basic skills are emphasized as well as extensive student exposure to and experience in community learning sites. Students' knowledge of a variety of careers is integrated with the acquisition of cognitive, interpersonal, and affective skills through participation in a series of individually planned school and community experiences. Particular emphasis is placed on providing a program of learning for each student tailored to meet identified needs and interests. Effort is also made to reduce or avoid sex-role stereotyping in the program on the part of both ExCEL staff and students.

Evaluation of ExCEL provided for the monitoring and documentation of process objectives and assessment of program outcomes. Evaluation findings are highlighted for each of these separately.

Process Objectives

Six process objectives were identified by ExCEL as critical to its successful implementation. The sixth objective, Avoidance of Sex-Role Stereotyping, was addressed along with other U.S.O.E. Program Requirements. Table 1 indicates whether process objectives were met at each high school.

Table 1

ExCEL Accomplishment of Process Objectives

Process Objective	Stonewall Jackson	Woodbridge
Selection and Preparation of Staff	Yes	Yes
Preparation of Learning Resources	Yes	Yes
Selection of Students	Yes	Yes
Preparation of Student Learning Plans	Yes	Yes
Implementation of Learning Activities	Yes	Yes

As indicated in Table 1, all process objectives were met by ExCEL program at both sites. Only two exceptions were noted. Of major concern was ExCEL's ability to recruit community learning sites for career explorations and learning levels which matched student interests. ExCEL was not always successful in this effort; this was especially noted at Woodbridge High School. Of some concern was individualization of instruction, especially in the development of basic skills programs. Learning plans sometimes lacked sufficient detail and scope. Staff noted the need for more assessment of presenting skill levels of students and instructional materials.

Program Outcomes

Two areas of ExCEL program impacts were examined: Student outcomes and participant perceived effects. Each is addressed separately.

1. Student Outcomes.

Student outcomes were examined in the areas of career development, life skills, and basic skills. Impacts of ExCEL in all three areas were tested within the context of a true experimental design by comparing within group growth of ExCEL students and between group growth (ExCEL vs control). Results of these comparisons are presented in Table 2.

Table 2

Summary of Student Outcome Results

Hypothesis	Stonewall Jackson		Woodbridge	
	Within	Between	Within	Between
Career Development				
Career Knowledge				
1. Attitude	yes	yes	yes	yes
2. Job Knowledge	yes	—	—	—
Employability	yes	yes	—	—
Identification of Career Interests	—	yes	—	—
Understanding of Work	—	—	—	—
Life Skills				
Attitude toward Leanring Environment	yes	yes	yes	yes
Attitude toward Self	—	—	yes	yes
Attitude toward Others	—	yes	yes	yes
Basic Skills				
Reading	—	yes	—	yes
Writing	*	*	*	*
Mathematics	—	yes	—	—

— Not confirmed

* Not tested

Program impact was not identical at the two high schools. Growth in career development was more consistent at Stonewall Jackson High School than at Woodbridge High School. Stonewall Jackson ExCEL students demonstrated significant growth in career development areas while Woodbridge students demonstrated growth only in terms of increased positive attitude toward careers. Growth in life skills, on the other hand, was more consistent at Woodbridge High School than at Stonewall Jackson High School. Woodbridge ExCEL students acquired more positive attitudes toward learning environments, self, and others; this increase was greater than control students in two of these areas. Stonewall Jackson ExCEL students acquired increased positive attitudes only toward learning environments, although between group comparisons indicated more growth than control students in this area and in attitude toward others. ExCEL student basic skill development in reading and mathematics was equal to that of control students at Stonewall Jackson High School. Woodbridge ExCEL student development was equal to that of control students in reading; it was less than that of control students in mathematics.

2. Participant Perceived Effects

In order to obtain perceptions of program impact, students, staff, community instructors, and parents were surveyed at year end. All groups thought students enjoyed participating in ExCEL and developed more career awareness than students enrolled in traditional high school programs. Staff, community instructors, and parents expressed concern over basic skill development. In general, all four groups rated program effects positively.

Vocational Education Act-Part D Criteria

Four requirements for U.S.O.E. Priority Area 1 Programs were addressed by the evaluation: 1) elimination of sex bias and sex-role stereotyping, 2) sex-fair guidance, counseling, placement, and follow-up, 3) third party evaluation, and 4) process requirements for these programs.

1. Elimination of Sex Bias and Sex-Role Stereotyping.

Several dimensions were considered in evaluating the elimination of sex bias and sex-role stereotyping. The selection, development, and alteration of curriculum, instructional materials, and evaluation instruments were found to be sex-fair. All students were encouraged to explore non-traditional careers, although few males actually completed non-traditional career explorations. All students lacked sufficient numbers of appropriate non-traditional work role models and males, in particular, lacked sufficient opportunities to explore non-traditional careers and sex-fair guidance. The issues of sex bias and sex-role stereotyping were addressed by one all-day employer seminar.

2. Sex-Fair Guidance, Counseling, Placement, and Follow-Up.

Evaluation of this requirement considered staff training and role models, actual student placement, employer seminars, analysis of student outcome measures by sex, and follow-up. Exercises included in staff training increased staff sensitivity to sex-role stereotyping. Staff also presented themselves as sex-fair role models. All students

were encouraged by staff to explore non-traditional careers, although only females actually explored non-traditional careers. Sex-fair guidance and counseling was provided to students during employer seminars which addressed the issues of non-traditional work roles, male and female sex-role stereotyping, and assertiveness training. No differences were generally found between male and female student growth in career development, life skills, and basic skills in analyses conducted of student outcome measures. No follow-up procedures were formally implemented during the first year of program operation.

3. Provision for Third Party Evaluation.

Third party evaluation was provided for ExCEL by RBS. Evaluation measured student outcomes against stated program objectives as well as collected relevant process information.

4. Process Requirements for Priority Area 1 Program.

Evaluation addressed all seven process dimensions required by U.S.O.E. Academic credit was awarded by ExCEL for the successful completion of experience-based career education projects. Student educational programs were based on experiential learning and provided for the integration of career development, life skills, and basic skills. All students had individualized learning plans. Learning centers were established at each high school and student transportation from learning centers to community sites was provided. Parental consent was obtained for both program and evaluation participation. All U.S.O.E. process requirements were met by ExCEL.

Recommendations

Three recommendations are made for future years of program operation. They concern the increased recruitment of the economic sector to serve as community learning sites, additional staff training in the individulization of instruction, and greater opportunities for students to investigate non-traditional careers and observe non-traditional role models engaging in work situations.

LIST OF TABLES

INTRODUCTION

ExCEL, Exploring Careers Through Experiential Learning: Year One Evaluation Report is being submitted to the Prince William County (Virginia) Public Schools as the last task of an independent third party evaluation. The Prince William County Public Schools was awarded funds under Part D of the Vocational Education Act of 1963 as amended to implement an exemplary demonstration of the National Institute of Education's (NIE) Experience-Based Career Education. A requirement of the competition was the retaining of a third party to conduct an independent evaluation of the processes and outcomes of the exemplary demonstration. The Prince William County Public Schools contracted with Research for Better Schools, Inc. to perform such services for their ExCEL program.

This report is the year end evaluation report of the first year of the ExCEL program. The report documents both program and evaluation processes over the first year of the project.

Chapter I of the report presents a description of the ExCEL program the Prince William County Public Schools intended to implement. Chapter II describes the ExCEL program as it was actually implemented. Chapter III presents the outcomes of the program. Chapter IV compares the implementation of ExCEL to the U.S.O.E. funding criteria. Chapter V presents a summary of and recommendations for ExCEL.

I. PROGRAM DESCRIPTION

Exploring Careers through Experiential Learning (ExCEL) was funded as a priority area 1 program under the Vocational Education Act, Part D, as an exemplary demonstration of the National Institute of Education's (NIE) Experience-Based Career Education (EBCE) Model. ExCEL is based on the Northwest Regional Education Laboratory (NWREL) model of EBCE; NWREL EBCE is one of four career education models developed under the sponsorship of the U.S. Office of Education and the National Institute of Education.

ExCEL is a planned adaptation of the NWREL model to the needs of students in Prince William County. The ExCEL program is being implemented at two high schools which are located at opposite ends of the county. Woodbridge Senior High School is on a year-round calendar of 45 in-school days followed by 15 out-of-school days. Stonewall Jackson Senior High School is on a traditional school calendar. Both sites are guided by the same program organization and requirements; each site maintains its own staff, community sites, and learning center resources.

The description of ExCEL provided in this chapter will provide the context within which evaluation conclusions presented in other sections of the report can be interpreted. The description has been derived from three primary sources: the USOE project proposal submitted by Prince William County, NWREL EBCE program materials, and ExCEL program records.

The description of ExCEL provides program goals and objectives, as well as the procedures designed to accomplish them. Goals and objectives of ExCEL are presented first.

Program Goals and Objectives

Experience-based career education has been designed to assist high school students in successful transition to adulthood. Career development, life skills, and basic skills are emphasized as well as extensive student exposure to and experience in community sites. The overall purpose of the ExCEL program is to develop in students an increased sense of personal worth and self-confidence. This is accomplished by integrating students' knowledge of a variety of careers with the acquisition of cognitive, interpersonal, and affective skills through participation in a series of individually planned school and community experiences with identified learning outcomes. Particular emphasis is placed on learning for each student tailored to meet his/her identified needs and interests. Effort is also made to reduce or avoid sex-role stereotyping on the part of both ExCEL staff and students.

Accomplishment of Program Goals

ExCEL has designed the following procedures to accomplish program goals and objectives. Procedures include organization of student learning, individualization of instruction, provision of student counseling, and learning center and community site resources intended to accomplish student learning. Each of these is described in detail below.

1. Organization of Student Learning.

EBCE addressed student growth in three areas: career development, life skills, and basic skills. Each of these has been further explicated by ExCEL.

CAREER DEVELOPMENT	LIFE SKILLS	BASIC SKILLS
Career Knowledge	Creative Development	Reading
Employability	Critical Thinking	Mathematics
Identifying Interests	Functional Citizenship	Writing
Understanding Work	Personal/Social Development	Oral Communication
	Science	
	Functional Competencies	

Career development is addressed by specific program learning activities. Career explorations and learning levels are designed to facilitate identification of student career interests, build career knowledge, and develop student understanding of work primarily at community sites. Student journals, employer seminars, and field trips also contribute to student growth in career development.

Life skills development is addressed primarily by completion of life skills projects and certification in functional competencies. Additional support is provided by employer seminars and field trips.

Basic skills growth is not specifically addressed by any one program learning activity or requirement of ExCEL. Instead, growth in basic skills is fostered by student development in life skills and career development. Formal courses in reading or mathematics are not offered;

students improve necessary basic skills in order to complete life skills or career development activities. Student journals provide for student growth in writing skills.

Student growth in ExCEL is facilitated primarily through six student learning activities or requirements:

1. Career explorations
2. Learning levels
3. Life skills projects
4. Functional competencies
5. Student journals
6. Employer seminars and sponsored field trips

a. Career Explorations. Career explorations are designed to give students a general overview of various jobs and careers. Students spend approximately 3 days at community sites which match their career interests. Explorations are the essential first step in the student's quest to determine if a particular career "fits." During career explorations, students complete Exploration Packages. These packages help students organize their employer sites experiences to better understand their career interests and options. Students may describe job requirements and functions for particular jobs, and then match their own strengths and interests to those of particular careers they are considering.

Activities engaged in by students during career explorations are prescribed by the Learning Site Analysis Form. This form is completed

jointly by the employer and the ExCEL employer relations specialist when the site is first recruited for participation in the ExCEL program. The student and employer frequently select certain activities which provide a representative view of that particular career's functions and responsibilities. By sampling, students are able to explore the career realistically within a limited time period. Students are required to complete three career explorations.

b. Learning Levels. Students may arrange for a learning level which encompasses longer periods of in-depth hands-on involvement at community sites. During a learning level, students work more extensively with an employer on one or more projects that draw heavily on available resources (i.e., reading materials, equipment) and experiences. Students gain practice in job skills through skill development activities specified in the Learning Site Analysis Form. Because more time is devoted to learning levels, students are able to complete more activities than during the career exploration.

Students are required to complete one project for each learning level placement. Projects are designed by ExCEL learning managers based on the contents of the Learning Site Analysis Form and negotiations with students. Once projects are designed, employers review content of projects for appropriateness and relevance. These projects provide for student growth not only in career development but also in basic skills and life skills.

Learning levels encourage students to gain a more realistic view of the world of work. At most placements, students are given responsibility for actual work and expected to meet requirements established for employees (promptness, dress, personal conduct). Students often have the opportunity to develop skills required for specific jobs. Students are required to complete two learning levels.

c. Life Skills Projects. Life skills projects are designed to provide students with experience-based learning in five important areas: Critical thinking, creative development, functional citizenship, personal/social development, and science. Learning managers develop projects in each area for individual students. Attention is given to the student's basic skills strengths and weaknesses, career interests, and other program assignments. Projects involve students in a cumulative process that fosters insights into their present learning style; this, in turn, develops potential lifetime learning skills. Six life skills projects are required in total.

d. Functional Competencies. Functional competencies are identified by the local community as critical to successful adult living. Competency in these critical skills is certified by community members and representatives. ExCEL requires students to be certified in seven functional competencies:

1. Transact business on a credit basis.
2. Maintain a checking account in good order.

3. Provide adequate insurance for self, family, and possessions.

4. Maintain the best physical health and make appropriate use of leisure time.

5. Respond appropriately to fire, police, and physical health emergencies.

6. Understand the basic structure and function of local government.

7. Make appropriate use of public agencies.

Steps students typically follow consist of first reviewing and studying relevant materials and second, demonstrating to a community certifier mastery of these materials.

e. Student Journals. Students are to maintain journals in which they record their program experiences on a regular basis. Journals allow students and staff to share thoughts and feelings with each other over an extended period of time. Reactions to career explorations and learning levels as well as feelings about expectations and ExCEL are appropriate topics as are feelings about any topic. Students' ability to communicate and other interpersonal skills are strengthened. By providing written feedback, staff develop and challenge student awareness of self and career or life options. Journals also help staff to keep in closer touch with individual student changes that can potentially affect program performance or personal development.

f. Employer Seminars. Employer seminars serve two major purposes. First, they allow important information to be readily transmitted to students about career development topics. Second, they encourage the exchange of ideas among students.

Student learning is organized into a series of zones or time periods. During each zone, students are given a list of activities to complete. For example, one zone may require a student to complete one learning level, one life skill project, two functional competencies, and three journal entries.

In summary, student learning is organized into three curriculum areas, career development, life skills, and basic skills. Student growth in each of these areas is fostered by student participation in six learning activities. The school year is organized into zones. For each zone, level of student involvement in all six learning activities is specified.

2. Individualization of Instruction. Although ExCEL has established program and zone requirements for all students, individualized instruction is intended. Within program and zone requirements, learning managers are to negotiate particular or more specific requirements with each student. This negotiation process results in the development of individual learning plans based on student needs and interests. In particular, life skills projects and learning level projects for each student are designed to encourage growth in all three curriculum areas, career development, life skills, and basic skills. Individualization of instruction is

consequently provided by the development of individual learning projects for students based on particular needs and interests.

3. Student Counseling.

In the NWREL EBCE Model, no single staff member is assigned responsibility for providing counseling to students. Instead, all staff counsel students regarding their program performance. Staff ideally develop together a counseling plan for each student. This plan is then consistently followed by all staff in dealing with the student.

4. Learning Center and Community Site Resources.

Student learning in ExCEL occurs both at school and at community sites. At the learning center, students engage in work on life skills projects, review resource materials for certification in functional competencies, and interact with staff concerning their program performance. Community sites foster student growth in career development by providing sites for career explorations and learning levels. In addition, community representatives act as certifiers for student functional competencies. Student learning activities that occur at community sites are interfaced with student learning activities that occur at each high school's learning center. Together they provide for a comprehensive program of student learning.

Program Staffing

Staffing for ExCEL is represented by three groups: 1) High School ExCEL staff, 2) Administrative staff, and 3) the Advisory Council. Each group is described below.

1. High School ExCEL Staff.

ExCEL was established at two high schools. Staff available to students at each site include one Employer Relations Specialist and two Learning Managers. The employer relations specialists at each site primarily develop employer sites for student placements, monitor student work and progress at employer sites, and counsel students about career development, especially in planning for career explorations and learning levels. Learning managers develop individual student learning plans with accompanying instructional material, supervise student work in the learning centers, and advise students about their progress in ExCEL. Learning managers are charged with the preparation of individual student life skills projects and learning level projects. Staff members share responsibility for the development and monitoring of student progress in the functional competencies component. Each site has been additionally staffed with Learning Aide and Clerical Aide positions which provide support services.

2. Administrative Staff.

Administrative responsibility for the program is held by the Associate Superintendent for Instruction. The Research/Alternative Education Specialist assists in coordinating daily program operations as well as serving as liaison to the Advisory Council. Two other representatives from the county's administrative staff, the Supervisor of Staff Development and the Supervisor of Vocational Education provide assistance as necessary.

3. Advisory Council.

In addition to Prince William County Schools administrative support and guidance, ExCEL staff are assisted with program operation by the Advisory Council. It is composed of employer and community representatives. During this year of program operation, the Advisory Council has focused on eight major activities, briefly outlined below:

1. Sponsored orientation and introduction of the ExCEL program to county business leaders.

2. Assisted in the identification and development of functional competencies.

3. Reviewed and approved program requirements established by program staff.

4. Developed and conducted two employer seminars (Future Job Trends: Technical and Specialized Training and Lifestyles and Non-Traditional Job Roles in a Changing Society)

5. Assessed present transportation system and studied alternatives to current system.

6. Produced Publicity Task Force Report which makes recommendations to staff of ways to obtain more coverage and visibility in the schools and in the community.

7. Introduced ExCEL program to various community groups.

8. Acted as a liaison between ExCEL participating employers and program staff.

Summary

Prince William County ExCEL is an exemplary demonstration project of NIE's EBCE. Modifications in the NWREL EBCE model have been made by ExCEL in order to meet the needs of its particular high school populations.

ExCEL is located at two senior high schools. One high school is on a year-round calendar, the other high school is on a traditional school calendar. Both sites are guided by the same organization and requirements. Each site maintains its own staff, community sites, and learning center resources.

Program goals focus on assisting high school students in successful transition to adulthood. In order to facilitate this transition, student growth is encouraged in career development, life skills, and basic skills by the completion of individualized learning activities in the community and in the school. Counseling provided by staff also help to direct student growth in these three areas.

Staff at three levels participate in the implementation. Direct implementation of ExCEL is carried out by five staff members at each high school. Administrative support for ExCEL is provided by Prince William County Public Schools administrative personnel. In addition, an Advisory Council composed of community representatives provides assistance and guidance.

II. IMPLEMENTATION OF ExCEL

This chapter focuses on documenting the actual implementation of ExCEL. The chapter is organized by elements identified by ExCEL as critical to the successful implementation of the program:

1. Selection and Preparation of Staff
2. Preparation of Learning Resources
3. Selection of Students
4. Preparation of Student Learning Plans
5. Implementation of Learning Activities
6. Avoidance of Sex-Role Stereotyping

The final element, avoidance of sex-role stereotyping, is dealt with in Chapter IV which addresses requirements of the U.S.O.E. competition. The other five elements are discussed below in terms of content, objectives, evaluation procedures, and findings.

Selection and Preparation of Staff

Selection of required program staff is one of the first steps in operationalizing the program. The objective of this process is to hire individuals meeting the specifications of the staffing plan. Each position and staff credentials were reviewed to ascertain the degree to which staff requirements were met.

Three professional positions were specified for each ExCEL site: one Employer Relations Specialist and two Learning Managers. Qualifications for all professional staff were developed from guidelines furnished by NWREL EBCE materials.

ExCEL professional staff members were to be skilled in interpersonal relations. ExCEL required staff with demonstrated ability to work with students and adults. Individual staff were to work as a team and complement each other. Enthusiasm for teaching and for improving the instructional program were thought essential characteristics for all staff members. In addition, staff members had to be open to the community and believe that the community was capable of teaching students.

Specific requirements for each position are listed below. The requirements for the Employer Relations Specialist position were:

- Have met teacher certification requirements
- Have interest in educational administration
- Demonstrate concern for seeking alternatives in education
- Possess awareness of ambiguities often associated with new programs
- Proven organizational skills
- Have previous business experience (if possible)
- Be friendly, outgoing, and able to meet people easily

Learning Manager positions required:

- Have met teacher certification requirements
- Have ability to negotiate with students
- Be creative in translating student learning into specific activities
- Know use of assessment techniques to determine student learning styles if possible
- Be able to individualize learning plans

Complete job descriptions appear in Appendix A.

These position were advertised and processed through procedures normally used by the Prince William County Public Schools. These routines prescribed advertisement of positions with university placement offices and school districts and notification of current teaching staff of the

availability of positions. The Personnel Office reviewed all submitted applications, including those already on file with Prince William County Public Schools. A list of qualified candidates was derived from these screening procedures and submitted to ExCEL administrative staff.

A three stage interview procedure was employed with these candidates. First, all candidates were shown an EBCE slidetape presentation and provided with descriptive program material. Following this, individual candidates were interviewed by the Supervisor of Staff Development. This first interview consisted of a series of questions related to feelings and attitudes towards experience-based career education. (These questions are included in Appendix A.) If the candidate's responses were considered appropriate and consistent with program goals and objectives, a second interview was held with the Research/Alternative Education Specialist. The purpose of this interview was the obtaining of information about teaching techniques, interactions with students, and personal qualifications for position. The third interview with candidates was conducted by the principal or vice-principal of the participating high schools. Based on the results of these three interviews, staff were selected.

The backgrounds, interests and credentials of all staff members indicate that credentialed staff were selected for each position.

Following staff selection, orientation and training were necessary to consolidate staff commitment to program goals and provide information and skills necessary to perform their roles in ExCEL. Staff orientation and training took place November 8-19. It can be divided into two stages: 1) orientation to program by ExCEL administrative staff and 2) staff development activities by NWREL staff. Each is discussed separately.

Orientation to program by ExCEL Administrative staff took place during the first week of staff orientation and training. Major presentations and activities included: ExCEL goals and expectations, teaming expectations, management and organization of program, curriculum and instruction, employer/community resources, and student services.

During the second week of staff orientation and training, NWREL staff trained ExCEL staff in instructional techniques and provided learning materials particular to the NWREL EBCE Model. Major topics addressed included: program overview, guidance and accountability, individualization of instruction, student learning activities, recruitment and use of community learning sites, and student selection, recruitment, and orientation.

RBS personnel monitored training activities conducted by NWREL staff. All sessions were conducted in highly interesting and professional manners. ExCEL staff were enthusiastic in their participation.

A complete list of training activities is contained in Appendix B.

Preparation of Learning Resources

The availability of learning resources is a factor central to program success. The operating plan indicates the necessity of learning center resources and community site resources. Evaluation of this element assesses the extent to which planned resources were acquired and prepared for use to meet the needs of participating students.

1. Learning Center Resources.

Learning center resources include both facilities allotted for program operation at each site and materials for student learning. Each of these resources is discussed below.

A Learning Center was established at each of the participating high schools. The Learning Center at Stonewall Jackson High School was located in a classroom adjacent to the English instructional areas. The Learning Center at Woodbridge High School was housed adjacent to the vocational instructional unit. Small tables, students record files, and other instructional equipment were obtained for each site.

Instructional materials have been acquired at each high school and organized for individual student projects and resource materials for functional competencies. NWREL EBCE materials were used extensively by program staffs; modifications were made in these materials whenever necessary. Additional learning center instructional materials are being developed by ExCEL staff this summer.

The staff at Stonewall Jackson High School found the space provided in the learning center to be cramped. They have formulated plans for the enlarging of the center for next year's operation. The staff at Woodbridge

High School found the quarters for the Learning Center adequate for their needs.

2. Community Site Resources.

Community learning sites recruited by ExCEL serve three important functions: 1) career exploration sites, 2) learning level sites, and 3) certifiers of student functional competencies.

Forty-six community sites were recruited by Stonewall Jackson High School. Four of these community sites served only as certifiers for student functional competencies. All other sites were available for career explorations and learning levels.

Woodbridge recruited a total of 51 community sites. All sites but one were available for career explorations and learning levels. Community sites also served as certifiers of student functional competencies.

Table 3 presents number and area of community learning sites available to students during this program year.

Table 3

Community Sites

Type of Community Site	Stonewall Jackson		Woodbridge	
	N	%	N	%
Automotive	3	7	3	6
Communications	3	7	5	10
Education	6	14	9	18
Engineering, Drafting, Data Processing	5	11	2	4
Finance, Insurance, Real Estate	4	9	4	8
Health Services	6	14	5	10
Legal Services	3	7	1	2
Public Services	6	14	5	10
Retail Sales	4	9	12	24
Social Services	0	0	2	4
Miscellaneous	4	9	3	6
Total	46	100	51	100

As illustrated in Table 3, community sites represented fields of communications, retail sales, health, public, and social services, finance, education, and legal services. Specific sites available at each high school are listed in Appendix C.

The Learning Site Analysis Form provides a source of information which can be used as indices of student learning opportunity. Learning Site Analysis Forms describe potential learning activities at each community site; they are completed jointly by the employer relations specialist and the community representative. The accuracy of the Learning Site Analysis Forms was verified by evaluation staff visits to over 30 individual community learning sites.

The Learning Site Analysis Forms provide a source of information which can be used to determine whether sufficient community resources were recruited to meet program requirements for student participation and community interest.

ExCEL requires each student to complete at least three career explorations, two learning levels, and seven functional competencies. Sufficient numbers of community sites must be recruited to meet career exploration and learning level program requirements as well as students needs and interests. Community certifiers must also be found for all functional competencies. Recruitment of community sites for each function is discussed below.

a. Career Explorations. Forty-two (42) community sites for Stonewall Jackson High School and 50 community sites for Woodbridge High School were recruited for career explorations. Community sites were generally available for use by more than one student. Sufficient numbers of sites were recruited by each high school to meet program requirements.

Community sites should also meet areas of student interest. Table 4 presents number of community sites available for career explorations which matched student career interest.

Table 4

Student Choice of Community Sites for Career Explorations

High School	1st Choice		2nd Choice		3rd Choice	
	n	%	n	%	n	%
Stonewall Jackson	14	63	9	41	5	23
Woodbridge	15	58	11	42	5	19

ExCEL was able to provide career explorations in over half of students' choice of careers. At Stonewall Jackson High School, 63% of the students explored their first choice. Woodbridge High School recruited community sites to meet 58% of students of students' first choice of career. In cases where students' first choice was not met, often second or third choices were met. At Stonewall Jackson High School, only four students (18%) did not explore their first three choices of careers. Six Woodbridge students (23%) did not explore their first three choices.

Although ExCEL was able to provide sufficient numbers of community sites to meet program requirements, it was not able to meet all students' interest.

b. Learning Levels. All community sites available for career explorations were available to students for learning levels. Community sites were generally available for use by more than one student. Sufficient numbers of sites were recruited by each high school to meet program requirements.

Learning level community sites must also meet student interests and needs. Table 5 presents number of community sites available for learning levels which matched student career interests.

Table 5

Student Choice of Community Sites for Learning Levels

High School	1st Choice		2nd Choice		3rd Choice	
	n	%	n	%	n	%
Stonewall Jackson	11	50	7	32	2	10
Woodbridge	13	50	4	15	2	8

Half of each high school's students were able to complete learning levels at sites which matched their first career choice. Seven of the remaining 11 Stonewall Jackson students completed second or third career choice learning levels while 3 of the remaining 13 Woodbridge students completed learning levels of the second or third choice.

a. Grade Level. At Stonewall Jackson High School, grade level of students available for evaluation was almost evenly split between eleventh and twelfth graders. This balance was maintained in the program and control groups at this high school. At Woodbridge High School, approximately two-thirds of the student pool were eleventh graders and one-third twelfth graders. Similar proportions were obtained in the program and control groups. Table 6 presents information regarding the grade level of students.

Table 6

Grade Level

Grade	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
11th	13	43	9	56	22	48	20	61	14	82	34	68
12th	17	57	7	44	24	52	13	39	3	17	16	32
Total	30	65	16	35	46	100	33	66	17	34	50	100

b. Sex. Almost equal numbers of males and females applied to ExCEL at Stonewall Jackson High School. Equal numbers of both sexes were randomly selected to participate in ExCEL. The control group was approximately two-thirds male. Equal representation of both sexes was obtained for the initial applicant pool and the resulting experimental and control groups at Woodbridge High School. Information about the sexual composition of both high schools is summarized in Table 7.

Table 7

Sex

Sex	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
M	15	50	11	69	26	57	16	48	9	53	25	50
F	15	50	5	31	20	43	17	52	8	47	25	30
Total	30	65	16	35	46	100	33	66	17	34	50	100

c. Race. Approximately one-fifth of the applicant pool at each high school was non-white. At Stonewall Jackson High School, approximately half of the non-white students were selected to participate in ExCEL. At Woodbridge High School, three-fourths of the non-white students were randomly selected to participate in ExCEL. Racial composition data are presented in Table 8.

Table 8

Race

Race	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
White	24	80	11	69	35	76	27	82	15	88	42	84
Non-white	6	20	5	31	11	24	6	18	2	12	8	16
Total	30	65	16	35	46	100	33	66	17	34	50	100

d. Achievement Level. The majority of students applying to ExCEL were B or C average students. Almost equal representation of B and C students was obtained in both program groups and in the Stonewall Jackson control group, as demonstrated in Table 9 below.

Table 9

Letter Grade Average

Letter Grade Average	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
A	2	7	0	0	2	5	1	3	1	6	2	4
B	13	46	8	53	21	49	14	47	5	29	19	40
C	12	43	7	47	19	44	14	47	11	65	25	53
D and below	1	4	0	0	1	2	1	3	0	0	1	2
Total	28	65	15	35	43	100	30	64	17	36	47	100

e. Parental Educational Level. Students who participated in the evaluation of ExCEL were asked to indicate the educational level of each of their parents. At Stonewall Jackson High School, 81% of the fathers and 83% of the mothers were at least high school graduates. Over half of the fathers and one-third of the mothers had some college training. At Woodbridge High School, 94% of the fathers and 79% of the mothers had completed high school. Almost 70% of the fathers and 46% of the mothers had some college training. Table 10 presents information regarding paternal level of education and Table 11 presents information regarding maternal educational level.

Table 10

Paternal Level of Education

Level of Education	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Some high school or less	5	19	4	25	9	21	2	6	3	18	5	10
H.S. diploma	7	26	1	6	8	19	5	16	5	29	10	21
Some college	4	15	4	25	8	19	6	19	2	12	8	17
College degree	11	41	4	25	15	35	12	39	6	35	18	38
Graduate school	0	0	2	13	2	5	4	13	1	6	5	10
Other	0	0	1	6	1	2	2	6	0	0	2	4
Total	27	63	16	37	43	100	31	65	17	35	48	100

Table 11

Maternal Level of Education

Level of Education	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Some high school or less	5	17	3	21	8	19	5	16	5	29	10	21
H.S. diploma	16	55	3	21	19	44	10	32	6	35	16	33
Some college	1	3	5	36	6	14	7	23	0	0	7	15
College degree	4	14	0	0	4	9	5	16	6	35	11	23
Graduate school	1	3	1	7	2	5	2	6	0	0	2	4
Other	2	7	2	14	4	9	2	6	0	0	2	4
Total	29	67	14	33	43	100	31	65	17	35	48	100

f. Parents' Occupational Level. Students were asked to indicate parents' occupational level. At Stonewall Jackson High School, over half of the fathers were skilled or semi-skilled workers. Approximately two-thirds of Woodbridge High School fathers were employed as higher executives, business managers, or administrative personnel. Seventy percent of Stonewall Jackson and Woodbridge mothers were working. The remaining mothers were classified as homemakers. Tables 12 and 13 present data concerning occupational level of parents.

Table 12

Occupational Level of Father

Occupational Level	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Higher Executive	4	14	0	0	4	9	2	8	1	6	3	7
Business Managers	5	18	4	27	9	21	11	46	6	35	17	41
Adm. Personnel	1	4	0	0	1	2	1	4	4	24	5	12
Clerical and Sales	4	14	1	7	5	12	2	8	0	0	2	5
Skilled Manual	6	21	4	27	10	23	2	8	2	12	4	10
Machine Operators	4	14	2	13	6	14	1	4	1	6	2	5
Other	4	14	4	27	8	19	5	21	3	18	8	20
Total	28	65	15	35	43	100	24	59	17	41	41	100

Table 18

Occupational Level of Mother

Occupational Level	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Higher Executive	0	0	0	0	0	0	1	3	0	0	1	2
Business Managers	5	18	2	13	7	16	4	13	2	12	6	13
Adm. Personnel	0	0	0	0	0	0	4	13	1	6	5	10
Clerical and Sales	11	39	4	27	15	35	3	10	2	12	5	10
Skilled Manual	0	0	1	7	1	2	0	0	1	6	1	2
Machine Operators	0	0	1	7	1	2	2	6	0	0	2	4
Homemaker	8	29	5	33	13	30	7	23	8	47	15	31
Other	4	14	2	13	6	14	10	32	3	18	13	27
Total	28	65	15	35	43	100	31	65	17	35	48	100

g. Student Reasons for Application to ExCEL. All students applied to ExCEL in November-December of 1976. They were asked to rank up to three reasons for applying for enrollment in the program. The most often indicated reason was to find out about careers. Almost half of the students at Woodbridge High School and 26% of the students at Stonewall Jackson High School indicated that this was the primary reason for their application. Over one-fourth of Stonewall Jackson students indicated that receiving counseling about post-secondary plans was their primary reason; this accounted for 13% of Woodbridge student applications. At Woodbridge

High School, job training accounted for 15% of student reasons for application. Tables 14 and 15 summarize student stated reason for application to ExCEL.

Table 14

Primary Reason for Application

Primary Reason	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Counseling about post-secondary plans	8	29	4	27	12	28	3	10	3	10	6	13
More individual attention	2	7	0	0	2	5	0	0	0	0	0	0
Find out about careers	7	25	4	27	11	26	15	48	7	41	22	46
Learning activities outside school	1	4	1	7	2	5	0	0	1	6	1	2
Program different from regular school	3	11	3	20	6	14	3	10	2	12	5	10
Help in finding a job	0	0	0	0	0	0	3	10	1	6	4	9
Job training	5	18	2	13	7	16	5	16	2	12	7	15
Other	2	7	1	7	3	7	2	6	1	6	3	6
Total	28	65	15	35	43	100	31	65	17	35	48	100

Table 15

Secondary Reason for Application

Secondary Reason	Stonewall Jackson						Woodbridge					
	EXCEL		Control		Total		EXCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Counseling about post-secondary plans	2	7	1	7	3	7	6	20	4	24	10	21
More individual attention	4	14	0	0	4	9	8	27	2	12	10	21
Find out about careers	7	24	4	27	11	25	5	17	4	24	9	19
Learning activities outside school	5	17	4	27	9	20	0	0	1	6	1	2
Program different from regular school	1	3	0	0	1	2	2	7	1	6	3	6
Help in finding job	7	24	2	13	9	20	7	23	1	6	8	17
Job training	1	3	4	27	5	11	2	7	2	12	4	9
Other	2	7	0	0	2	5	0	0	2	12	2	4
Total	29	66	15	34	14	100	30	64	17	36	47	100

h. Post-Secondary Plans. Students were asked to indicate their first three choices for post secondary plans. Almost half of the Stonewall Jackson students and one-third of Woodbridge students indicated that their primary choice was enrollment in four year colleges or universities. The most popular second choice at Stonewall Jackson High School was attendance at a two year college. Woodbridge students most popular second choice was full-time employment. Tables 16 and 17 summarize student post-secondary plans.

Table 16

Primary Post-Secondary Plan

Primary Post-Secondary Plan	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
FT employment	3	11	3	20	6	14	9	27	0	0	9	18
Military service	2	7	2	13	4	10	4	12	2	12	6	12
Voc. school	1	4	1	7	2	5	6	18	2	12	8	16
Two year college	4	15	0	0	4	10	2	6	3	18	5	10
Four year college	12	44	8	53	20	48	9	27	8	47	17	34
Other	5	19	1	7	6	14	3	9	2	12	5	10
Total	27	64	15	36	42	100	33	66	17	34	50	100

Table 17

Secondary Post-Secondary Plan

Secondary Post-Secondary Plan	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
FT employment	5	19	1	7	6	15	6	19	4	24	10	21
Military service	1	4	2	13	3	7	2	6	3	18	5	10
Voc. school	6	23	0	0	6	15	1	3	3	18	4	8
Two-year college	4	15	7	47	11	27	8	26	1	6	9	19
Four year college	3	12	0	0	3	7	6	19	1	6	7	15
Other	7	27	5	33	12	29	8	26	5	29	13	27
Total	26	63	15	37	41	100	31	65	17	35	48	100

i. Immediate Occupational Plans. Applicants to ExCEL were asked to state their immediate occupational plans. Approximately 40 percent of the students at Stonewall Jackson High School indicated that they planned to be higher executives, business managers, or administrative personnel immediately after high school. Another fourth planned to be clerical and sales workers. Similar numbers of students at Woodbridge High School planned on being high executives, business managers, or administrative personnel. Another 17% indicated that they planned to be clerical and sales workers. Table 18 describes students' immediate occupational plans.

Table 18

Immediate Occupational Plans

Occupational Level	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Higher Executive	7	26	1	7	8	19	4	14	2	12	6	13
Business Managers	1	4	4	27	5	12	4	14	6	35	10	22
Adm. Personnel	4	15	0	0	4	10	2	7	1	6	3	7
Clerical and Sales	6	22	5	33	11	26	6	21	2	12	8	17
Skilled Manual	3	11	2	13	5	12	4	14	2	12	6	13
Machine Operators	0	0	0	0	0	0	1	3	1	6	2	4
Unskilled	0	0	0	0	0	0	1	3	0	0	1	2
Homemaker	0	0	0	0	0	0	0	0	0	0	0	0
Unemployed	0	0	1	7	1	2	0	0	0	0	0	0
Other	6	22	2	13	8	19	7	24	3	18	10	22
Total	27	64	15	36	42	100	29	63	17	37	46	100

j. Long-Range Occupational Plans. Students were also asked to state their long-range occupational plans. These were in the context of five years after completion of education. Sixty percent of Stonewall Jackson students indicated they planned to be employed in higher level occupations five years after completion of schooling. Another 19% planned to be employed as clerical and sales workers. Fifty-five percent of Woodbridge students planned to be employed at the three higher occupational levels and 17% as clerical and sales workers. No students planned to be homemakers. Long-range occupational plans of students are presented in Table 19.

Table 19

Long-Range Occupational Plans

Occupational Level	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Higher Executive	10	37	2	13	12	29	6	20	4	24	10	21
Business Managers	4	15	5	33	9	21	6	20	5	29	11	23
Adm. Personnel	3	11	1	7	4	10	4	13	1	6	5	11
Clerical and Sales	4	15	4	27	8	19	5	17	3	18	8	17
Skilled Manual	2	7	0	0	2	5	2	7	1	6	3	6
Machine Operators	0	0	1	7	1	2	0	0	0	0	0	0
Unskilled	0	0	0	0	0	0	0	0	0	0	0	0
Homemakers	0	0	0	0	0	0	0	0	0	0	0	0
Unemployed	2	7	0	0	2	5	0	0	0	0	0	0
Other	2	7	2	13	4	10	7	23	3	18	10	21
Total	27	64	15	36	42	100	30	64	17	36	47	100

k. Achievement Level. Applicants took the Reading Comprehension, Arithmetic Concepts, and Arithmetic Applications subtests of the Comprehensive Tests of Basic Skills (CTBS) in December, 1976 as a pretest. Stonewall Jackson ExCEL and control students performed at approximate grade level on the Reading Comprehension and Arithmetic Concepts subtests and slightly below grade level on the Arithmetic Applications subtest. At Woodbridge High School, ExCEL students performed below expected grade level on all three subtests, particularly on the Arithmetic Applications subtest. Performance by Woodbridge High School control students was consistently higher and more consonant with expected grade level performance. Achievement data are presented in Table 20 below.

Table 20

Achievement Level Grade Equivalents

December, 1976

		LTBS Subtest		
High School	N	Reading Comprehension	Arithmetic Concepts	Arithmetic Applications
Stonewall				
ExCEL	30	11.58	11.60	10.99
Control	16	11.11	11.51	9.91
Woodbridge				
ExCEL	32	10.71	10.69	9.76
Control	17	11.09	11.45	9.95

1. Summary of Student Characteristics. In examining the distributions of the demographic characteristics, it appears that student recruitment for ExCEL was conducted fairly. Almost equal numbers of males and females were recruited by both sites. Other variables are distributed as expected, based on total high school distributions. In addition, the student groups at each high school appeared to be similar with minor exceptions.

4. Fairness of Student Selection.

Since selection was through random assignment to program or control groups, the fairness of student selection procedures in ExCEL is dependent on the fairness of student recruitment procedures. Fairness of student recruitment is supported both by the procedures used and examination of recruited students' demographic characteristics. Consequently, the selection of ExCEL students which occurred during first program year of operation was conducted in a fair fashion.

Preparation of Student Learning Plans

Individual learning plans establish a method whereby students interact with program resources. These plans ideally should organize each student's activities and guide the impact of program experiences. Learning plans must be carefully constructed with an awareness of both student and resource factors. The objective of this process is to provide each student with a learning plan that is individualized and reflects student needs and interests.

Project staff share responsibility for developing individual student learning plans. Each learning manager is responsible for half of the students at that particular site. Planning of student learning is centralized with the student's learning manager; additional input is provided by the employer relations specialist, especially in relation to work completed by the student at employer sites.

In order to develop individualized student learning plans and activities staff must have information regarding student skills development and learning materials which may be appropriately adapted to meet student needs and interests. During this first year of program operation, ExCEL staff have relied on pretest information almost exclusively for assessing students' presenting skills in all three curriculum areas. Staff have noted the need for more exhaustive assessment procedures, especially in the area of basic skill development. Procedures for increasing assessment of basic skills are now being investigated.

Evaluation of this process provided for the review of student records to ensure that each student had a current learning plan and was engaging in the prescribed activities.

Individual learning plans were developed by learning managers for all students. Because additional assessment of student skills was generally not conducted by learning managers, these plans were sometimes narrow in scope or unspecific. Learning managers often had difficulty in designing individual basic skill programs at community sites. Minimal difficulty was encountered in designing individual learning plans in the areas of career development or life skills.

Learning materials which can be adapted to meet student needs and interests are also important in the preparation of individualized student learning plans. During this first year of program operation, ExCEL staff relied greatly on NWREL EBCE materials. This occurred to a lesser extent at Stonewall Jackson. As staff at both high schools become more familiar and comfortable with EBCE instructional components, more learning materials will most likely be developed independently by ExCEL staff.

In summary, both Stonewall Jackson and Woodbridge ExCEL developed individual student learning plans which were implemented in guiding student learning activities.

Implementation of Learning Activities

An ExCEL program with qualified staff organizing learning resources into individualized learning plans which reflect student needs and interests should be the result of successful implementation of the procedures reviewed in the preceding section. This section of the report examines the implementation of the ExCEL program. The major learning activities add addressed are:

1. Career Explorations
2. Learning Levels
3. Functional Competencies
4. Life Skills Projects
5. Student Journals
6. Employer Seminars

Student progress in all six required learning activity areas was monitored. Records were examined during monthly visits to each site as well as after the completion of the first program school year. A Student Activities Checklist was develop by RBS to record student progress in all six areas (see Appendix D). The checklist was completed for each student during each visit. Learning activities accomplished by ExCEL students at each high school are presented below.

1. Career Explorations.

Three career explorations were required of all ExCEL students. Table 21 summarizes number of explorations completed by students.

Table 21

Career Explorations

Number of Career Explorations Completed	Stonewall Jackson		Woodbridge	
	N	%	N	%
1	0	0	0	0
2	0	0	2	8
3*	13	59	7	27
4	9	41	11	42
5	0	0	3	12
6	0	0	3	12

*Number required by ExCEL.

At Stonewall Jackson High School, all students completed at least three career explorations. Students on the average explored 3.4 careers. All but two Woodbridge ExCEL students explored the required number of careers; as a group, 3.92 careers were explored.

2. Learning Levels.

In addition to career explorations, students were required to complete two learning levels at community sites. Table 22 presents learning levels completed by students at each high school.

Table 22

Learning Levels

Number of Learning Levels Completed	Stonewall Jackson		Woodbridge	
	N	%	N	%
1	7	32	20	77
2*	14	64	6	23
3	1	5	0	0

*Number required by ExCEL

Almost two-thirds of the Stonewall Jackson students completed at least two learning levels; the group average of completed learning levels was 1.73. Over three-fourths of Woodbridge students only completed one learning level. Students on the average completed 1.23 learning levels.

3. Functional Competencies.

Students were required to be certified in all seven ExCEL functional competencies this year. Table 23 presents number of functional competencies completed by ExCEL students at each high school.

Table 23

Functional Competencies

Number of Functional Competencies Completed	Stonewall Jackson		Woodbridge	
	N	%	N	%
1	0	0	0	0
2	0	0	1	4
3	0	0	1	4
4	0	0	1	4
5	2	9	3	12
6	0	0	7	27
7*	20	91	13	50

*Number required by ExCEL.

All but two of Stonewall Jackson ExCEL students completed functional competency requirements. Only half of Woodbridge ExCEL students were certified in all seven; students were certified on the average in 6.04 competencies.

4. Life Skills Projects.

ExCEL required students to complete six life skills projects. Number of projects completed by students are summarized in Table 24 below.

Table 24

Life Skills Projects

Number of Life Skills Projects Completed	Stonewall Jackson		Woodbridge	
	N	%	N	%
1	0	0	0	0
2	0	0	0	0
3	0	0	1	4
4	3	14	1	4
5	10	45	5	19
6*	9	41	19	73

*Number required by ExCEL.

At Stonewall Jackson High School, 41% of the students met program requirements. An additional 45% completed all but one required project. On the average, Stonewall Jackson students completed 5.27 life skills projects. At Woodbridge High School, 73% of the students completed the six required projects. Approximately 5.62 projects were completed by students at this high school.

5. Student Journals. Students were expected to maintain student journals during the course of program year. This requirement was met by all students at both sites. Learning managers were also responsible for responding to student entries. Staff feedback was consistently provided.

6. Employer Seminars. Participation in employer seminars was required by ExCEL. All students at both high schools fulfilled this obligation.

Employer seminars sponsored this year at each high school are listed below.

Stonewall Jackson ExCEL Employer Seminars

1. Career Seminar by panel from Northern Virginia Community College.
2. Law Enforcement Careers Seminar presented by Larry Lein, FBI.
3. Employer Seminar Presentations
   a. Specialized and Technical Training of a Community College, presented by Dr. Wilfred B. Housman, Provost of Northern Virginia Community College
   b. Benefits of Four Year Liberal Arts Program, presented by Mrs. Pearl L. Bailey, Howard University Staff
   c. Job Trends in the Next Five Years, presented by Mr. Alan L. Moss, Manpower Analyst, U. S. Employment Service
4. Lifestyles and Non-traditional Job Roles in a Changing Society by Drs. Myra and David Sadker, American University.

Stonewall Jackson ExCEL Field Trips

1. Field trip to new FBI Building, Washington, D. C.
2. Field trip to Smithsonian Institute, Washington, D.C.

Woodbridge ExCEL Employer Seminars

1. Job Interviewing Skills.

2. Notetaking and Study Skills.

3. Assertiveness training, presented by Ms. Cheryl Spetrino, ExCEL Advisory Council.

4. Employer Seminar Presentations

   a. Specialized and Technical Training of a Community College, presented by Dr. Wilfred B. Housman, Provost of Northern Virginia Community College

   b. Benefits of Four Year Liberal Arts Program, presented by Mrs. Pearl L. Baily, Howard University Staff

   c. Job Trends in the Next Five Years, presented by Mr. Alan L. Moss, Manpower Analyst, U. S. Employment Service

5. Lifestyles and Non-traditional Job Roles in a Changing Society by Drs. Myra and David Sadker, American University.

6. Educational and Career Benefits of Military Service, U. S. Navy and Marine Corps Recruitment Office.

Woodbridge ExCEL Field Trips

1. Field trip to Hirschorn Museum, Washington, D. C.

Summary

During the first year of program operation, six major activities of ExCEL were evaluated. Evaluation of these activities occurred by comparing actual implementation to that prescribed by ExCEL in program documents. All activities but avoidance of sex-role stereotyping are addressed in this chapter.

Difficulty in implementation was encountered in two areas: 1) meeting students' career interests with appropriate community learning sites and 2) student completion of required activities.

Although sufficient numbers of community sites were recruited to meet program requirements, they did not always match student career interests. This was a minor problem in matching students to community sites for career explorations, but became a significant problem in matching students to sites for learning levels. This was particularly noted for Woodbridge ExCEL students.

Program requirements were established for all students for six learning activities. Student involvement in these activities did not meet program expectations. Weaknesses were noted in completion of learning levels at both high schools, life skills projects at Stonewall Jackson High School, and functional competencies at Woodbridge High School. Students at both high schools generally met program requirements for career explorations, student journals, and employer seminars.

Areas in which implementation occurred according to design or intent include selection and training of staff, preparation of learning resources, selection of students, and preparation of individualized learning plans. ExCEL engaged in all five activities considered crucial to its successful operation. Noted weaknesses in operation occurred because of degree of implementation, rather than failure of ExCEL to engage in critical activities.

III. ExCEL OUTCOMES

The ExCEL program impacts upon four populations: Students, staff, community instructors, and parents. Student outcomes are considered primary; other outcomes as secondary. This consideration is reflected in the organization of this chapter. Student outcomes are addressed in the first section. Participant perceived effects follow.

Student Outcomes

This section addresses the impact of the ExCEL program on participating students. The evaluation design for assessing student outcomes was based on the premise that a true experimental design with program and control students could be established and maintained. This section of the report considers the degree to which the premise of a true experimental design has been met.

Specific issues addressed include the establishment of student samples, the maintenance of student samples, characteristics of the final student groups, data representativeness, instruments, evaluation design, hypotheses, analysis plan, and hypothesis testing.

Establishment of Student Samples

During the latter half of the 1976-1977 academic year, eleventh and twelfth grade students from Stonewall Jackson and Woodbridge Senior High Schools were recruited to participate in ExCEL. Based on random selection procedures, separate program and control groups were formed from the

applicant pool of each high school. The groups were designated as follows:

1) ExCEL - randomly selected true experimental group

2) Control - randomly selected true control group

At Stonewall Jackson, initial sizes for the ExCEL and control groups were 30 and 16. At Woodbridge, initial ExCEL and control group sizes were 33 and 17.

Maintenance of Student Samples

Student attrition from educational programs is a phenomenon which presents long-recognized difficulties to all program facets. Attrition pertains not only to students who did not remain in ExCEL for program year duration, but also to the loss of control students to the evaluation process. Table 25 presents group sizes at the beginning and end of program year for both high schools.

Table 25

Initial and Final Group Sizes

Group	Initial Size	Final Size	Attrition
Stonewall Jackson			
ExCEL	30	22	27%
Control	16	14	12%
Woodbridge			
ExCEL	33	26	21%
Control	17	8	47%

The attrition rate for ExCEL students was 27% at Stonewall Jackson and 21% at Woodbridge. Five of the eight Stonewall Jackson students and five of the seven Woodbridge students dropped out prior to commencement of actual program operation. The control student attrition rate was 12% at Stonewall Jackson and 47% at Woodbridge. The high rate of attrition at Woodbridge resulted primarily because of students not being available for posttesting at appropriate times.

Characteristics of Final Student Groups

The final composition of program and control groups at each high school was examined to determine the degree to which the groups were still representative of the initial group composition. Variables examined include grade level, sex, race, and academic achievement.

1. Grade Level.

Enrollment in ExCEL was limited to 11th and 12th graders. Table 26 presents grade level of final ExCEL and control student groups.

Table 26

Grade Level

Grade	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
11th	11	50	8	57	19	53	16	62	7	88	23	68
12th	11	50	6	43	17	47	10	38	1	13	11	32
Total	22	66	14	39	36	100	26	76	8	24	34	100

At Stonewall Jackson, grade level of students was almost evenly balanced for ExCEL and control students. At Woodbridge, both groups were composed of more 11th grade students than 12th grade students.

2. Sex

At both high schools, equal representation of males and females were obtained in ExCEL groups.

Table 27

Sex

Sex	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Male	11	45	11	79	21	58	13	50	4	50	17	50
Female	11	55	3	21	15	42	13	50	4	50	17	50
Total	22	61	14	39	36	100	26	76	8	24	34	100

Stonewall Jackson control group was almost four-fifths male while Woodbridge control group was proportionately balanced between males and females.

3. Race

Student's race was determined by self-report. Table 28 presents racial composition of both high schools' ExCEL and control groups.

Table 28

Race

Race	Stonewall Jackson						Woodbridge					
	ExCEL		Control		Total		ExCEL		Control		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
White	19	86	9	64	28	78	21	81	8	100	29	85
Non-white	3	14	5	36	8	22	5	19	0	0	5	15
Total	22	61	14	39	36	100	26	76	8	100	34	100

At Stonewall Jackson, racial final composition was 86% white and 14% non-white for the ExCEL group and 64% white and 36% non-white for the control group. Woodbridge ExCEL was composed of 81% white students and 19% non-white students. The control group at this high school was composed only of white students.

4. Academic Achievement

Academic achievement level of students was obtained as part of pretesting in December, 1976. Table 29 presents average test scores of final ExCEL and control groups in grade equivalents.

Table 29

Academic Achievement Level
(in Grade Equivalents)

High School	Reading Comprehension	Arithmetic Concepts	Arithmetic Applications
Stonewall Jackson			
ExCEL	11.7	11.4	10.6
Control	11.0	11.0	10.3
Woodbridge			
ExCEL	10.6	10.6	9.7
Control	11.3	11.9	10.5

At Stonewall Jackson, both ExCEL and control students performed at approximate grade level on the Reading Comprehension and Arithmetic Concepts and approximately one grade level below on Arithmetic Applications. Woodbridge ExCEL students performed at least approximately one grade equivalent below on all subtests while control students performed at grade level except on the Arithmetic Applications subtest.

Data Representativeness

Data representativeness analyses determines the comparability of final data pairs with the original samples for the evaluation groups at both high schools. This procedure assesses the integrity of the final groups in terms of the original randomized design. Two factors which typically affect the assurances provided by a randomized design are student attrition during the program year and student absence or unavailability for testing. Both factors reduce the number of complete data pairs available for analyses, thus potentially introducing biases into the original randomly distributed array of student characteristics.

Twenty-seven percent of the Stonewall Jackson ExCEL students and 21% of the Woodbridge ExCEL students were eliminated from the evaluation design. For control groups, 12% were eliminated at Stonewall Jackson and 47% at Woodbridge. The retained and eliminated subject groups at each high school form the samples for analyses of data representativeness. Because of the small number of students in each group, only comparisons for achievement variables were made. If no significant differences are

found between retained ExCEL and ExCEL drop-out students and retained control and control drop-out students, it can be asserted that the random selection true experimental design is still intact and comparative student effects (ExCEL vs. Control) can be tested with maximum confidence in group equivalence.

"t"-tests for independent samples were used to compare all three academic achievement variables. Because only two students were not retained in the Stonewall Jackson control group, no comparisons between control retained students and control dropped students were indicated. Table 30 presents the results of these analyses.

Table 30

Comparisons of Retained and Dropped Student Groups

Scale Scores

	CTBS Subtest	Retained	Dropped	t
Stonewall ExCEL	Reading Comprehension	666.82	643.38	.58
	Arithmetic Concepts	643.32	677.88	.92
	Arithmetic Applications	616.14	661.88	1.57
Woodbridge ExCEL	Reading Comprehension	623.50	615.67	.12
	Arithmetic Concepts	611.69	649.33	.72
	Arithmetic Applications	589.31	592.33	.06
Control	Reading Comprehension	645.00	626.55	.50
	Arithmetic Concepts	676.00	623.55	.98
	Arithmetic Applications	614.38	576.33	.76

critical value for two-tailed "t" tests, df $\geq$ 30 = 1.697

The above analyses indicate no significant differences for any of the retained-dropped comparisons. For the purpose of further analyses, the random selection true experimental design is concluded to be intact. Program effects can thus be tested by comparing ExCEL student performance to control student performance.

Instruments

The Prince William County ExCEL program identified three general areas in which to examine program effects. These areas are: 1) career development, 2) life skills, and 3) basic skills. Additional information regarding basic demographic information on students was also necessary. Instruments selected to address each area are discussed briefly below.

1. Student Demographic Data

A Student Demographic Data Questionnaire (SDQ) was selected to gather information concerning the demographic characteristics of student applicants. The SDQ collects information such as student name, address, telephone, birthdate, sex, grade level, and race. In addition, the SDQ solicits grade average, attendance rate, plans after completing high school, reason for applying to ExCEL, parental occupational and educational level as well as short-term and long-term occupational plans of students.

2. Career Development

Career development is a central area of impact for the ExCEL program. Several instruments were selected to assess student outcomes in this key area.

Two subtests of Assessment of Career Development (ACD) were selected to assess career skills development. They were Job Knowledge and Career Planning Knowledge. Job Knowledge may be further divided into Occupational Characteristics and Occupational Preparation Requirement Scales. These subtests were designed to measure knowledge of career and occupational facts and sequences.

The Self-Directed Interest Inventory (SDII) provides for the self-assessment of career related skills, abilities, and interests. Students indicate likes and dislikes, activities in which they are competent, and activities in which they are interested. The SDII also reports relative ability in several areas and indicates the sequence of occupations students have considered. Individual sections of the SDII are labelled to reflect categories on which the instrument is based and scored.

The occupations considered and the overall scores are collapsed into six categories which are then ranked: Realistic, Intellectual or Investigative, Social, Enterprising, Artistic, and Conventional. The instrument is based on the premise that individuals seek environments and vocations which are consonant with self-assessment and avoid those which are dissonant.

The measure that is used to assess career development is the agreement between the primary occupation considered and overall ranking of categories.

The Student Attitude Survey (SAS) is an attitudinal survey which has four scales. Career development is assessed by student responses to one scale, Career Attitude Scale. The Career Attitude Scale is a 22

item Likert-type scale which assesses student attitude toward career knowledge and career planning.

3. Life Skills

Assessment of life skill development is provided by three scales from the Student Attitude Survey. One scale, Attitude toward Learning Environments, assesses student attitudes toward education in general, attitude toward school curriculum, attitude toward school resources, and attitude toward school counseling. This scale is comprised of 26 Likert-type items. The second scale, Acceptance of Self, is a 19 Likert-type item scale which yields a single self-concept score. The final scale, Acceptance of Others, contains 13 Likert-type items related to students' acceptance of others.

4. Basic Skills

The Comprehensive Tests of Basic Skills (CTBS) assess basic academic skill proficiency. It is a standardized instrument with four levels having two alternate forms each. Level 4, appropriate for secondary students, was used. Specific subtests used were Reading Comprehension, Arithmetic Concepts, and Arithmetic Applications.

Evaluation Design

The evaluation has been designed to examine student outcomes. Student outcomes are examined in the areas of Career Development, Life Skills and Basic Skills.

The impacts of ExCEL were tested within the context of a true experimental design made possible by the random assignment of students to program and control groups. ExCEL students participated in the program described in the preceding chapter. Control students participated in the regular high school curriculum.

A pretest-posttest design was used to assess student outcomes. The pretest administration of the test package was conducted in December 1976 as part of the application process. The pretest was administered by RBS personnel or by ExCEL staff monitored by RBS staff. All instruments were administered under conditions prescribed by administration manuals.

Posttesting was conducted in May 1977. All instruments were administered under prescribed conditions by ExCEL program staff. Test administration was monitored by RBS personnel.

Instruments and their time of administration are indicated in the following diagram.

Instrument	Time of Administration	
	Pretest	Posttest
1. Student Demographic Data Questionnaire (SDQ)	X	
2. Comprehensive Test of Basic Skills (CTBS)	X	X
3. Assessment of Career Development (ACD)	X	X
4. Self-Directed Interest Inventory (SDII)	X	X
5. Student Attitude Survey (SAS)	X	X

The CTBS, the SDII, and the SAS were scored by machine using an RBS-developed scoring package. The ACD was manually scored by RBS statistical clerks. A random sample of student scores were verified to insure the accuracy of the scoring process.

Hypotheses

Three areas were selected for formal hypothesis testing of student outcomes of the ExCEL program: Career Development, Life Skills, and Basic Skills. Hypotheses were generated within each of these areas. Hypotheses are of two types: Within group hypotheses and Between group or comparative hypotheses. The within group set of hypotheses tests ExCEL program student growth when compared to the presenting level of achievement in each area. The between group set of hypotheses compare the growth of the ExCEL program students with that of their counterparts in the traditional high school programs. Although only the comparative hypotheses were indicated in the evaluation plan, both are listed and tested in the interests of greater precision for the report. Specific hypotheses for each area are listed below.

A. Career Development

1. ExCEL students will acquire increased mastery in career knowledge.
2. ExCEL students will acquire significantly greater mastery in career knowledge than control students in traditional high school programs.
3. ExCEL students will acquire increased employability.

4. ExCEL students will acquire significantly greater employability than control students in the traditional high school programs.

5. ExCEL students will become increasingly able to identify career interests.

6. ExCEL students will become significantly more able to identify career interests than control students in traditional high school programs.

7. ExCEL students will acquire an increased understanding of work.

8. ExCEL students will acquire a significantly greater understanding of work than control students in traditional high school programs.

B. Life Skills

9. ExCEL students will acquire increased positive attitudes toward learning environments.

10. ExCEL students will develop significantly more positive attitudes toward learning environments than control students in traditional high school programs.

11. ExCEL students will acquire increased positive attitudes toward self.

12. ExCEL students will acquire significantly more positive attitudes toward self than control students in traditional high school programs.

13. ExCEL students will acquire increased positive attitudes toward others.

14. ExCEL students will acquire significantly more positive attitudes toward others than control students in traditional high school programs.

C. Basic Skills

15. ExCEL students will acquire increased mastery in reading skills.

16. ExCEL students will acquire reading skills equal to those acquired by control students in traditional high school programs.

17. ExCEL students will acquire increased mastery in writing skills.

18. ExCEL students will acquire writing skills equal to those acquired by control students in traditional high school programs.

19. ExCEL students will acquire increased mastery in mathematics skills.

20. ExCEL students will acquire mastery in mathematics skills equal to that acquired by control students in traditional high school programs.

The relationship between instruments and specific hypotheses is indicated below.

Career Development Skills

Hypothesis 1. (Career knowledge within ExCEL groups) - ACD: Job Knowledge subtest and SAS: Career Attitude Scale

Hypothesis 2. (Career knowledge between ExCEL and control groups) - Same as Hypothesis 1.

Hypothesis 3. (Employability within ExCEL groups) - ACD: Career Planning Knowledge subtest.

Hypothesis 4. (Employability between ExCEL and control groups) - Same as Hypothesis 3.

Hypothesis 5. (Career interests with ExCEL groups) ACD: Occupational Preparation Requirements subtests.

Hypothesis 6. (Career interests between ExCEL and control groups) - Same as Hypothesis 5.

Hypothesis 7. (Understanding of work within ExCEL groups) SDII: Congruence index.

Hypothesis 8. (Understanding of work between ExCEL and control groups) - Same as Hypothesis 7.

Life Skills

Hypothesis 9. (Attitude toward learning environments within ExCEL groups) - SAS: Attitude Toward Learning Environments scale.

Hypothesis 10. (Attitude within learning environments between ExCEL and control groups) - Same as Hypothesis 9.

Hypothesis 11. (Attitude toward self within ExCEL groups) SAS: Acceptance of Self scale.

Hypothesis 12. (Attitude toward self between ExCEL and control groups) - Same as Hypothesis 11.

Hypothesis 13. (Attitude toward others within ExCEL group) - SAS: Acceptance of Others scale.

Hypothesis 14. (Attitude toward others between ExCEL and control groups) - Same as Hypothesis 13.

Basic Skills

Hypothesis 15. (Reading Skills within ExCEL groups) - CTBS: Reading Comprehension subtest.

Hypothesis 16. (Reading Skills between, ExCEL and control groups) - Same as Hypothesis 15.

Hypothesis 17. and 18. Not tested.

Hypothesis 19. (Arithmetic skills within ExCEL groups) CTBS: Arithmetic Applications and CTBS: Arithmetic Concepts subtests.

Hypothesis 20. (Arithmetic skills between ExCEL and control groups) - Same as Hypothesis 19.

Analysis Plan

The analysis plan provides for the testing of all but two hypotheses of student effect. Within group hypotheses are to be tested using the presenting levels of the ExCEL groups as the reference point. Between group hypotheses compare the growth of the ExCEL groups to that of the control groups.

For hypothesized effects within the ExCEL groups (Hypotheses 1, 3, 5, 7, 9, 11, 13, 15 and 19), the scheduled analyses were correlated "t" tests for paired data using matched pretest and posttest scores. The SDII portion of hypothesis 7 represents the sole exception to this procedure; chi-square analysis were planned for the pretest to posttest congruence of the primary occupation considered and summary rating.

For hypothesized effects between the ExCEL and control groups (Hypotheses 2, 4, 6, 8, 10, 12, 14, 16 and 20), the scheduled analyses were "t" tests for independent samples using the Regression Projection Model (Horst, Tallmadge & Wood, 1975). This procedure was a regression line calculated from the pretest-posttest distribution of the control group to estimate what the ExCEL posttest level of achievement would have been under a "no treatment" condition. With the exception of the Basic Skills Hypotheses (16 and 20), all tests of significance should be one-tailed since directionality of outcome is indicated in the hypotheses. The SDII portion of Hypothesis 8 represents the sole exception to this analysis schedule; a chi-square analysis of ExCEL vs. control pretest and posttest congruence of primary occupation considered and summary rating was

planned. The .10 level of significance was selected for all hypothesis testing.

Hypothesis Testing

The series of hypotheses of student outcomes were tested following the analysis plan presented in the previous section. The results of the hypothesis testing are presented below.

1. Career Development.

Hypothesis 1: ExCEL students will acquire increased mastery in career knowledge.

This hypothesis was tested by comparing the pretest and posttest scores of the ExCEL groups on the ACD: Job Knowledge subtest and the SAS: Career Attitude scale. Each of the comparisons was conducted by a correlated "t" test procedure performed on pretest-posttest data pairs for ExCEL students. Table 31 presents the comparison for the ACD: Job Knowledge subtest. Table 32 presents the comparison for SAS: Career Attitude scale.

Table 31

ACD: Job Knowledge

High School	Pre	Post	t
Stonewall Jackson ExCEL n = 22	56.14	58.27	1.84
Woodbridge ExCEL n = 26	54.46	53.88	——

critical value for one tailed "t" test, df $\geq$ 21, = 1.323.

Table 32

SAS: Career Attitude

High School	Pre	Post	t
Stonewall Jackson ExCEL n = 22	3.71	3.89	1.95
Woodbridge ExCEL n = 26	3.73	4.06	2.51

critical value for one tailed "t" test, df $\geq$ 21 = 1.323
critical value for one tailed "t" test, df $\geq$ 25 = 1.316

The analyses offer strong support for the hypothesis that ExCEL students acquired increased mastery in career knowledge. This is especially the case at Stonewall Jackson High School where both analyses indicated statistically significant growth. The hypothesis is only partially supported for ExCEL students at Woodbridge High School where only the analysis for the SAS: Career Attitude indicated significant within group growth.

Hypothesis 2. ExCEL students will acquire significantly greater mastery in career knowledge than control students in traditional high school programs.

This hypothesis was tested by performing comparisons of the posttest performance of the ExCEL group on the ACD: Job Knowledge subtest and the SAS: Career Attitude scale with performance that was projected from the control group pretest-posttest performance on the same measures. The results of these regression projection comparisons are presented in Tables 33 and 34 below.

Table 33

ACD: Job Knowledge

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	E C	22 14	56.14 51.77	58.27 49.43	54.52	——
Woodbridge	E C	26 8	54.46 49.25	53.88 54.50	58.77	——

critical value for one tailed "t" test, df $\geq$ 30 = 1.310

Table 34

SAS: Career Attitude

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	E C	22 14	3.71 3.53	3.89 3.65	3.72	1.59
Woodbridge	E C	26 8	3.73 3.54	4.06 3.71	3.82	2.01

critical value for one tailed "t" test, df $\geq$ 30 = 1.310

The comparative analyses offer only partial support for the hypothesis that ExCEL students would gain significantly greater mastery in career knowledge than their control counterparts in traditional high school programs. Significant differences were observed at both high schools on the SAS: Career Attitude scale. This finding was not supported by analyses of the ACD: Job Knowledge results; differences at Stonewall Jackson High School were not significant and differences at Woodbridge were less than expected from the projection techniques.

Hypothesis 3. ExCEL students will acquire increased employability.

This hypothesis was tested by conducting correlated "t" tests on the pretest-posttest data pairs of the ExCEL groups' performance on the ACD: Career Planning Knowledge subtest. Table 35 presents these analyses.

Table 35

ACD: Career Planning Knowledge

High School	Pre	Post	t
Stonewall Jackson ExCEL n = 22	28.86	29.91	1.61
Woodbridge ExCEL n = 26	28.20	27.16	——

critical value for one tailed "t" test, df $\geq$ 21 = 1.323

The analyses support the hypothesis that ExCEL students at Stonewall Jackson High School acquired increased employability. The analysis offer no support for a similar conclusion about ExCEL students at Woodbridge High School.

Hypothesis 4. ExCEL students will acquire significantly greater employability than control students in the traditional high school programs.

This hypothesis was tested by conducting comparisons on the posttest comparisons of the ExCEL groups on the ACD: Career Planning Knowledge subtest with performance projected from the control groups' pretest-posttest performance on the same measure. Table 36 presents these analyses.

Table 36

ACD: Career Planning Knowledge

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	E C	22 14	28.86 25.71	29.91 24.07	26.81	1.59
Woodbridge	E C	26 8	28.20 27.57	27.16 27.86	28.01	——

critical value for one tailed "t" test, df $\geq$ 30 = 1.310

The analyses support the hypothesis that ExCEL students at Stonewall Jackson High School gained significantly greater employability than their control counterparts. The analyses offer no support for the same conclusion regarding Woodbridge High School ExCEL students.

Hypothesis 5. ExCEL students will become increasingly able to identify career interests.

This hypothesis was tested by conducting correlated "t" tests on the pretest-posttest data pairs of the ExCEL groups performance on the ACD: Occupation Preparation Requirements subtest. Table 37 presents these analyses.

Table 37

ACD: Occupation Preparation Requirements

High School	Pre	Post	t
Stonewall Jackson ExCEL n = 22	12.86	13.86	1.06
Woodbridge ExCEL n = 26	13.19	12.69	———

critical value for one tailed "t" test, df $\geq$ 21 = 1.323

The analyses offer no support for the conclusion that ExCEL students were increasingly able to identify career interests.

Hypothesis 6. ExCEL students will become significantly more able to identify career interests than control students in traditional high school programs.

The hypothesis that ExCEL students would become significantly more able than their control counterparts to identify career interests was tested by a regression projection analysis of ExCEL posttest performance. The posttest performance of the ExCEL groups on the ACD: Occupation Preparation Requirements subtest projected from the control groups pre-test-posttest on the same measure. Table 38 presents these analyses.

Table 38

ACD: Occupation Preparation Requirements

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	E C	22 14	12.86 12.50	13.86 11.43	11.68	3.34
Woodbridge	E C	26 8	13.19 11.38	12.69 12.25	14.26	——

critical value for one tailed "t" test, df $\geq$ 30 = 1.310

The analyses support the conclusion that ExCEL students at Stonewall Jackson High School were significantly more able to identify career interests than their control counterparts. This analysis seems to be the result of increased performance of the ExCEL group combined with a lower performance on the criterion measure by the control group. The analyses offer no support to a similar conclusion for Woodbridge ExCEL students.

Hypothesis 7. ExCEL students will acquire an increased understanding of work.

This hypothesis was tested by performing a chi-square analysis of the pretest-to posttest change of the ExCEL groups' congruence of primary occupation considered to overall summary rating on the SDII. Table 39 presents these analyses.

Table 39

SDII Congruence

High School	Pretest	Posttest	χ^2
Stonewall Jackson n = 22	11/22	8/22	<1
Woodbridge n = 26	8/26	6/25	<1

The chi-square analyses offer no support for the conclusion that ExCEL students acquired an increased understanding of work.

Hypotheses 8. ExCEL students will acquire a significantly greater understanding of work than control students in traditional high school programs.

This hypothesis was tested by performing chi-square analyses of the pretest-posttest change of the ExCEL groups' congruence of primary occupation considered to overall summary rating on the SDII compared to pretest-posttest change of the control groups' congruence on the same measures. These analyses are presented in Table 40.

Table 40

SDII Congruence

High School	Group	Pre	Post	χ^2
Stonewall Jackson	E C	11/22 2/14	8/22. 1/10	<1
Woodbridge	E C	8/26 3/8	6/25 3/7.	<1

The chi-square analyses offer no support to the conclusion that ExCEL students acquired significantly more understanding of work than control students.

2. Life Skills.

Hypothesis 9. ExCEL students will acquire increased positive attitudes toward learning environments.

This hypothesis was tested by comparing the pretest and posttest scores of the ExCEL group on the SAS: Attitude Toward Learning Environments scale. This comparison was conducted by a correlated "t" test procedure performed on pretest-posttest data pairs for ExCEL students. Table 41 presents the comparison results.

Table 41

SAS: Attitude Toward Learning Environments

High School	Pre	Post	t
Stonewall Jackson n = 22	3.20	[illegible]	2.99
Woodbridge n = 26	3.33	3.57	1.86

critical value for one-tailed "t" test, df $\geq$ 21 = 1.323

critical value for one-tailed "t" test, df $\geq$ 25 = 1.316

The hypothesis was strongly supported at both high schools; ExCEL students did acquire increased positive attitudes toward learning environments.

Hypothesis 10. ExCEL students will develop significantly more positive attitudes toward learning environments than control students in traditional high school programs.

This hypothesis was tested by performing comparisons of the posttest performance of the ExCEL groups on the SAS: Attitude Toward Learning Environments scale with performance that was projected from the control group pretest-posttest performance on the same measure. The results of the regression projection comparisons are presented in Table 42.

Table 42

SAS: Attitude Toward Learning Environments

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	E	22	3.20	3.50	3.03	3.89
	C	14	3.30	3.10		
Woodbridge	E	26	3.33	3.57	3.43	1.10
	C	8	3.22	3.35		

critical value for one-tailed "t", df $\geq$ 30 = 1.310

This hypothesis was strongly supported at Stonewall Jackson High School; ExCEL students did acquire significantly more positive attitudes toward learning environments than control students. This hypothesis was not confirmed at Woodbridge High School; ExCEL students did not acquire significantly more positive attitudes toward learning environments.

Hypothesis II. ExCEL students will acquire increased positive attitudes toward self.

This hypothesis was tested by conducting a correlated "t" test procedure comparing pretest-posttest performance of ExCEL students on the SAS: Acceptance of Self scale. Results of these comparisons are presented in Table 43.

Table 43

SAS: Acceptance of Self

High School	Pre	Post	t
Stonewall Jackson n = 22	3.75	3.66	—
Woodbridge n = 26	3.64	3.83	1.59

critical value for one-tailed "t" test, df $\geq$ 25 = 1.316

Results of the analyses indicated significantly more positive attitude toward self for Woodbridge students, but not significantly more positive attitude for Stonewall Jackson students. This hypothesis was thus confirmed for Woodbridge ExCEL students but not for Stonewall Jackson ExCEL students.

Hypothesis 12. ExCEL students will acquire significantly more positive attitudes toward self than control students in traditional high school programs.

This hypothesis was tested by performing comparisons of the posttest performance of the ExCEL groups on the SAS: Acceptance of Self scale with performance that was projected from the control group pretest-posttest performance on the same measure. Table 44 summarizes the results of the regression projection comparisons.

Table 44.

SAS: Acceptance of Self

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	E	22	3.75	3.66	3.58	1.00
	C	13	3.63	3.51		
Woodbridge	E	26	3.64	3.83	3.50	2.16
	C	8	3.15	3.04		

critical value for one-tailed "t" test, df $\geq$ 25 = 1.316

This hypothesis was confirmed for Woodbridge High School, but not for Stonewall Jackson High School. Woodbridge ExCEL students acquired significantly more acceptance of self than control students. Stonewall Jackson ExCEL students did not acquire more positive acceptance of self than control students.

Hypothesis 13. ExCEL students will acquire increased positive attitudes toward others.

This hypothesis was tested by comparing pretest-posttest data pairs for ExCEL students on the SAS: Acceptance of Others scale by conducting correlated "t" test analyses. The results of these analyses are presented in Table 45.

Table 45

SAS: Acceptance of Others

High School	Pre	Post	t
Stonewall Jackson n = 22	3.79	3.87	1.04
Woodbridge n = 26	3.79	3.89	1.38

critical value for one-tailed "t" test, df $\geq$ 25 = 1.316

Results of these analyses indicated support for the hypothesis at Woodbridge High School but not at Stonewall Jackson High School. Woodbridge ExCEL students acquired increased positive acceptance of others. No significant change in acceptance of others was found for Stonewall Jackson ExCEL students.

Hypothesis 14. ExCEL students will acquire significantly more positive attitudes toward others than control students in traditional high school programs.

This hypothesis was tested by comparing posttest performance of the ExCEL groups on the SAS: Acceptance of Others scale with performance that was projected from the control groups pretest-posttest performance

on the same measures. Table 46 presents the results of the regression projection comparisons.

Table 46

SAS: Acceptance of Others

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	E C	22 13	3.79 3.45	3.87 3.22	3.37	2.44
Woodbridge	E C	26 8	3.79 3.53	3.89 3.46	3.68	2.37

critical value for one-tailed "t" test, df $\geq$ 21 = 1.323

critical value for one-tailed "t" test, df $\geq$ 25 = 1.316

The analyses offer strong support for this hypothesis. ExCEL students at both high schools acquired more positive attitude toward others than control students in regular high school programs.

3. Basic Skills.

Hypothesis 15. ExCEL students will acquire increased mastery in reading skills.

This hypothesis was tested by conducting correlated "t" test procedures on ExCEL pretest-posttest scores on the CTBS: Reading Comprehension test. The results of these analyses are presented in Table 47.

Table 47

CTBS: Reading Comprehension

High School	Pre	Post	t
Stonewall Jackson n = 22	666.82	651.55	——
Woodbridge n = 26	623.50	633.88	<1

This hypothesis was not confirmed. ExCEL students at either high school did not acquire increased mastery in reading skills.

Hypothesis 16. ExCEL students will acquire reading skills equal to those acquired by control students in traditional high school programs.

This hypothesis was tested by performing comparisons of the posttest performance of the ExCEL group on the CTBS: Reading Comprehension subtest with performance projected from the control group pretest-posttest performance on the same measure. The results of these regression projection comparisons are presented in Table 48.

Table 48

CTBS: Reading Comprehension

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	E	22	662.82	651.55	596.07	2.95
	C	13	626.69	565.77		
Woodbridge	E	26	623.50	633.88	659.05	1.44
	C	8	623.57	659.14		

critical value for two-tailed "t" test, df ≥ 30 = 1.697

This hypothesis received strong support. At Stonewall Jackson High School, ExCEL students reading comprehension skills declined significantly less than that of control students. No significant differences were found between Woodbridge ExCEL and control students.

Hypotheses 17 and 18 - Not tested.

Hypothesis 19: ExCEL students will acquire increased mastery in mathematics skills.

This hypothesis was tested by comparing the pretest and posttest scores of the ExCEL group on the CTBS: Arithmetic Applications and CTBS: Arithmetic Concepts subtests. Each of these comparisons was conducted by a correlated "t" test procedure performed on pretest-posttest data pairs for ExCEL students. Table 49 presents the comparisons for CTBS: Arithmetic Applications subtest. Table 50 presents the comparisons for CTBS: Arithmetic Concepts subtest.

Table 49

CTBS: Arithmetic Applications

High School	Pre	Post	t
Stonewall Jackson n = 22	616.14	627.95	1.15
Woodbridge n = 26	589.31	597.81	<1

Table 50

CTBS: Arithmetic Concepts

High School	Pre	Post	t
Stonewall Jackson n = 22	643.52	650.00	<1
Woodbridge n = 26	611.69	617.12	<1

This hypothesis was not confirmed. No significant increase in mastery in mathematics skills was found for ExCEL groups at either high school.

Hypothesis 20. ExCEL students will acquire mastery in mathematics skills equal to that acquired by control students in traditional high school programs.

This hypothesis was tested by performing comparisons of the posttest performance of the ExCEL group on the CTBS: Arithmetic Applications and CTBS: Arithmetic Concepts subtests with performance that was projected from the control group pretest-posttest performance on the same measures. Table 51 and 52 respectively present the results of the regression projection comparisons for each of these measures.

Table 51

CTBS: Arithmetic Applications

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	E	22	616.14	627.95	606.94	1.41
	C	13	611.54	603.31		
Woodbridge	E	26	589.31	597.81	652.17	3.88
	C	7	613.29	662.00		

critical value for two-tailed "t" test, df $\geq$ 30 = 1.697

Table 52

CTBS: Arithmetic Concepts

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	E C	22 13	643.32 620.77	650.00 628.85	652.30	<1
Woodbridge	E C	26 7	611.69 654.00	617.12 67[illegible]	662.29	2.09

critical value for two-tailed "t" test, df $\geq$ 30 = 1.697

Results of analyses for Stonewall Jackson High School indicated no significant difference between ExCEL and control students in mathematics skills. At Woodbridge High School, significant differences were found between ExCEL and control groups on both subtests. Analyses indicated that ExCEL students did not acquire mathematics skills equal to those of control students at this high school. The hypothesis of equal growth mastery of mathematics skills of ExCEL and control students was confirmed for Stonewall Jackson students, but not for Woodbridge students.

Participant Perceived Effects

This section addresses the impact of the ExCEL program on staff, community instructors, parents, and students. The evaluation design for assessing participant perceived effects provides for participants to be surveyed at year end in order to determine their perceptions of ExCEL. Specific issues addressed in this section include brief descriptions of instruments for assessing participant perceptions, procedures employed for obtaining participant perceptions, and results obtained.

Instruments

The following instruments were selected for use in this part of the evaluation design:

1. Student Opinion Survey
2. Staff Opinion Survey
3. Community Instructor Opinion Survey
4. Parent Opinion Survey

Each is described in more detail below.

The Student Opinion Survey is designed to measure student opinions concerning career education programs. The instrument contains 20 items incorporating a five-point interval scale as well as three open-ended items. The items solicit opinions of various programs elements, program benefits, and the program relative to standard curricular offerings.

The Staff Opinion Survey contains 20 items incorporating a five point interval scale and three open-ended items. The items are designed to assess opinions towards various program elements, program benefits, and the career education program compared to regular classroom offerings.

The Community Instructor Survey assesses opinions toward various program elements, program benefits, and the program relative to standard curricular offerings. The instrument contains 14 items incorporating a five-point interval scale and two open-ended items.

Parent opinion toward various program elements, program benefits, and the program relative to standard curricular offerings is assessed by the Parent Opinion Survey. This instrument contains 13 items incorporating a five-point interval scale and two open-ended items.

Survey Procedures

Different survey procedures were used for students and staff than for community instructors and parents. In the case of students and staff, surveys were distributed during the school day and returned to RBS by mail. Program staff did not review individual student responses. Parents and community instructors were mailed surveys which could be returned by mail directly to RBS.

Results

Perceptions of each group surveyed are summarized below.

1. Student Perceptions

Surveys were returned by 73% of Stonewall Jackson EcCEL students and 77% of Woodbridge ExCEL students. Surveys asked for student ratings

of achievements of program goals, growth in career awareness, adequacy of community sites and program staff. Table 53 presents responding student ratings.

Generally students rated ExCEL high in most areas. At both high schools, ExCEL students rated the program highest in providing more opportunity to learn about occupations than regular school and feeling welcome at community sites. Only one item was rated negatively at Stonewall Jackson, almost half of the students did not feel that they had enough choice in selecting community sites. At Woodbridge, all ratings by ExCEL students were consistently high.

Students were also given the opportunity to respond to two open-ended questions concerning positive and negative effects they've noticed as a result of participating in ExCEL.

Two aspects of the program were seen both positively and negatively by commenting students: Responsibility and structure. Although students at both high schools expressed satisfaction over having more responsibility and less structure, they also felt that this was difficult at times for them to handle. At Stonewall Jackson, students sometimes found it difficult to deal with individual program staff members who had adopted more personal or casual ways of interacting with students yet maintained authority over students' behavior and academic work. Overall, students were pleased with their participation in ExCEL.

Table 53

Student Perceptions

Question	Average Response	
	Stonewall Jackson	Woodbridge
Have you enjoyed participating in the Career Education Program?	4.13	4.35
Do you get enough information about how well you are doing in the program?	3.33	3.75
Would you say the Career Education Program has helped you to form career plans?	3.87	4.10
Would you say that you've learned a lot while attending the Career Education Program?	3.87	4.25
If you had it to do over again, do you think you would decide to participate in the Career Education Program?	3.40	3.70
Have the activities available in the Career Education Program been interesting to you?	3.93	4.05
In the Career Education Program have you felt that you could progress at your own rate?	3.60	4.05
Through your experiences in the Career Education Program have you learned a lot about opportunities for the future?	[illegible]	4.10
Have you had enough choice in selecting the kinds of community resource sites you visit?	2.93	4.05
In general, have community resource personnel involved in the Career Education Program been aware of your needs and interests?	3.93	4.00
In general, at community resource sites have you been able to do things, rather than just listen?	4.07	4.20
In general, have you felt welcome at the community resource sites?	4.40	4.55
How well organized and coordinated do you think the Career Education Program has been?	3.13	3.70
How would you rate the general quality of the Career Education Program staff?	3.56	4.45
How would you rate the personal counseling available in the Career Education Program?	3.44	4.20
How would you rate the overall quality of the Career Education Program activities?	3.56	4.05
How would you rate the general quality of the Career Education Program community resources that you've worked with?	3.88	4.10
In comparison with regular schools, how much opportunity has the Career Education Program provided to you for learning about occupations?	4.63	4.55
In comparison with regular schools, how much opportunity has the Career Education Program provided for your general learning?	3.63	3.80
In comparison with past experiences in regular schools, how motivated have you been to learn in the Career Education Program?	3.81	3.95

Average responses can range from a low of 1.0 to a high of 5.0.

2. Staff Perceptions

All ten staff members of both sites returned completed surveys. Similar to students, staff were asked to rate achievement of program goals and growth in career awareness along with school and community support, facilities, and staff training. Table 54 summarizes staff perceptions.

Both site staffs felt that students in general gain from program participation and learn more about careers in ExCEL than in regular school programs. Professional staff at both sites did not feel that they had been adequately trained. Both staffs expressed concern about the possible harm done to other academic areas of the student program. In addition, Stonewall Jackson staff noted the lack of positive support they had received from their school's faculty and the weakness of guidance offered to students. Nevertheless, overall ratings by both staffs were positive. In open-ended comments, both staffs pointed positively to increased student responsibility and independence in directing his/her own learning.

3. Community Instructor Perceptions

Surveys were returned by 52% of Stonewall Jackson community instructors and by 45% of Woodbridge community instructors. Topics covered in community surveys included achievement of program goals, community/employer reaction to ExCEL, and organization of program. Community instructor perceptions are summarized in Table 55.

Table 5h

Staff Perceptions

Question	Average Response	
	Stonewall Jackson	Woodbridge
Do you think students enjoy participating in the Career Education Program?	4.60	4.60
Would you say the Career Education Program helps students to form career plans?	4.40	4.60
Would you say that students learn a lot while attending the Career Education Program?	4.40	4.20
Do you think that students generally gain from their experiences in the Career Education Program?	4.60	5.00
Do you think that students are harmed in other academic areas as a result of being out-of-school for part of their educational program?	3.00	2.20
Do you think that you have been adequately trained to perform your role in the Career Education Program?	3.00	2.80
Do you think that the facilities at your school are adequate to implement the Career Education Program?	2.40	3.80
In general, has your school faculty demonstrated positive support toward the Career Education Program?	1.80	3.20
In general, has your school administration demonstrated positive support toward the Career Education Program?	4.00	3.60
In general, has your community demonstrated positive support toward the Career Education Program?	4.40	4.60
Would you recommend that your school continue its implementation of the Career Education Program?	4.40	4.80
How would you rate the overall conceptualization of the Career Education Program?	4.00	3.80
How would you rate the quality of the materials you have used in the Career Education Program?	3.20	3.80
How would you rate the community component of the Program at your school?	4.00	4.60
How would you rate the Career Guidance component at your school?	2.20	3.00
How would you rate the Basic Skills component of the Career Education Program?	2.60	3.80
How would you rate the overall impact of the Career Education Program at your school?	3.40	3.00
In comparison with regular school programs, how much opportunity does the Career Education Program provide students for learning about occupations?	4.75	4.80
In comparison with regular school programs, how much opportunity does the Career Education Program provide for students' general learning?	3.50	4.40
In comparison with regular school programs, how motivated to learn do you think students are in the Career Education Program?	3.50	4.20

Average responses can range from a low of 1.0 to a high of 5.0.

Table 55

Community Instructor Perceptions

Question	Average Response	
	Stonewall Jackson	Woodbridge
Do you think students enjoy participating in the Career Education Program?	4.42	4.39
Would you say the Career Education Program helps students to form career plans?	4.08	4.13
Would you say that students learn a lot while attending the Career Education Program?	3.71	3.91
Do you think that students generally gain from their experiences in the Career Education Program?	4.00	4.26
On the whole, would you say that your organization gains by participation in the Career Education Program?	3.29	2.91
Would you recommend to other organizations or individuals that they become involved in a Career Education Program?	4.00	3.77
Does your organization plan to continue its involvement with the Career Education Program?	3.88	3.57
How well organized and coordinated do you think the Career Education Program has been?	3.58	3.39
How would you rate the general quality of the Career Education Program staff with whom you've had contact?	4.17	3.70
How would you rate the impact of the Career Education Program on your organization?	3.13	2.91
In comparison with regular school programs, how much opportunity does the Career Education Program provide students for learning about occupations?	4.13	4.35
In comparison with regular school programs, how much opportunity does the Career Education Program provide for students' general learning?	3.48	3.48
In comparison with regular school programs, how motivated to learn do you think students are in the Career Education Program?	3.77	3.74

Average responses can range from a low of 1.0 to a high of 5.0.

In general, community instructors rated all program aspects positively. Community instructors for both high schools rated students enjoyment of program highest. Many of the responding community instructors did not feel that their organization gained by participating in ExCEL, some indicated uncertainty about continued participation in ExCEL.

4. Parent Perceptions

Thirty-two percent of Stonewall Jackson parents and 42% of Woodbridge parents returned mailed surveys. Parents were asked to rate achievement of program goals, organization and staff and comparisons of ExCEL to regular high school programs. Their responses are summarized in the following table.

Ratings of both high schools parents were very positive. Parents thought that their children had enjoyed participating in ExCEL and had learned more about careers in ExCEL than in regular high school programs. In response to positive effects they've noticed that might have resulted from ExCEL, parents pointed to increased maturity, responsibility, and career awareness. A few parents expressed concern about basic skills development. Parents in general, seemed positive about participation of their child in ExCEL.

5. Summary

In general, program participants were pleased with the first year of program operation. Most respondents felt that students had enjoyed participation in ExCEL and had grown in their career development. A few in each of the four groups expressed concern over basic skill development. Many felt that students had also grown in responsibility and maturity.

Table 56

Parent Perceptions

Question	Average Response	
	Stonewall Jackson	Woodbridge
Do you think your child has enjoyed participating in the Career Education Program?	4.43	4.55
Have you received enough information about your child's progress in the Career Education Program?	3.86	3.73
Would you say the Career Education Program has helped your child to form career plans?	4.43	3.73
Would you say that your child has learned a lot while attending the Career Education Program?	4.43	4.00
If you had it to do over again, would you want to have your child participate in the Career Education Program?	4.33	4.18
How well organized and coordinated do you think the Career Education has been?	3.29	3.64
How would you rate the general quality of the Career Education Program Staff?	4.43	4.18
How would you rate the personal counseling available in the Career Education Program?	4.57	4.09
How would you rate the overall quality of the Career Education Program activities?	4.00	4.00
How would you rate the general quality of the Career Education Program community resources your child has been involved in?	4.14	3.91
In comparison with regular school programs, how much opportunity has the Career Education Program provided your child for learning about occupations?	4.71	4.64
In comparison with regular school programs, how much opportunity has the Career Education Program provided for your child's general learning?	3.71	3.64
In comparison with past experiences in regular school programs, how motivated to learn has your child been in the Career Education Program?	4.14	4.27

Average responses can range from a low of 1.0 to a high of 5.0.

Summary of ExCEL Outcomes

The evaluation has been designed to examine two areas of ExCEL program impact: Student outcomes and participant perceived effects. Student outcomes were examined in the areas of Career Development, Life Skills, and Basic Skills. Participant perceived effects were examined for students, staff, community instructors, and parents. Evaluation results of program impact in both areas are summarized below.

Student Outcomes

The impacts of ExCEL were tested within the context of a true experimental design. Student outcomes were examined by comparing within group growth of ExCEL students and between group growth (ExCEL vs. control) in all three skill areas. Results of these analyses are presented in Table 57 and summarized below.

1. Career Development

Student growth in this area was examined in terms of career knowledge, employability, identification of career interest, and understanding of work.

Stonewall Jackson ExCEL students acquired significant increases in career knowledge and employability. When compared to control students, ExCEL students at that high school acquired more positive attitudes toward careers, employability, and identification of career interests.

Woodbridge ExCEL students demonstrated growth in only one career development area. ExCEL students acquired increased positive

Table 57

Summary of Student Outcome Results

Hypothesis	Stonewall Jackson		Woodbridge	
	Within	Between	Within	Between
Career Development				
Career Knowledge				
1. Attitude	yes	yes	yes	yes
2. Job Knowledge	yes	—	—	—
Employability	yes	yes	—	—
Identification of Career Interests	—	yes	—	—
Understanding of Work	—	—	—	—
Life Skills				
Attitude toward Leanring Environment	yes	yes	yes	yes
Attitude toward Self	—	—	yes	yes
Attitude toward Others	—	yes	yes	yes
Basic Skills				
Reading	—	yes	—	yes
Writing	*	*	*	*
Mathematics	—	yes	—	—

— Not confirmed

* Not tested

attitudes toward careers. This increase was also greater than that of their control counterparts.

2. Life Skills

Student growth in life skills was assessed by attitudinal measures toward learning environments, self, and others.

Increased positive attitudes were acquired by Stonewall Jackson ExCEL students only toward learning environments. In comparison to control students, ExCEL students acquired more positive attitudes both toward learning environments and others. No increase in positive attitude toward self was found for either within group or between group comparisons.

Woodbridge ExCEL students acquired increased positive attitudes in all three areas. Their positive change in attitude was greater than control students toward self and others.

3. Basic Skills

Student growth in reading and mathematics skills was examined in terms of basic skill development. Within group comparisons provided for hypothesis testing of increased mastery of reading or mathematics skills of ExCEL students. Between group comparisons tested hypotheses of ExCEL student growth equal to that of control student growth.

Stonewall Jackson ExCEL students did not acquire increased mastery in reading or mathematics skills. However their development in reading and mathematics was equal to that of their control counterparts.

No increase in mastery of reading or mathematics skills was found for Woodbridge ExCEL students. Development of ExCEL students was equal to that of control students in reading skills, but not in mathematics skills. Woodbridge ExCEL students did not acquire mathematics skills equal to that of their control counterparts.

4. Summary

Program impact was not identical at the two high schools. Growth in career development was much greater at Stonewall Jackson High School than at Woodbridge High School. Stonewall Jackson ExCEL students demonstrated significant growth in career development while Woodbridge ExCEL students demonstrated growth only in terms of increased positive attitude toward careers. Growth in life skills, on the other hand, was more consistent at Woodbridge High School than at Stonewall Jackson High School. Woodbridge ExCEL students acquired more positive attitudes toward learning environments, self, and others and this increase was greater than control students in two of these areas. Stonewall Jackson ExCEL students acquired increased positive attitudes only toward learning environments, although between group comparisons indicated more growth than control students in this area and in attitude toward others. Basic skill development in reading and mathematics was not harmed at Stonewall Jackson High School. Woodbridge ExCEL students development was not harmed in reading, but was harmed in mathematics.

Participant Perceived Effects

Students, staff, community instructors, and parents were surveyed at year-end in order to obtain their perceptions of program impact. In general, all four groups rated program effects positively. All groups thought students enjoyed participating in ExCEL and developed more career awareness than students enrolled in traditional high school programs. Staff, community instructors, and parents expressed concern over basic skills development. All groups noted increased student maturity and responsibility in directing his/her own learning.

IV. VOCATIONAL EDUCATION ACT - PART D CRITERIA

This chapter addresses the criteria under which the competition for Vocational Education Act - Part D funding was conducted. The criteria were listed in the Federal Register of February 24, 1976 (Volume 41; Number 37, pages 8040-8044). Specific topics addressed in this chapter include the elimination of sex bias and sex role stereotyping, sex-fair guidance, counseling, placement and follow-up, third party evaluation, and process requirements for a Priority Area 1 Program.

Elimination of Sex Bias and Sex-Role Stereotyping

The Federal Register listed three dimensions on which to consider the degree to which sex bias and sex-role stereotyping were eliminated from program implementation: 1. selection, development, alteration of curriculum, instructional materials, and evaluation instruments; 2. emphasis on the placement of young people in explorations and training opportunities without regard to traditional practices in vocational education and employment; and 3. identification of women and men in non-traditional work roles to work with students. A fourth dimension used to assess ExCEL conformity with this requirement is other program activities focused on the elimination of sex bias and sex-role stereotyping. Each is discussed separately.

1. Selection, Development, Alteration of Curriculum, Instructional Materials, Evaluation Instruments

Activities to assure the sex-fairness of curriculum, instructional materials, and evaluation instruments are reviewed individually.

a. Curriculum. Major curriculum areas of ExCEL include explorations, learning levels, functional competencies, and life skills projects. All but the last are learning experiences which occur at community learning sites. Life skills projects may be conducted at either community learning sites and/or within the learning center.

Community learning sites were recruited, selected, and developed without regard to the gender of the students which would use the sites. Examination of Learning Site Analysis Forms indicated no preference for students of either gender.

The actual use of community learning sites for explorations and learning levels was monitored by ExCEL staff to ensure the sex-fairness of the program. One site was dropped from the program when it was discovered that the community instructor was discouraging a female student from pursuing her interest in a non-traditional career. No other community instructor bias was observed or reported.

Life skills projects were developed to meet the individual needs and interests of students. Examination of the products of the life skills projects indicated no bias for members of either gender.

Certifiers of functional competencies were recruited and selected without regard to the gender of the students which would use them. The same certifiers were used by students of both genders.

b. Instructional Materials. Instructional materials which are specific to the ExCEL program are the Learning Site Analysis Forms, guides for functional competencies, and individual learning plans. Each is considered separately.

A Learning Site Analysis Form was completed for each community site participating in the ExCEL program. These forms were examined to assure that they were completed without regard to the gender of students. The examination by RBS personnel confirmed that the Learning Site Analysis Forms were developed in a sex-fair fashion.

Guides and materials were prepared to assist students complete functional competencies. Guides presented the nature of the competency and directed students to certifiers for the competencies. These guides were prepared without regard to the gender of the student.

Individual learning plans for students are the last of the instructional materials specific to the ExCEL program. These were to be prepared to meet the needs and interests of each student. Examination of the learning plans indicated no systematic bias against members of either gender.

c. Evaluation Instruments. All instruments used for evaluation purposes have been reviewed by the RBS Institutional Review Board. All instruments have been judged to measure the phenomena they purport. The measures have been approved for use in the evaluation of career education programs.

2. Emphasis on the Placement of Young People in Explorations and Training Opportunities Without Regard to Traditional Practices in Vocational Education and Employment

ExCEL staff at both high schools encouraged students to explore non-traditional careers. Community sites were recruited which would accept students of both gender. Examples of non-traditional careers

explored by female students include veterinarian, lumber yard worker, physician, law enforcement agent, and attorney. Male students explored such non-traditional careers as florist, nurse, elementary school teacher, and window dresser. Table 58 presents the number of traditional and non-traditional careers explored by male and female students at each high school.

Table 58

Traditional and Non-Traditional Career Explorations

High School	Male		Female		Total	
	N	%	N	%	N	%
Stonewall Jackson						
Traditional	34	89	25	68	59	79
Non-traditional	4	11	12	32	16	21
Woodbridge						
Traditional	41	93	39	67	80	78
Non-traditional	3	7	19	33	22	22

Approximately one-third of the careers explored by female students were non-traditional. Males, on the other hand, explored few non-traditional careers.

3. Identification of Women and Men in Non-Traditional Work Roles to Work With Students

ExCEL is required to recruit community instructors in non-traditional roles who will work with students both at school and community sites. Table 59 presents number of community instructors recruited by ExCEL who are engaged in traditional and non-traditional careers.

Table 59

ExCEL Non-Traditional Role Models

High School	Male		Female		Total	
	N	%	N	%	N	%
Stonewall Jackson						
Traditional	37	100	7	0	45	98
Non-traditional	0	0	2	0	1	2
Woodbridge						
Traditional	42	100	8	89	50	98
Non-traditional	0	0	1	11	1	2

Neither high school recruited male community instructors engaged in non-traditional work. Both female Stonewall Jackson community instructors engaged in non-traditional careers owned their own businesses. At Woodbridge High School, the female community instructor engaged in non-traditional work was a park ranger. All other female community instructors were employed in traditional careers.

Representatives of ExCEL's Advisory Council may also serve in this capacity. The Advisory Council was chaired by Ms. Cheryl Spetrino. She worked with students and staff in developing employer seminars. In addition, she personally led a seminar for Woodbridge ExCEL students on assertiveness training. By directing the Advisory Council and other related efforts, she served as a non-traditional role model for students.

4. Other-ExCEL Activities that Focused on the Elimination of Sex Bias and Sex-Role Stereotyping

This included staff training and employer seminars. Each is discussed separately.

a. Staff Training. During program staff orientation, training and preparation, exercises were designed and conducted to increase staff's awareness of the extensiveness of sex-role stereotyping in today's culture, facilitate identification of individual staff members' personal sex-role biases, and develop techniques for not dealing with students in sex-role stereotypic manners.

b. Employer Seminars. Two of the employer seminars sponsored by ExCEL focused on eliminating sex bias and sex-role stereotyping. The first seminar addressed the issues of non-traditional job roles, male and female sex-role stereotyping, and changing lifestyles in a changing society. This all-day seminar was conducted by Drs. Myra and David Sadker of American University. The second seminar, presented to Woodbridge ExCEL students only, consisted of assertiveness training directed by Ms. Cheryl Spetrino of the ExCEL Advisory Council.

Sex-Fair Guidance, Counseling, Placement, and Follow-up Services

Two dimensions are listed by the Federal Register on which to consider the degree to which sex-fair guidance, counseling, placement, and follow-up service was implemented: 1) development of process objectives and measureable student outcome objectives for sex-fair guidance and counseling, especially regarding career decisionmaking and 2) successful placement and follow-up of each and every young person leaving the participating schools. Each is discussed separately.

1. Sex-Fair Guidance, Counseling and Placement

Activities to insure the sex-fairness of guidance, counseling, and placement include staff training and role models, actual student placement, employer seminars, and analysis of student outcome measures by sex.

a. Staff Training and Role Models. Included in staff training were exercises designed to increase staff's sensitivity to sex-role stereotyping. Techniques were reviewed and developed for dealing with students in sex-fair manners. Staff also presented themselves as sex-fair role models. At Stonewall Jackson High School, the female staff member assumed the traditional male role of employer relations specialist while the two male staff members assumed the traditional female role of learning manager. At Woodbridge High School, one learning manager position was assumed by a male staff member, the other by a female staff member. The employer relations specialist was male. At both high schools, staff interacted with each other and with students in a sex-fair manner. The chairperson of the ExCEL Advisory Council was female and thus provided another non-stereotypic sex-role model for students to observe.

b. Actual Student Placement. Community sites for career explorations and learning levels were recruited which would accept students of both gender. One community site was dropped from the program when it was discovered that the community instructor was discouraging a female student from pursuing her interest in a non-traditional career. Students were encouraged by staff to explore non-traditional careers. One-third of the

ExCEL students career explorations were non-traditional. Male ExCEL students, on the other hand, rarely explored non-traditional careers. (See Table 53)

c. Employer Seminars. Two of the employer-seminars addressed issues related to sex-fair guidance and counseling. During one seminar, the issues of non-traditional job roles, male and female sex-role stereotyping, and changing lifestyles were discussed. This all-day seminar, led by Drs. Myra and David Sadker of American University was attended by all ExCEL students.

A second seminar was presented only at Woodbridge High School by Ms. Cheryl Spetrino, chairperson of the ExCEL Advisory Council. During this seminar, both male and female students were provided with assertiveness training.

d. Analysis of Student Outcome Measures. Student performance on career development, life skills, and basic skills measures was analyzed by sex in order to compare ExCEL effects on male and female students. Hypotheses were formulated which paralleled hypotheses used to compare ExCEL and control group performance. For example, it was hypothesized that male and female ExCEL students would acquire equal career knowledge. All hypotheses except one were tested by conducting "t" tests for independent samples using the Regression Projection Model. The one exception was the SDII congruence measure which called for a chi-square analysis. Results of these analyses are summarized for each skill area.

In the area of career development, male and female student performance was compared on career knowledge, employability, identification of career interests, and understanding of work. Results of these analyses are presented in Tables 60-64.

Table 60

Career Knowledge - ACD: Job Knowledge

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	M	11	58.09	59.55	59.30	<1
	F	11	56.09	57.00		
Woodbridge	M	13	53.23	51.46	54.49	1.11
	F	13	55.69	56.31		

Table 61

Career Knowledge - SAS: Career Attitude Scale

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	M	11	3.84	3.89	3.94	<1
	F	11	3.58	3.89		
Woodbridge	M	13	3.69	4.09	4.01	<1
	F	13	3.75	4.09		

Table 62

Employability - ACD: Career Planning Knowledge

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	M	11	28.00	28.91	28.94	<1
	F	11	29.73	30.91		
Woodbridge	M	13	26.77	26.38	27.46	<1
	F	13	29.75	29.67		

Table 63

Identification of Career Interests - ACD: Occupational Planning Requirements

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	M	11	14.27	14.40	14.34	<1
	F	11	13.27	13.45		
Woodbridge	M	13	13.54	12.62	13.03	<1
	F	13	12.85	12.77		

Table 64

Understanding of Work - SDII Congruence

High School	Pre	Post	χ^2
Stonewall Jackson			
Male	6/11	4/11	<1
Female	5/11	4/11	
Woodbridge			
Male	5/13	3/13	<1
Female	3/13	3/13	

As demonstrated in these tables, no significant differences were found between male and female students. In terms of career development ExCEL impacted equally on students of both gender.

Male and female ExCEL student performance was compared on three life skill indices: Attitude toward learning environments, attitude toward self, and attitude toward others. Tables 65, 66, and 67 present the results of these analyses.

Table 65

SAS: Attitude Toward Learning Environments

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	M	11	3.30	3.59	3.58	<1
	F	11	3.09	3.42		
Woodbridge	M	13	3.26	3.54	3.47	<1
	F	13	3.39	3.58		

Table 66

SAS: Acceptance of Self

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	M	11	3.80	3.71	3.70	<1
	F	11	3.71	3.61		
Woodbridge	M	13	3.65	3.84	3.83	<1
	F	13	3.63	3.82		

Table 67

SAS: Acceptance of Others

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	M	11	3.62	3.65	3.77	<1
	F	11	3.95	4.09		
Woodbridge	M	13	3.44	3.82	3.65	<1
	F	13	3.90	3.96		

No significant differences in program impact on life skills were found between male and female students.

In order to compare impact of ExCEL on male and female student development in basic skills, performance on reading and mathematics indices were analyzed. Results of these comparisons are summarized in Tables 68, 69, and 70.

Table 68

Reading-CTBS: Reading Comprehension

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	M	11	677.00	664.82	651.71	<1
	F	11	656.64	638.27		
Woodbridge	M	13	617.00	597.38	663.10	2.08
	F	13	630.00	670.38		

critical value for two-tailed "t", df $\geq$ 24 = 1,697

Table 69

Mathematics-CTBS: Arithmetic Applications

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	M	11	641.91	648.45	660.25	<1
	F	11	590.36	602.00		
Woodbridge	M	13	582.92	597.31	587.07	<1
	F	13	595.69	598.31		

Table 70

Mathematics-CTBS: Arithmetic Concepts

High School	Group	N	Pre	Post	Projected	t
Stonewall Jackson	M	11	650.91	653.82	661.21	<1
	F	11	635.73	646.18		
Woodbridge	M	13	606.92	592.23	632.35	1.31
	F	13	616.38	642.00		

Only one significant male-female comparison was found. Woodbridge male students did not acquire reading skills equal to those of female students. All other comparisons indicated no difference between males and females in basic skill development.

Results of these analyses generally indicated that staff interacted with students in a sex-fair manner in providing for growth in career development, life skills, and basic skills. Only in terms of reading mastery at Woodbridge High School were significant differences found in comparing program impact on male and female students.

2. Follow-Up

The Federal Register requires the successful placement and follow-up of all students participating in EBCE. No formal follow-up procedures have been implemented. ExCEL initially planned to rely on Commonwealth of Virginia Department of Education follow-up procedures. Due to revisions in state procedures, this is no longer feasible. Procedures are now under consideration for follow-up of 1976-77 ExCEL students in the fall.

Provision for Third Party Evaluation

This report serves as documentation that Prince William County Public Schools provided for the third party evaluation of ExCEL. Evaluation measured student outcomes against stated program objectives as well as collected relevant process information. All members of the ExCEL staff facilitated and cooperated with this evaluation effort.

Process Requirements for a Priority Area 1 Program

Priority Area 1 Programs are required to address the following dimensions as listed in the Federal Register: 1) award academic credit for successful completion of experience-based career education projects, 2) base the educational program on experiential learning, 3) insure that each student has an individualized learning plan, 4) integrate career development, life skills, and basic skills for overall learning plan, 5) establish learning center, 6) facilitate student transportation, and 7) obtain parental consent for students. Each of these is discussed individually.

1. Award Academic Credit.

Students enrolled in ExCEL were awarded academic credit for successful completion of experience-based career education projects. In general, award was given in academic subject areas in which students had been enrolled prior to ExCEL.

2. Base Educational Program on Experiential Learning.

Student educational programs were based on experiential learning that occurs within the high school's learning center and community sites. Students engaged in individually prescribed activities which foster growth in career development, life skills, and basic skills.

3. Insure Individualized Learning Plans.

Individualized learning plans were developed for each student; these built on both the student's academic strengths and weaknesses and career interests. Individualized learning plans provided activities and projects for students to complete at community learning sites and at the ExCEL learning center.

4. Integrate Career Development, Life Skills, and Basic Skills in Overall Learning Plan.

Individualized learning plans were designed to foster student growth in career development, life skills, and basic skills. Growth in all three areas was facilitated by student completion of required learning activities.

5. Establish Learning Center.

Learning centers were established at Stonewall Jackson and Woodbridge Senior High Schools. As well as serving as home base for students and staff, learning centers contained valuable resource information for completing student learning activities.

6. Facilitate Student Transportation.

Transportation to community learning sites was provided by bus service routinely contracted by the school district. Students were also permitted to use private transportation when available.

7. Obtain Parental Consent.

Students were required to obtain parental consent as part of the recruitment process. Parental consent was obtained for both program participation and evaluation. Evening orientations were held for parents to present program goals, curriculum, and benefits and to answer parent questions.

V. SUMMARY AND RECOMMENDATIONS

The Exploring Careers Through Experiential Learning (ExCEL) program was funded as a priority area I program under the Vocational Education Act, Part D, as an exemplary demonstration of the National Institute of Education's (NIE) Experience-Based Career Education (EBCE). ExCEL is a planned adaptation of the Nortnwest Regional Education Laboratory (NWREL) model of EBCE to the needs of students in Prince William County.

The ExCEL program is being implemented at two high schools which are located at opposite ends of the county. Woodbridge Senior High School is on a year-round calendar of 45 in-school days followed by 15 out-of-school days. Stonewall Jackson High School is on a traditional school calendar. Both sites are guided by the same program organization and requirements; each site maintains its own staff, community sites, and learning center resources.

ExCEL provides for student growth in Career Development, Life Skills, and Basic Skills. Student growth is facilitated primarily through six learning activities which are individualized to meet student needs and interests. Learning activities include career explorations, learning levels, life skills projects, functional competencies, student journals, and employer seminars. Student learning activities occur both at school and at community learning sites.

This chapter summarizes major evaluation findings and makes recommendations for future program operation. Process objectives and program outcomes are addressed separately. Recommendations are then presented.

Process Objectives

Six process objectives were identified by ExCEL as crucial to program implementation. Evaluation of process objectives focused on documenting actual implementation of all but one process objective which is addressed as part of U.S.O.E. requirements.

1. Selection and Preparation of Staff.

Qualifications for staff positions at each high school were developed from guidelines furnished by the NWREL EBCE materials. Six positions were advertised and processed through procedures routinely used by the Prince William County Public Schools. The Personnel Office reviewed all submitted applications and created a list of qualified candidates. These candidates were interviewed by three groups: 1) Supervisor of Staff Development, 2) Research/Alternative Education Specialist, and 3) representatives of participating high schools. These procedures resulted in the selection of staff with appropriate credentials and interest.

Staff orientation and training took place November 8-19, 1976. Program orientation was conducted by ExCEL administrative staff.

Major presentations and orientation activities included: ExCEL goals and expectations, program management and organization, curriculum and instruction, community resources, and student services. During the second week, NWREL staff trained ExCEL staff in instructional techniques and reviewed learning materials specific to the NWREL EBCE Model.

2. Preparation of Learning Resources.

Learning resources are central to program success. ExCEL uses learning center resources and community site resources. The extent to which resources were acquired and prepared for use to meet the needs of students was assessed.

a. Learning Center Resources. Learning center resources included facilities allotted for program operation at each site and instructional materials for student learning. Learning centers were established at each high school. The staff at Stonewall Jackson High School found the space provided in the learning center to be cramped and have formulated plans for enlarging the center. No space problems were encountered at Woodbridge High School. Instructional materials for individual student projects and resource materials for functional competencies have been acquired at each high school. ExCEL staffs at both high schools used NWREL EBCE instructional materials in developing student instructional programs.

b. Community Site Resources. Community learning sites recruited by ExCEL served three important functions: 1) career exploration sites, 2) learning level sites, and 3) certifiers of student functional

competencies. Forty-six (46) community sites were recruited by Stonewall Jackson ExCEL; all but four served as sites for career explorations and learning levels. Woodbridge High School recruited a total of 51 community sites; all but one were available for career explorations and learning levels. Community sites represented fields of communications, retail sales, health, public, and social services, finance, education, and law enforcement. Learning Site Analysis Forms indicated that recruited community sites provided sufficient activities for student learning and growth of career knowledge.

ExCEL required each student to complete at least three career explorations, two learning levels, and seven functional competencies. Sufficient numbers of community sites were recruited to meet career exploration and learning level program requirements. Community certifiers were also found for all seven functional competencies.

In addition to meeting program requirements, sufficient numbers of community sites had to be recruited to meet students needs and career interests. ExCEL was not always able to recruit community sites for career explorations and learning levels which matched student interest. At Stonewall Jackson High School, 37 percent of the students did not explore their first choice of career. Forty-two (42) percent of Woodbridge students did not explore careers of their first choice. Half of each high school's students were unable to complete learning levels at sites which matched their first career choice.

3. Selection of Students.

The fair, unbiased selection of students was the objective of this process. A secondary objective was obtaining samples for both program implementation and evaluation purposes. The operational plan provided for the unbiased recruitment of students and a random selection of students for program and control groups.

Student recruitment for ExCEL was conducted by program staff by visits to all junior and senior classes and special assemblies. Program staff explained program goals, curriculum, and benefits. Evening orientations similar to those held for students were held for parents.

All students who submitted completed applications with parental consent were pretested in December, 1976 or January, 1977. Total number of students tested at Stonewall Jackson and Woodbridge High Schools was 46 and 50 respectively. Thirty Stonewall Jackson and 33 Woodbridge students were randomly selected to participate in ExCEL. All other tested students served as the evaluation control group.

Since selection of students was performed by a random selection process, the fairness of student selection procedures was dependent on the fairness of student recruitment procedures. Fairness of student recruitment was supported by the procedures used and examination of recruited students' demographic characteristics. It was concluded that selection of students was conducted in a fair fashion during ExCEL's first year of operation.

4. Preparation of Student Learning Plans.

Each student was to be provided with a learning plan which was individualized, and reflected student needs and interests. Staff needed information regarding student skill development and learning materials to develop individualized student learning plans. During this first year of program operation, staff relied almost exclusively on pretest information for assessing students' presenting skills. Instructional materials used have been those furnished as part of the NWREL EBCE materials.

Individual learning plans were developed by learning managers for all students. Scope and detail were occasionally inadequate; this was especially the case for individual basic skills programs at community sites. Staff noted the need for more assessment procedures and instructional materials (e.g., curriculum imbedded tests).

5. Implementation of Learning Activities.

Six major learning activities were required for students by ExCEL. Student progress in all six was monitored. Learning activities accomplished by ExCEL students at each high school are presented in Table 71.

Table 71

Learning Activities Completed by ExCEL Students

Learning Activity	Stonewall Jackson (mean)	Woodbridge (mean)
Career Exploration (3 required)	3.40	3.92
Learning Levels (2 required)	1.73	1.23
Functional Competencies (7 required)	6.82	6.04
Life Skills Projects (6 required)	5.27	5.62

All of Stonewall Jackson ExCEL students and all but two of Woodbridge ExCEL students explored the required number of careers. Sixty-four (64) percent of Stonewall Jackson students and 23 percent of Woodbridge students completed requirements for learning levels. All but two Stonewall Jackson students and half of Woodbridge students were certified in all seven functional competencies. The required number of life skills projects was completed by nine of 22 Stonewall Jackson students and 19 of 26 Woodbridge ExCEL students. Students were also expected to maintain student journals and attend employer seminars. Both of these requirements were met by all students.

All but two process objectives were successfully met. Of major concern was ExCEL's ability to recruit community sites for

career explorations and learning levels which matched student interest. ExCEL was not always successful in this effort. This was especially noted at Woodbridge High School. Of some concern was individualization of instruction, especially in the development of basic skills programs. Although individual learning plans were developed for all students, learning plans often lacked sufficient detail and scope. Staff noted the need for more assessment of presenting skill levels of students and instructional materials (e.g., curriculum imbedded tests).

Program Outcomes

Two areas of ExCEL program impacts were examined: Student outcomes and participant perceived effects.

1. Student Outcomes.

Student outcomes were examined in the areas of Career Development, Life Skills, and Basic Skills. Impacts of ExCEL in these three areas were tested within the context of a true experimental design by comparing within group growth of ExCEL students and between group growth (ExCEL vs. control). Results of these comparisons are presented in Table 72 and discussed separately for each skill area.

Table 72

Summary of Student Outcome Results

Hypothesis	Stonewall Jackson		Woodbridge	
	Within	Between	Within	Between
Career Development				
Career Knowledge				
1. Attitude	yes	yes	yes	yes
2. Job Knowledge	yes	——	——	——
Employability	yes	yes	——	——
Identification of Career Interests	——	yes	——	——
Understanding of Work	——	——	——	——
Life Skills				
Attitude toward Leanring Environment	yes	yes	yes	yes
Attitude toward Self	——	——	yes	yes
Attitude toward Others	——	yes	yes	yes
Basic Skills				
Reading	——	yes	——	yes
Writing	*	*	*	*
Mathematics	——	yes	——	——

——.Not confirmed

* Not tested

a. Career Development. Student growth in this area was examined in terms of career knowledge, employability, identification of career interest, and understanding of work. Stonewall Jackson students demonstrated significant growth in career knowledge and employability and in comparison to control counterparts, demonstrated more growth in career attitude, employability, and identification of career interests. Woodbridge ExCEL students demonstrated significant growth only in positive career attitude; this change in attitude was greater than that of their control counterparts.

b. Life Skills. Student growth in life skills was assessed by attitudinal measures toward learning environments, self, and others. Woodbridge ExCEL students acquired increased positive attitudes in all three areas; their positive change in attitude was greater than control students toward self and others. Increased positive attitudes were acquired by Stonewall Jackson ExCEL students only toward learning environments. In comparison to control students, ExCEL students acquired more positive attitudes both toward learning environments and others.

c. Basic Skills. Student growth in reading and mathematic skills was examined in terms of basic skill development. No significant increase in mastery of reading or mathematic skills was found for ExCEL students at either high school. Stonewall Jackson ExCEL student development in both basic skill areas was equal to that of their control counterparts. Although Woodbridge ExCEL students did acquire reading

skills equal to those of control students, they did not acquire mathematic skills equal to their control counterparts.

2. Participant Perceived Effects.

Students, staff, community instructors, and parents were surveyed at year end in order to obtain their perceptions of program impact. All groups thought students enjoyed participating in ExCEL and developed more career awareness than students in traditional high school programs. Staff, community instructors, and parents expressed concern over basic skill development. All groups in general rated program effects positively.

Vocational Education Act - Part D Criteria

Four requirements for U.S.O.E. Priority Area 1 Programs were addressed by evaluation. They were: 1) elimination of sex bias and sex-role stereotyping, 2) sex-fair guidance, counseling, placement, and follow-up, 3) third party evaluation, and 4) process requirements for these programs. Evaluation findings for each are addressed separately.

1. Elimination of Sex Bias and Sex-Role Stereotyping.

Several dimensions were considered in evaluating the elimination of sex bias and sex-role stereotyping. Curriculum, instructional materials, and evaluation instruments which were selected, developed, and revised were found to be sex-fair. Although all students were encouraged to explore non-traditional careers, only female students actually explored non-traditional careers. Few community instructors engaged in non-traditional work were recruited to serve as non-traditional role

models. Consequently, all students lacked appropriate role models engaged in non-traditional work and male students, in particular, lacked sufficient sex-fair guidance and opportunities to explore non-traditional careers. ExCEL did address the issues of sex bias, sex-role stereotyping, and non-traditional careers in an all-day employer seminar attended by all students.

2. Sex-Fair Guidance, Counseling, Placement, and Follow-Up.

Evaluation of this requirement considered staff training and role models, actual student placement, employer seminars, analysis of student outcome measures by sex, and follow-up. Staff training included exercises which increased staff sensitivity to sex-role stereotyping. Staff also presented themselves to students as sex-fair role models. Community sites for career explorations and learning levels were recruited which accepted students of both gender. Students of both gender were encouraged by staff to explore non-traditional careers, although few male students actually completed non-traditional career explorations. Employer seminars addressed issues of non-traditional work roles, male and female sex-role stereotyping, and assertiveness training. Analyses of student outcome measures indicated that male and female student growth was generally equal in career development, life skills, and basic skills. Follow-up procedures were not formally implemented during the first year of program operation.

3. Provision for Third Party Evaluation.

Third party evaluation was provided for ExCEL by RBS. Evaluation measured student outcomes against stated program objectives as well as collected relevant process information.

4. Process Requirements for a Priority Area 1 Program.

Priority Area 1 Programs were required to address seven process dimensions. The evaluation considered each of these. ExCEL awarded academic credit for the successful completion of experience-based career education projects. Students educational programs were based on experiential learning. Each student had an individualized learning plan which integrated career development, life skills, and basic skills. Learning centers were established at each high school. ExCEL provided for student transportation to community learning sites. Parental consent was obtained for both program and evaluation participation. All process requirements were met by ExCEL.

Recommendations

Three recommendations are made for future years of program operation.

1. Increased Recruitment of Economic Sector.

In order to meet student needs and interests, more community sites must be recruited for career explorations and learning levels. Attention must be given to recruiting particular community sites which match specific career interests of program students. Additional consideration should be given to recruiting community sites which employ both males

and females in non-traditional work roles.

2. Additional Staff Training in Individualization of Instruction.

Program staff encountered difficulties in developing individual learning plans, especially in the area of basic skills. In-service training for staff seems appropriate, especially in the use of assessment procedures. Curriculum imbedded tests and other instructional materials should be acquired which may help staff develop more detailed individualized learning plans for students.

3. Increase Non-Traditional Career Opportunities and Role Models for Students.

Both male and female students must be encouraged to explore non-traditional careers. Only seven of 82 male career explorations were in non-traditional male career areas. Approximately one-third of female career explorations was in non-traditional female career areas. Both sexes must be provided with greater opportunities to explore non-traditional careers. More non-traditional role models may help to increase student explorations of non-traditional careers. Few community instructors engaged in non-traditional work were recruited this year. By providing more non-traditional role models, students may be more willing to explore non-traditional career areas.

REFERENCES

Horst, D.P., Tallmadge, G.E. & Wood, C.T. A practical guide to measuring project impact on student achievement. Washington, D.C.: U.S. Government Printing Office, 1975. (Stock No. 017-080-01460)

APPENDICES

APPENDIX A

ExCEL JOB DESCRIPTIONS

RESPONSIBILITIES FOR EMPLOYER RELATIONS SPECIALIST

Individual Responsibilities:

1. Maintain overall responsibility for the daily program operations.
2. Manage project personnel matters on behalf of the principal.
3. Maintain the fiscal integrity of the program.
4. Articulate the program to the community.
5. Develop materials and strategies for recruiting employer/community sites.
6. Identify and gain the support of potential and needed employer/community sites.
7. Obtain Letters of Intent from participating employers to provide legal and insurance support from employer involvement.
8. Implement program strategies and system for facilitating student learning at employer/community sites.
9. Counsel students regarding site selection and future occupational interests.
10. Design and supervise the maintenance of an accurate recordkeeping system related to utilization of the site network.
11. Assume responsibility for maintaining the network of learning sites.
12. Be sensitive to and resolve any problems with employer community sites or with labor unions.
13. Arrange for student placement at identified sites.

As a Team Member:

14. Coordinate program contacts with employers, parents and the participating school district, professional groups and agencies including labor, public/private schools and governmental agencies.
15. Assist in selection of students and coordination of student activities.
16. Work with all program staff to set policy and make individually appropriate decisions regarding student accountability and discipline.
17. Participate in parent conferences.
18. Supervise and work with staff in program development activities.
19. Assist in developing program resources and solving problems.
20. Maintain the integrity of the program's learning design by helping to integrate projects and employer/community site learning activities.
21. Aid in planning and implementing a system for employer instructor development.
22. Report student progress to parents both in conference and through written reports.
23. Implement the Student Accountability System, especially as it relates to student behavior at learning sites.
24. Aid in describing the program for a variety of audiences.
25. Plan and participate in group meetings for students.

RESPONSIBILITIES OF A LEARNING MANAGER

Individual Responsibilities:

1. Develop individualized learning plans (projects, objectives, evaluation materials),
2. Negotiate learning plans with students, making use of employer and community sites, learning center materials and resources and a variety of people and activities.
3. Document student progress, evaluate learning products, maintain recordkeeping system with the assistance of a learning aide.
4. Work with the learning resource specialist to identify and deliver instructional materials and resources.

As a Team Member:

5. Develop individual learning profiles of students.
6. Report student progress to parents both in conference and through written reports.
7. Utilize pretesting and other assessment data to identify individual student needs, interests, goals.
8. Counsel students concerning both academic and personal problems.
9. Implement the Student Accountability System, especially as it applies to the agreements and requirements of students' learning plans.
10. Maintain the integrity of the program's learning design by integrating projects and employer/community site learning activities.
11. Aid in describing the program for a variety of audiences.
12. Plan, and participate in group meetings for students.

EMPLOYER RELATIONS SPECIALIST INTERVIEW SCHEDULE

1. What are your feeling about your skills relating to the responsibilities of the job as described in the position announcement:
   - As an individual?
   - As a team member?
2. Based on what you have read and seen, how does this program differ from others with which you may be familiar?
3. What are your views with regard to non-professional teaching students?
4. As a teaching strategy, how do you feel about individualized instruction?
5. What do you think the basic elements of a comprehensive curriculum for all students should include?
6. Assuming that a student's learning needs relating to a given curriculum can be properly diagnosed, what should be done next?
7. What are your views concerning sex-role job stereotyping?
8. What are the qualities you would seek to identify in community learning site instructors?
9. What kinds of students do you feel most teachers like/dislike teaching? Do you agree?
10. Under what conditions do you think most teachers feel students learn best/worst? Do you agree?
11. How do you feel about the needs for successful teaming?
12. What are your feelings concerning the basic conditions needed for successful learning?

13. If there were little interest apparent through the community site recruitment process, how would you elicit a commitment from individuals in the community?

LEARNING MANAGER INTERVIEW SCHEDULE

1. What are your feelings about your skills relative to the responsibilities of the job as described in the position announcement:
   - As an individual?
   - As a team member?
2. Based on what you have read and seen, how does this program differ from others you may be familiar with?
3. What are your views of non-professional capabilities for teaching?
4. As a teaching strategy, how do you feel about individualizing instruction?
5. What do you think the basic elements of a comprehensive curriculum for all students should include?
6. Assuming that a student's learning needs relative to a given curriculum can be properly diagnosed, what should be done next?
7. What are your views concerning sex-role job stereotyping?
8. What kinds of students do you feel most teachers like/dislike teaching? Do you agree?
9. Under what conditions do you think most teachers feel students learn best/worst? Do you agree?
10. How do you feel about the needs for successful teaming?
11. What are your feelings concerning the basic conditions needed for the success of innovative projects/programs?

APPENDIX B

STAFF ORIENTATION AND TRAINING

STAFF ORIENTATION BY ExCEL ADMINISTRATIVE STAFF

DATE	ORIENTATION/TRAINING ACTIVITIES
Nov. 8, 1976	ExCEL Expectations and Accountabilities Expectations for Teaming Program Purposes and Plan of Operation
Nov. 9, 1976	Management and Organization Curriculum and Instruction Orientation
Nov. 10, 1976	Curriculum and Instruction: Outcomes, learning plan negotiations, career explorations, projects, learning levels, competencies, journals, employer seminars, and learning resources
Nov. 11, 1976	Community Learning Resources Team Visits to ExCEL Center Communities
Nov. 12, 1976	Student Sevices: Recruitment and selection, guidance, student records

NWREL EBCE TRAINING

DATE	ORIENTATION/TRAINING ACTIVITIES
Nov. 15, 1976	Program Overview Guidance and Accountability Staff Roles
Nov. 16, 1976	Coordinating EBCE within School Projects Individualization Process Recordkeeping
Nov. 17, 1976	Projects Basic Skills Community Resource Use Competencies Site Recruitment Community Instructor Orientation Career Seminars
Nov. 18, 1976	Career Explorations Site Analysis Site Learning Objectives
Nov. 19, 1976	Student Selection, Recruitment, and Orientation Review and Summary of Training

APPENDIX C

EMPLOYER/COMMUNITY RESOURCE SITES

Stonewall Jackson ExCEL Employer/Community Learning Sites

1. Colgan Airways Corporation
2. U. S. Department of Agriculture - Food and Nutrition Service
3. Dudley Martin Chevrolet, Inc.
4. Koons Pontiac & Oldsmobile, Inc.
5. First Manassas Bank & Trust Co.
6. R. O. Bridges
7. Key Property
8. Leggett Tire Co.
9. Manassas Lumber Corporation
10. Caudle Construction, Inc.
11. Prince William Co. Public Information Service
12. IBM
13. R. Edward Daffan, Inc.
14. Prince William Electric Cooperative
15. R. B. Thomas, Jr., Ltd.
16. Marstellar Middle School
17. Northern Virginia Community College
18. Smithsonian Institution
19. Western Prince William County School
20. Manassas National Battlefield Park
21. The Flower Gallery
22. Del Rose Florist

23. Commonwealth Hospital

24. Dr. Michael Coppa

25. Manassas Manor Nursing Home

26. Prince William Health District

27. Prince William Hospital

28. Barbara Bateman

29. Community Relations Office School Board

30. Federal Bureau of Investigation

31. Prince William County Police Department

32. Smith, Hoss & Murphy

33. Smith & Davenport

34. Music City of Virginia, Inc.

35. Richard M. Ray, O.D.

36. Prince William Broadcasting Corp.

37. Cowne & Weygright, Inc.

38. United Virginia Bank

39. Clinton Mullins, County Executive

40. Nancy Haydon, Registrar

41. Fire Marshall's Office

Woodbridge ExCEL Employer/Community Learning Sites

1. The American National Red Cross of Prince William Co.
2. Ann Ludwig School
3. Auto Home Electronics, Inc.
4. Better Homes Realty, Inc.
5. B&P Foto Graphics, Inc.
6. Bank of Virginia
7. Dr. E. R. Barrera
8. Office of Consumer Affairs
9. Russ Haight Graphics
10. Prince William Health District
11. Holiday Inn
12. Hoffmaster's Marina, Inc.
13. IBM
14. Jett Agency
15. Kerrydale Elementary School
16. Jack Klawans Chevrolet, Inc.
17. Langfeldt Gallery
18. Music & Arts Center
19. Northern Virginia Community College
20. Potomac News
21. Potomac Branch Library
22. Pebbles Department Store
23. Parker's Sporting Goods

24. Prince William County Police Department
25. Woodbridge Senior High School
26. Media Center
27. Stephens Towne & Country Furniture
28. Cope Ford, Inc.
29. Dumfries Garage
30. Prince William County Fire Department
31. First American Savings & Loan
32. Prince William Forest Park
33. Gullette & Vogel Attorneys-at-Law
34. Gar-Field Senior High School
35. Greenwood Studios
36. Georgetown School of Science & Arts
37. Social Services Department
38. Universal Dynamics Corp.
39. U. S. Navy Recruitment Office
40. U. S. Naval Hospital
41. Virginia Electric Power Company
42. WPWC
43. WNVT
44. Woodbridge Airport, Inc.
45. Woodbridge Animal Hospital
46. Woodbridge Middle School
47. Woodbridge Opticians, Inc.

APPENDIX D

STUDENT ACTIVITY CHECKLIST

Student Activity Checklist

Student Name: _____ Date: _____

1. Functional Competencies

   list. _____ date comp. _____

2. Career Exploration

   list _____ date comp. _____

3. Learning Project

   Describe _____

   Date completed.

4. Life Skills Project Describe _____

   Date Completed

5. Employer Seminars

   list. _____ date _____

6. Journal.

   Used Yes No

   Feedback Yes No

7. Other Student Reports.

   list. _____ date _____

8. Attendance Record

   Yes No