Spring 1980

A Cooperative Education Program for Technology Majors

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FOR TECHNOLOGY MAJORS

By

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A thesis submitted to the Faculty of
Georgia Southern College in partial
fulfillment of the requirements for
the Degree of Master of Technology

Statesboro, Georgia

May 26, 1980

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ACKNOWLEDGEMENTS

The author wishes to express appreciation to Dr. Keith F. Hickman, the committee, and the other professors of the Division of Technology for their interest and guidance with this study and also throughout my graduate studies at Georgia Southern College.

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CHAPTER I

BACKGROUND AND REASONS FOR THE STUDY

Introduction

Cooperative Education is a method of higher education that combines academic work with practical on-the-job experience. The goal is to prepare students for career opportunities through a balance of theory and related employment with a business or industry. "Thus, the student is provided a unique experience. . . Work that will be profitable to both the student and employer; and experience that will enhance the student's knowledge, personal development and professional preparation" (3, p. 2).

Cooperative Education was founded at the University of Cincinnati in 1906 by Herman Schneider, who was a Civil Engineer and professor. He made two observations based on his own career and on the careers of his students.

1. Every profession has many facets which cannot be taught in the classroom. The facets can only be learned through direct on-the-job experience with professionals already successful in the field.

2. Most students find it necessary to work on a part-time basis and during vacation periods in order to earn money for their education. In almost all cases, this part-time and vacation job has no relationship to their ultimate career choices, and therefore does not contribute to the professional education of the student (17, p. 3-4).

> The co-op plan is defined as an integration of classroom work and practical industrial experience in an organized program under which students alternate periods of attendance at college with periods of employment in industry, business or government. The employment constitutes a regular continuing and essential element in the educational process and some minimum amount of employment and minimum standard of performance are included in the requirements for a degree. The plan requires that the student's employment be related to some phases of the branch or field of study in which he is engaged, and that it be diversified in order to afford a spread of experience. It requires further that his industrial work shall increase in difficulty and responsibility as he progresses through his college curriculum, and in general, shall parallel as closely as possible his progress through the academic phases of his education (16, p. 18).

Schneider's plan was to have two groups of students who alternated on a weekly basis between on-campus study of engineering and off-campus employment in engineering related jobs in the local industries. This provided classroom assignments as well as productive practical experience. The classroom work was reinforced by job responsibility as new knowledge and skills were gained.

The students participating in the cooperative program were confident in their career choices and objectives. These experiences contributed to the students' sense of identity and sense of worth because they related to adults as co-workers and learned to deal with all types of people (9, pp. 4-5).

The next new cooperative program began in 1909 as cooperative engineering courses were initiated at Northeastern University, Boston, Massachusetts. It was not until 1919 that the first non-engineering cooperative program began.

It was also at the University of Cincinnati and was for the students majoring in business. By 1920 seven other colleges and one technical institution had initiated programs of cooperative education.

The Association of Cooperative Colleges was formed in 1925 under the leadership of Herman Schneider. The University of Cincinnati was the site of the first meeting and representatives from 16 colleges and six industrial firms were present. Evolving from this was the Society for Promotion of Engineering Education. The American Society for Engineering Education currently meets the needs of educators and employers dealing with cooperative engineering education. The Cooperative Education Association is another association that benefits cooperative education. It provides a forum for all persons involved and interested in the whole idea of cooperative education.

Cooperative education continued to grow at a steady pace until 1931. Between 1931 and 1945, when both the Great Depression and World War II occurred, only five programs were put into practice. This was due, in part, to the need to accelerate the education process and the drastic reduction of the male student population (9, p. 8).

However, immediately after World War II, a large growth rate occurred for cooperative education. Reasons for this growth were the large number of veterans returning to college and probably the most influential was the federal

government's issuance of grants to research, plan and implement programs of cooperative education (16, p. 20).

As this expansion occurred, programs were structured in design to current ones and the rush of these new programs brought about great diversity because the older well-established programs could not provide the orientation and indoctrination to the many colleges in so short a period of time. Many programs involved curriculum areas that most institutions were not practicing and there was little guidance from them. Thus these colleges and institutions developed program structures, policies and practices that corresponded to their particular situations, which resulted in the diversity that is still here today.

By 1953, 43 cooperative education programs were in operation; 35 in baccalaureate institutions and eight in community colleges and technical schools. The increase continued as there were 71 programs, four-year as well as junior colleges by 1960 (9, p. 9).

As time went on the programs increased as shown in Table 1 (16, p. 22).

TABLE 1

COOPERATIVE EDUCATION PROGRAMS

Year	Program
1969	127
1970	200
1971	277
1972	317
1973	576
1974	771
1975	968

Cooperative Education has had both a long and short history. The long history is that it has been over 65 years since the idea was implemented in a program. The short history is in the last 20 years the number of institutions offering Cooperative Education has grown at extraordinary rates and is still continuing to grow at a rapid pace.

There is an apparent need for a Cooperative Education Program at Georgia Southern College. There was a cooperative program for a short period but it was discontinued in 1977 due to a lack of funds. Many technology graduates are entering employment without work experience related to their major. As stated by Schneider (17, pp. 3-4), students also need to earn school expenses and the objectives of a cooperative education program would give the students money and related work experience in their chosen field. A program has been instituted in 1979-80 by the Division of Technology and the study is designed to develop and improve the new program.

Statement of the Problem

The problem of this study was to develop guidelines for a Cooperative Education Program that would fulfill the needs of the students majoring in Engineering or Industrial Technology and the businesses and industries that participate in this educational program.

Statement of the Hypothesis

The hypothesis for the study was as follows: a Cooperative Education Program can be developed that is operationable for the Division of Technology at Georgia Southern College.

Basic Assumptions

The basic assumptions for the study were as follows:

1. The study will be valuable to the faculty and the students of the Division of Technology.

2. The data obtained through college and university literature and the student questionnaire will be valid.

3. The faculty of the Division of Technology desires to have a Cooperative Education Program.

4. The present program initiated in 1979-80 can be improved.

Limitations and Controls

The limitations and controls for this study were as follows:

1. The study will be limited to only the students pursuing the Bachelor of Engineering Technology or the Bachelor of Science in Technology degrees.

2. The study will be limited to Cooperative Education and not to include internships.

3. The program will conform to the guidelines and policies set forth by the Board of Regents, Georgia Southern College and the Division of Technology.

4. Data will be gathered from the colleges and universities in the southeastern United States.

Definition of Terms

The following terms used in this study are listed as follows:

1. BCT - Building Construction Technology - The course of study that deals with the erection of residential, commercial or light industrial structures.

2. CET - Civil Engineering Technology - The course of study that deals with the design and construction of foundations and heavy structures.

3. Co-op student - A student participating in the Cooperative Program.

4. EET - Electrical Engineering Technology - Electrical Engineering Technology - The course of study that deals with electric power, communications, computer systems and electronic manufacturing.

5. Fifth-year student - A student in his senior year of academic work.

6. IET - Industrial Engineering Technology - The course of study that deals with the development of integrated and production systems used to achieve greater efficiency from men, materials and equipment.

7. IM - Industrial Management - The course of study that deals with the supervision and management of the production phases of a manufacturing industry.

8. Industry - Any branch of business commerce, production or manufacture.

9. Internship - The period of practical work experience that occurs near or after graduation. This is not to include cooperative education.

10. IT - Industrial Technology - The course of study that deals with the science of industrial arts and manufactures.

11. MET - Mechanical Engineering Technology - The course of study that deals with tool and machine design, heating, air conditioning and power systems.

12. PM - Printing Management - The course of study that deals with the management and design of printing facilities.

13. Questionnaire - A printed form containing a set of questions that is used to gather information relevant to the study.

14. Technology - The application of science that uses methods and materials to achieve industrial or commercial objectives.

Summary

A need has been established to initiate a Cooperative Education Program for the Division of Technology at Georgia Southern College. This study was devoted to the design and

structure of such a program. The program will conform to the policies of the Board of Regents and Georgia Southern College.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

Cooperative Education has been in existence for over 70 years. Before a college or university implements a program, it would be to their advantage to examine current programs at other institutions. It was stated by Frank Vandegrift, Director of Cooperative Education at Auburn University, "To attempt to build a program on your own is simply to try to reinvent the wheel. The wheel has been invented, why not profit from the experience and know-how of people who can give you a good bit of information . . ." (1).

Related Studies

The Cooperative Education Research Center completed a study, Implementation of Cooperative Education Programs, (16) where different types of programs were compared at 34 different institutions. The Research Center surveyed attitudes of the students, faculty and the administration concerning Cooperative Education. They found that the students and faculty responses had a positive correlation while negative responses were received from many of the administrators.

This was due to the funding and staffing which the program required. They concluded that there must be a strong commitment from the students, faculty and administration to have a successful program. The study further indicated the elements to implement a program and the need for stability.

"Planning Cooperative Programs at the Post Secondary Level" by Udo H. Jansen and Gerald R. Boardman in the American Vocational Journal (September 1975) (8) concluded that the acceptance of Cooperative Education depended on several factors or elements. The continued working relationships of all participants of the program--students, directors, supervisors, faculty and employers, are all important elements in the program construction.

James W. Wilson listed planning and implementing procedures in his study, Developing and Expanding Cooperative Education (18). He stated that the program must have definite objectives and proper support. The president of the institution is the most significant factor because his support determines the success of the program. The support from the students and employers are needed for the program to continue. The program director and his staff must counsel and direct the students and maintain contact with employers. In order to keep the program productive an evaluation procedure must be done periodically.

A study by W. C. Neal, "Guide Lines for a Work Experience Program," The Balance Sheet (11) stated elements of a successful program. They are:

1. A uniform method of selecting students.
2. An orientation period before placement that acquaints students with the aims, purposes and activities of the program.
3. An appraisal of the students from the employers.
4. Leadership from the coordinator to provide students with a meaningful experience.
5. Continuous evaluation of the program to see that goals and objectives are obtained.

Another study by James W. Wilson was "Factors Significant to the Development of Successful Cooperative Education Programs" (7). The study implied that a substantial portion of the student body and faculty must be participating for the program to be a success. The director-coordinator must be provided an adequate budget for travel and program operations. A calendar must be established to schedule the necessary academic courses and work periods. There must be cooperation from the housing office and registrar so the students may enter and leave school for work periods without any problems.

Summary

These studies can be helpful in the design of the Cooperative Education Program. The ideas and practices will be used to develop the study in all aspects.

CHAPTER III

INVESTIGATION

Introduction

The problem of the study was to develop a Cooperative Education Program that would best suit the needs of the students and the businesses and industries that participate in the program. The hypothesis as stated is: A Cooperative Education Program can be developed that is suitable for the Division of Technology at Georgia Southern College. The study may be used to develop and expand cooperative education at Georgia Southern College.

Data Gathering Process

The colleges and universities with the cooperative education programs which are recognized as being well established and successful were contacted for selected data. Their programs have definite goals, precise methods of operation and a substantial number of students. A letter requesting information was sent to the Cooperative Education Division of each selected school (see Appendix A). The questions pertained to:

1. The requirements for entry and continuation of the program
2. The number of staff personnel required
3. The procedure for recording credit and work experience on the students' records
4. Fees, if any, paid to the college during the working period

The tabulation of their replies can be found in Table 2 on page 15.

Other data were gathered from periodicals and literature on cooperative education. This information pertained to the implementation and development of programs.

Population

At the time of this study, data from Georgia Southern College records indicated 350 students were pursuing degrees through the Division of Technology. One hundred students representing a cross-section of all technology majors were selected as participants by their being enrolled in selected classes. The classes were selected on the basis that they were lower level, had potential co-op students and were large enough to gather data representing the total population. The classes were:

1. TD 150 - Technical Drafting
2. TD 231 - Descriptive Geometry
3. ES 120 - History and Philosophy of Engineering

TABLE 2

RESPONSES FROM SCHOOLS

School	Cost/ Student	No. Staff	Academic Credit	Fee	Transcript Credit
A(17)	$142.85	1 Director 1 Assistant Director 2 Secretaries	0	$15/qtr.	Yes
B(6)	0	1 Director 1 Secretary	0	$20.75/ Semester	Yes
C(15)	$104	1 Director 1 Secretary	0	$15/Sem.	Yes
D(5)	N/R*	1 Director 1 Secretary	**1 hr per work period	$/hour	Yes
E(14)	$148	1 Director 2 Assistants 1 Secretary	0	0	Yes
F(19)	N/R*	1 Director 4 Assistants 1 Secretary	0	0	Yes
G(13)	$217	1 Director 1 Assistant 1 Secretary	0	$42/Sem.	Yes

*N/R = No Response
**Degree Credit up to 9 hours

4. ES 250 - Engineering Analysis
5. ES 330 - Digitional Computation
6. GT 250 - American Industries

The Questionnaire

The questionnaire was constructed to determine the students' attitudes, interests, and opinions concerning cooperative education for the Division of Technology. The questions pertained to (1) the student's interest in the co-op program, (2) his plans to interview for a co-op position, (3) the benefits received from participating in the program, and (4) the student's willingness to relocate for a position out of town (see Appendix B).

Validation of the Questionnaire

The questionnaire was examined by members of the faculty of the Division of Technology. After revisions and additions, the questionnaire was typed and printed in final form.

Summary

The data were obtained from colleges and universities with well established programs. The results of the questionnaire provided information about the students' attitudes and opinions on cooperative education. The data were used to develop a Cooperative Education Program for the Division of Technology.

CHAPTER IV

ANALYSIS OF DATA

Introduction

The problem of this study was to design a Cooperative Education Program that would satisfy the needs of the students, businesses and industries that participate in the program. Eleven colleges and universities in the Southeast were contacted for data pertaining to their cooperative education programs. Three colleges did not respond and one college replied stating that their program was discontinued.

A questionnaire was used to obtain the students' responses and attitudes on Cooperative Education. Thus, the data from the colleges and universities, publications and results of the questionnaire were used to develop a Cooperative Education Program for the Division of Technology.

Types of Cooperative Education Programs

The data indicated there are three types of Cooperative Education Programs. They are as follows:

1. Alternating - With the alternating type of program, each student is paired with another student. While one student is going to school full-time, the other is working

full-time. At the end of the school term, they exchange places. This allows the employer full coverage of the job and the students can concentrate all their efforts on school or work.

2. Parallel - The parallel method enables the students to work part or full-time while continuing their academic work. This allows the participants to be on campus and they do not have to move from employment to school each term.

3. Field - In the field program the students leave school for a specific period of time during their undergraduate studies to work in their related fields. They do not move more than once a year. This system does not assure job continuity for the employer (4, p. 1).

The colleges and universities in this study used the alternating program, with one exception which had several students on the parallel program. The alternating program enables the employer to have a better opportunity to evaluate the student's progress while he is with their firm.

Facts About Cooperative Education

The data indicated that there were known facts about cooperative education. They are as follows:

1. Approximately 80 percent of the colleges and universities offering cooperative education began their programs within the past ten years. The program's flexibility of combining theoretical study and practical employment is the main strength of cooperative education.

2. Of the top fifty companies in the United States (as ranked in Fortune magazine's "Fortune 500"), eight percent are cooperative education employers and the top ten employ co-op students.

3. Many companies consider graduating co-op students with associate degrees as competitive as non-co-op students receiving four year degrees.

4. Cooperative education reduces the cost of recruiting and retaining qualified personnel.

5. Co-op students usually perform better in the classroom than non-co-op students because of the related work experience.

6. The co-op student can help finance his college education with the money he earns from working. This type of dedication is important to employers.

Comparison of Cooperative Education Programs

Each college surveyed required the students to complete a minimum of two school terms with an academic grade point average of "C" or better before entering a co-op program. Three schools required a "C+" average to enter and all

required a "C" average to continue in the program. For the schools on the semester system the two terms would constitute the complete freshman year while the schools on the quarter system the terms would only be two quarters. Colleges with existing programs suggested that students complete three quarters before beginning work.

All institutions surveyed reported the students received a grade of S (Satisfactory) or U (Unsatisfactory) for their working periods (see Table 3).

One school gave one hour academic credit per work period. All institutions recorded the work periods on the student's transcript and gave special recognition or a certificate for one year or more work experience. The majority of the schools required a small fee, usually the activity fee, for each work period. The co-op students are classified as full-time students while at work. The cost of the program per student ranged from $0 to $217. These costs were covered by the working period fee or other funds appropriated for the program.

Each program required a minimum of one full-time director and secretarial assistance to coordinate activities and place the students. Colleges with larger programs had up to three full-time staff and two secretaries.

The majority of the schools surveyed indicated co-op students performed better and had higher grade point averages than the non-co-op students. This was the opinion of

TABLE 3

COMPARISON OF CO-OP PROGRAMS OF SEVEN

SOUTHERN UNIVERSITIES - 1979

School	Entry GPA	Requirements Academic Hours	Grade Received	Type of Program
A(17)	1.3 of 3.0	2 Qtrs.	S/U*	Alternating
B(6)	1.25 of 3.0	2 Sem.	S/U*	Alternating
C(15)	2.0 of 4.0	2 Sem.	S/U*	Alternating
D(5)	2.0 of 4.0	3 Qtrs.	S/U*	Alternating & Parallel
E(14)	2.0 of 4.0	3 Qtrs.	S/U*	Alternating
F(19)	2.0 of 4.0	2 Qtrs.	S/U*	Alternating
G(13)	2.25 of 4.0	2 Sem.	S/U*	Alternating

*S/U = Satisfactory/Unsatisfactory

the faculty and the co-op program personnel, but one institution did send some documented evidence that will be presented later in the chapter.

Data From Student Questionnaire

The cooperative education questionnaire was administered to one hundred students in six classes to provide a cross section of technical majors (see Table 4). The largest number of the majors were IET (22 of 100) but this included the IT and IM majors because of the similar types of jobs. There were 21 students majoring in MET and 21 majoring in EET. There were eight students majoring in BCT and seven in PM. Two students were undecided on a major.

All the students answered "no" to the question asking if they had been a co-op student at another college or university. Seventy-six percent said they would like to participate in a cooperative education program (see Table 5). Only a small percentage of the students (8 of 100) had interviewed with the few companies that had previously come to the Division of Technology for co-op students.

The responses showed that only 36 percent of the students planned to interview for a co-op position in the near future while 23 percent were undecided. Forty-one percent said they had no immediate plans to interview for a position.

Some of the reasons for the negative responses were:

1. Too close to graduation
2. Undecided about participating

TABLE 4

ACADEMIC MAJOR AND CLASSIFICATION OF STUDENTS SURVEYED

Major	Fresh-men	Sopho-more	Junior	Senior	Total
Civil Engineering Technology	4	4	10	1	19
Electrical Engineering Tech.	6	5	8	2	21
Mechanical Engineering Technology	1	10	8	2	21
Industrial Engineering Technology*	1	4	12	5	22
Building Construction Technology	2	3	2	0	7
Printing Management	0	3	4	1	8
Undecided	0	1	1	0	2
Totals	14	30	45	11	100

*Includes Industrial Technology and Industrial Management majors and Industrial Engineering Technology because of similarity of the jobs.

TABLE 5

QUESTIONNAIRE RESPONSES

Questions	C E T Yes	C E T No	E E T Yes	E E T No	I E T* Yes	I E T* No	M E T Yes	M E T No	B C T Yes	B C T No	P M Yes	P M No	Undecided Yes	Undecided No	Total
1. Have you ever been a co-op student with other college or university?	0	19	0	21	0	22	0	21	0	7	0	8	0	2	100
2. Do you think you would like to participate in a co-op program?	15	4	15	6	20	2	16	5	4	3	3	4	2	0	100
3. Have you interviewed for co-op position with any company coming to GSC?	1	18	4	17	1	21	1	20	1	6	0	8	0	2	100
4. Do you plan to interview for a co-op position?	5*		5*		6*		3*				3*		1*		23*
	4	10	8	8	6	10	13	5	5	2	0	5	0	1	77
6. Would you object to relocating while in the co-op program?	4	15	7	14	5	17	7	14	1	6	4	4	1	1	100

*Undecided

3. Already had a job
4. Felt they did not need the extra money
5. Wanted to finish college as soon as possible
6. No transportation
7. Would not be able to receive the veteran's benefits
8. A foreign student and not permitted to work off campus
9. Had a summer job that gave industrial experience

Seventy percent of the respondents stated that they would not object to relocating if they were offered a co-op position out of town. The reasons stated were:

1. Business moves and need to move with it
2. Student will have to move sooner or later in any career
3. It would benefit the student as a whole
4. It would be a new experience
5. Needs of the company should be fulfilled before needs of the student
6. To examine other possible working areas
7. To have better job opportunities
8. Jobs are scarce and will move to have an opportunity to work
9. To learn about a different company's operations

This indicates the students did not mind going where there were opportunities for employment.

Thirty percent of the respondents did object to relocating for the following reasons:

1. Family reasons or married
2. Had a job or home in area
3. High cost of gasoline
4. Could not work off campus
5. Cost of moving too high
6. Money would be used for living expenses instead of saving
7. Lack of transportation

The students were to indicate their top two benefits of a co-op program. The responses were:

82 - Work experience

48 - The possibility of employment with the company after graduation

28 - Help earn school expenses

20 - The possibility of higher starting salaries

2 - To get away from college for a quarter

Ninety students checked two benefits, but ten students checked more or less. Of the ten, seven indicated three or more, while three students did not respond to the question. Thus, the total was 180 responses. Students indicated work experience was the best benefit and the possibility of employment with the company was second, while helping earn school expenses was third, and higher starting salaries was fourth. The majority of the other ten students had work experience as the best benefit and earning school expenses as their second choice.

Benefits of Cooperative Education

The data indicated that a student gains many benefits by participating in a cooperative education program. The co-op student begins his working career as much as three years before the non-co-op student and at graduation he has one to two years of practical work experience. From this he benefits in many ways. These are as follows:

1. Co-op students can apply knowledge from academic work to real life situations
2. Gains maturity and discipline through association of people in the working environment
3. Has opportunity to work with and observe professionals in chosen field
4. Helps to decide on a major early in college career
5. Possible higher starting salaries
6. Possible continued employment after graduation
7. Earn money for school expenses (17, p. 4)

The student is not the only one who benefits from cooperative education. There are benefits to the employer, college or university, faculty and community. The benefits to the employer are:

1. Provides a ready-made and low cost training and recruitment program
2. Frees high-salaried professionals from time-consuming but essential tasks
3. Provides a flow of new ideas and views into the organization from the co-ops (5,p.2)

The benefits to the college or university are:

1. It provides the co-op with a laboratory no school can furnish

2. The school has direct contact with the businesses and industries where the co-op students work

3. The school becomes more valuable to the community because the curriculum can be structured to meet the changing needs of business and industry

The faculty benefits are:

1. Co-op students' experience provides faculty with information on new developments and procedures

2. The faculty can maintain closer relationships with business and industry

3. The faculty can be kept up-to-date on new equipment and the expectations of the co-op employers

The community also benefits from the program.

1. Students who are not financially able to attend college are assisted by cooperative education

2. Co-oping helps the student adjust from school to work easier (4, pp. 2-3)

Co-op Students vs Non-Co-op Students

A study by the Georgia Institute of Technology reported that their co-op students had higher grade point averages than the non-co-ops on the same academic level.

A total of 225 students from the freshman, sophomore, junior and senior classes comprised the sample. Aside from their term standing, the students were matched in terms of academic aptitude as measured by Scholastic

Aptitude Test of the CEEB and their high school records. The co-op students were matched with non-co-op students with respect to academic potential. The mean cumulative grade point average of the co-op students was higher than the non-co-op students. The difference is greater in the underclass group and diminishes as both types of students progress in their programs.

Research also suggested that many entering non-co-op freshmen do not possess any reasonably strong educational and vocational goals and commitments which serve to energize and direct their academic efforts. The co-op program, with its high academic requirements and the longer time to complete it, would attract fewer students of this type. The program's stronger goal structure would initiate and maintain a high level of academic achievement from the co-op students (10, p. 823).

A study by The Detroit Institute of Technology involving 70 employers in 27 states during the period July 1, 1964 to June 30, 1974 revealed these facts about co-op students:

1. Number of job offers made as a percent of candidates interviewed: co-op graduates - 43%; other graduates - 5%

2. Number of offers accepted as a percent of the number of offers made: co-op graduates- 94%; other graduates - 58%

3. Number of job offers accepted as a percent of the number of candidates interviewed: co-op graduates - 40%; other graduates - 3%

4. Work performance ratings - scaled 0 - 100% co-op students - 64%; co-op graduates - 71%; other graduates - 57%

5. One or more promotions received after graduation: co-op graduates - 88%; other graduates - 50%

6. Median average recruitment cost: per co-op student - $50; per other college graduate - $800

7. Total average monthly labor costs per employee (including fringes): co-op students - $719; Recent college graduate - $1,207

The study also stated the starting salaries of co-op graduates were 9% higher than non-co-op graduates (12).

Implementation of Cooperative Education

The data stated elements that are needed to have a successful program. They are (1) program objectives; (2) program planning, (3) institutional commitment and support and (4) program staffing. The following explains these in detail:

1. Program objectives - statements that guide the planning and implementing of the program (18, p.8).

2. Program Planning - Every program should require a plan for:

   (a) recruiting students
   (b) securing work situations
   (c) matching employer and student needs
   (d) classroom re-entry for students returning from working periods (16, pp. 55-62).

3. Institutional commitment and support - the program will benefit to the fullest if there is commitment from the:

   (a) college president
   (b) faculty
   (c) registrar
   (d) housing office (16, pp. 65-70).

4. Program Staffing - The staff must include a director/coordinator to counsel and direct students and proper secretarial assistance (7, p. 2).

Summary

The data indicated that a successful cooperative education program benefits the student, employer, and the college or university. The students in the Division of Technology have expressed an interest for the program and the school has the needed resources available. This data was used to design a Cooperative Education Program for the Division of Technology.

CHAPTER V

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this study was to develop guidelines for a Cooperative Education Program to be used by the students and faculty in the Division of Technology at Georgia Southern College. Data were gathered from colleges and universities in the Southeast, a student questionnaire, and publications.

Findings

There are three variations of Cooperative Education Programs: (1) alternating, (2) parallel and (3) the field program. The alternating program was used by all colleges and universities surveyed. One university was using both parallel and alternating programs, while the third program was not being used. Students are required to complete two terms of college with at least a "C" average before they can be employed as a co-op student. A grade of S (satisfactory) or U (unsatisfactory) and the experience was recorded on the student's permanent record. The majority of the schools required a fee for each work period and the programs required at least one full-time director and a secretary to function properly.

The data from the student questionnaire indicated that none of the one hundred students surveyed had participated in a Cooperative Education Program. Seventy-six percent had made immediate plans to interview for a co-op position while 23 percent were undecided. Seventy percent said they would not object to relocating if a position was offered to them out of town. The students listed: (1) work experience, (2) possible employment with the company after graduation, (3) help earn school expenses, and (4) higher starting salaries in descending order as the most important benefits of a Cooperative Education Program.

A study by Edmond Marks and James G. Wohlford (7) of 225 students at the Georgia Institute of Technology found that the grade point averages of co-op students were higher than the non-co-op students. It was concluded that the higher grade point averages were brought about by the students having established career goals.

The Cooperative Education Research Center (6) stated elements for a successful program such as definite program objectives, a program plan, institutional commitment and support and the proper staffing.

Research indicated that Cooperative Education benefits not only the student. The college or university benefits by establishing direct contacts with the businesses and industries where the co-op students work. The employers

benefit by having a ready-made and low-cost training and recruitment program and the co-op frees high-salaried professionals from time-consuming but essential tasks.

Conclusions

Based on the data collected, the conditions at Georgia Southern College are favorable for a Cooperative Education Program in the Division of Technology. The students have expressed an interest, the college has the needed resources and industry is available. The program has been determined feasible and the situation is stated for a Cooperative Education Program to be developed and carried out for the Division of Technology.

Recommendations

The following is recommended for a Cooperative Education Program to be used by the Division of Technology at Georgia Southern College.

Program Staff

The program should have a director to coordinate activities, assist in finding employment opportunities and placing students and possibly visit students on work assignments. If information is lacking about a prospective company, the director may visit it to determine the environment before a student is placed. The director should contact companies to establish an interest for Cooperative Education. As the program becomes known other firms will also want co-op students. These duties will increase when more students are

participating so the director may become full time. The clerical help available at present will be sufficient while the program is new.

Student Requirements

Based on the data collected from the colleges and universities with successful programs the student must satisfy the following requirements before he can be employed as a co-op student:

1. Be at least eighteen years old
2. Be a citizen of the United States
3. Exhibit a high degree of character and maturity. These qualities will be measured by past records and interaction with the faculty.
4. Be in good physical condition

Other requirements the student must satisfy that are mandatory to the program are:

1. Students must be classified as full time students each quarter at Georgia Southern College
2. Freshmen must have completed three quarters at Georgia Southern College
3. Students must have a grade point average of 2.0 or higher and willing to participate in no less than three work periods.

Academic Preparation

The student must have completed 45 hours of academic credit which includes 30 hours required courses and 15 hours of electives, excluding health and physical education.

The required courses are as follows:

English Composition	10 hours
Math-Integrated Algebra and Trigonometry	10 hours
Math-Integrated Analytic Geometry and Calculus	5 hours
Technical Drafting	5 hours
Total	30 hours

The co-op student is encouraged to complete the remaining 15 hours with Engineering Science courses.

The student pursuing the Bachelor of Science in Technology Degree is advised to take technical electives to substitute for the Integrated Analytic Geometry and Calculus and Engineering Science courses.

Employment and Curriculum Schedule

Employment position will be granted through personal interviews with the students and the co-op employers. Employment will be based on qualification and experience to find the position that will allow both the co-op student and employer to attain the goals of the program. The positions will be related to the co-op student's field of study and the salary and benefits will be determined by the employer.

For the employers that prefer a continuous position by the student, a section schedule must be followed. To provide this type of coverage the students should be divided into two sections (see Appendix C). Section I begins work in the Fall of their sophomore year and alternates quarters

between work and school. All co-op students in this section will be working Fall and Spring quarters. Section II will begin their first working period Winter quarter, thus working Winter and Summer quarters. The students in these sections are paired so the employer will always have a position filled during all quarters of the year. Once a student accepts a co-op position he should remain with that employer the duration of the program. If problems arise or the student changes curriculums and work is not available in his new field with his employer, he would be permitted to change to a new location. The schedule is also available to upperclass or transfer students with five or more quarters remaining at Georgia Southern College.

The co-op student will alternate working and school quarters during his third and fourth years of college. The fifth year he will remain at school to complete his entire senior year. This gives ample time to complete any courses he was not able to schedule while working.

Certain employers may not desire a full time co-op student all during the year because of work loads or seasonal type work. Students who prefer this arrangement could take the positions as they are available. This would permit a flexible schedule and more diversified work experience. A disadvantage exists in that the co-op student may not be assured a position during alternating quarters.

Student Procedures

Upon the acceptance of employment the co-op student should notify the housing office if he is not going to remain on campus the following quarter. The student must register for GT 499 Special Problems/Co-op and pay the fee required for one hour academic credit during his working quarter and the activity fee if he wants student activity privileges. The student may pay the health fee if he desires health care from the school while working. It is advised the co-op student purchase student insurance offered through the school. This will assure coverage during the entire year (2). The employer will also have insurance on the co-op student but the premium may have to be paid by the student.

Evaluation

The Cooperative Education Program is a cooperation between the school, employer and student. The co-op student whould try to uphold the ideals of the school on the job as well as in the classroom. He is representing his school and is a product of it.

After the co-op student has returned to school following the working period, he must make a written report of his job and duties (see Appendix D). He has an opportunity to cite any highlights or particular areas of interest he encountered while working.

The employer is also required to file an evaluation of the co-op student's performance. This will entail both the positive and negative aspects of the job assignment as well as the co-op student's overall performance rating (see Appendix E). A pass/fail grade is assigned for each work period.

The co-op student must provide an oral presentation to the faculty of the Division of Technology upon returning from a work assignment. This report will enable the faculty to be informed on each student's progress in the program.

Cooperative Education Certificate

Each work period is stated on the student's college transcript that becomes part of his permanent record. Each co-op student who has fulfilled the academic requirements for graduation and successfully completed a minimum of four working quarters or one year of experience will be awarded a "Georgia Southern College Cooperative Education Certificate" signed by the president of the school, division chairman and co-op director.

Obligations

The co-op student will not be under any obligation to continue working for his co-op employer after graduation, likewise the employer will not be obligated to extend an offer. It would be an advantage to consider the employer since valuable company experience, benefits and status has been established.

Summary

A Cooperative Education Program has been developed for the Division of Technology at Georgia Southern College. The guidelines, procedures and objectives have been patterned after programs that are considered successful. The Division of Technology needs to initiate the program as soon as possible.

APPENDIX A

CORRESPONDENCE

GEORGIA SOUTHERN COLLEGE

DIVISION OF TECHNOLOGY

ing Construction

trial Technology

trial Management

ng Management

Manufacturing Engineering Technology

Industrial Engineering Technology

Civil Engineering Technology

Electrical Engineering Technology

Mechanical Engineering Technology

BOX 8044, LANDRUM CENTER
STATESBORO, GEORGIA 30458
(912) 681-5111

January 29, 1980

University of Cincinnati
Director of Cooperative
Education
Cincinnati, Ohio 45221

Dear Sir:

I am a graduate student at Georgia Southern College developing a cooperative educational program to be used by the Division of Technology. Your program has been recognized as being successful for many years; therefore, I would appreciate any information you could share concerning the following:

requirements for entry
cost per student
length of the program
number of staff personnel required
how credit would be stated on diploma or transcript
fee, if any, paid to the school during the working period
statistics on classwork performance of co-ops vs. non co-ops

I realize a co-op gains work experience, a salary and sometimes remains with his employer after graduate. However could you share with me some of the sacrifices and other benefits he receives by waiting about another year before he begins his career.

Also any other information you could send would be greatly appreciated.

Sincerely,

Joel Sawyer

JS/mbl

APPENDIX B

STUDENT QUESTIONNAIRE

Major _____ Fr. So. Jr. Sr.
If Senior - Quarter graduation
_____

Cooperative Education (Co-op) is a program of study in which the student alternates quarters of academic work with practical work experience in industry. The entire freshman and senior years are spent in school with the working period during the sophomore and junior years. The whole program takes five years instead of the conventional four.

1. Have you ever been a co-op student with any other college or university?

2. Do you think you would like to participate in a co-op program?

3. Have you interviewed for a co-op position with any company coming to GSC?

4. Do you plan to interview for a co-op position?

5. Which benefits of a co-op program do you believe to be best? (Check two).

   ____ work experience

   ____ help earn school expenses

   ____ the possibility of employment with the company after graduation

   ____ possibility of higher starting salaries

   ____ to get away from college for a quarter

6. Would you object to relocating while in the co-op program?

   No ____

   Yes ____ Why?

APPENDIX C

SECTION SCHEDULE

SECTION SCHEDULE

QUARTERS	SUMMER	FALL	WINTER	SPRING	SUMMER	FALL	WINTER	SPRING	SUMMER	FALL	WINTER	SPRING	SUMMER	FALL	WINTER	SPRING	SUMMER	FALL	WINTER	SPRING
SECTION I	*V	*S	S	S	V	*W	S	W	S	W	S	W	S	W	S	W	S	S	S	S
SECTION II	V	S	S	S	V	S	W	S	W	S	W	S	W	S	W	S	W	S	S	S
	FIRST YEAR				SECOND YEAR				THIRD YEAR				FOURTH YEAR				FIFTH YEAR			

*V - VACATION
*S - SCHOOL
*W - WORK

SCHEDULE FOR TRANSFER STUDENTS

S	W	S	W	S	W	S	W	S	W	S	S

APPENDIX D

STUDENT EVALUATION

COOPERATIVE EDUCATION

Student Work Period Report - Please Type

NAME _____ ACADEMIC MAJOR _____ W.P. ____

EMPLOYER _____ LOCATION _____

JOB TITLE _____ SUPERVISOR _____ END SAL$ _____ wk.

WORK PERIOD DATES: BEGINNING _____ ENDING _____

CAMPUS ADDRESS _____ P.O.BOX _____ PHONE _____

DESCRIPTION OF DUTIES (Continue on back if necessary)

_____

_____

_____

_____

_____

_____

_____

_____

_____

WHAT WAS THE MOST REWARDING ASPECT OF YOUR JOB? _____

_____

_____

HAVE THE WORK PERIODS INFLUENCED YOUR STUDY PLAN? YES__ NO__

HOW? _____

_____

_____

SIGNED _____ DATE _____

APPENDIX E

EMPLOYER EVALUATION

_____ Major _____

Period _____ to _____ Assignment _____

any Name _____ Address _____ City _____ Zip _____

RUCTIONS TO IMMEDIATE SUPERVISOR: Please evaluate the student by comparing him with r students of comparable academic level, with other personnel assigned the same or larly classified jobs or with your individual standards. Place a check mark in the es below that best describe your evaluation.

ELATIONS WITH OTHERS

xceptionally well accepted
orks well with others
ets along satisfactorily
as some difficulty working with others
orks very poorly with others

ATTITUDE-APPLICATION TO WORK

___Outstanding in enthusiasm
___Very interested and industrious
___Average in diligence and interest
___Somewhat indifferent
___Definitely not interested

UDGMENT

xceptionally mature
bove average in making decisions
sually makes the right decision
ften uses poor judgment
onsistently uses bad judgment

DEPENDABILITY

___Completely dependable
___Above average in dependability
___Usually dependable
___Sometimes neglectful or careless
___Unreliable

BILITY TO LEARN

earns very quickly
earns readily
verage in learning
ather slow to learn
ery slow to learn

QUALITY OF WORK

___Excellent
___Very good
___Average
___Below average
___Very poor

DANCE: ___Regular ___Irregular

PUNCTUALITY: ___Regular ___Irregular

	Outstanding	Very Good	Average	Marginal	Unsatisfactory
ALL PERFORMANCE:					

traits may help the student's advancement?

traits may hinder the student's advancement?

tional Remarks (over if necessary):

this student be invited to return for another quarter's work? Yes _____ No _____
dates _____. If No, reason _____

report has been discussed with the student _____ Yes _____ No

ned) _____ Date _____
(Immediate Supervisor

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BIBLIOGRAPHY

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