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ABSTRACT

This document summarizes the significant findings, overall methodology, and policy recommendations for the Assessment of School Supervised Work Education Programs. It consists of material contained in the Data Analysis Report together with a description of the analysis model developed for each respondent group. Individual predictor items were related to outcome measures by cross tabulation and tested for statistical significance and strength of association by chi square and other measures to determine which program components have a major impact on program success. (MS)

EXECUTIVE SUMMARY
AN ASSESSMENT OF SCHOOL-SUPERVISED WORK EDUCATION PROGRAMS

STEVEN M. FRANKEL, Ed.D

14 SEPTEMBER 1973

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SYSTEM DEVELOPMENT CORPORATION

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EXECUTIVE SUMMARY

A. BACKGROUND OF STUDY

This document summarizes the significant findings, overall methodology, and policy recommendations for the study "An Assessment of School-Supervised Work Education Programs," which was conducted by System Development Corporation for the Office of Planning, Budgeting, and Evaluation of the U.S. Office of Education. The objectives of the study were to examine the different configurations of work education programs which currently exist in the United States, to determine the degree that different types of programs are meeting their intended objectives, and to suggest ways in which different types of programs might be modified or expanded.

In order to examine the different configurations of work education systematically, a three dimensional typology was adopted by the project staff and advisory committee. The typology was structured around what were felt to be the three most relevant variables which were educational level, primary purpose and industrial setting.

To determine the degree that different types of programs are meeting their intended objectives, a stratified random sample of 50 work education sites was drawn from a set of 500 representative programs using the three dimensions of the typology as the basis for stratification. These and the number of programs falling in each category are listed below:

- Educational level: Secondary (36), postsecondary (14)
- Primary purpose: Specific occupational training (30), dropout prevention (14), career exploration (6)
- Industrial setting: Farming region (15), bedroom community (11), single industry area (9), major industrial/business center (15)

Specific occupational training programs are usually referred to as cooperative education programs, but two Job Corps programs were also included in this category. In cooperative programs, students enrolled in vocational education classes use part-time employment as their primary means for applying classroom instruction. Cooperative programs generally are headed by a coordinator who serves as the communications link between the school and the employer and often serves as a vocational teacher and/or guidance counselor as well. Either informal or written training agreements are used to indicate the responsibilities of the student, the school, and the employer, and in many cases students receive academic credit for the time spent at work. While most of the programs included in this study involved students working at jobs for pay, the specific occupational training program category included some clinical programs in the allied health fields in which students weren't paid for their work and two other programs, similar to clinical programs in structure but not in the allied health fields, in which students also weren't paid.

Dropout prevention programs usually function by providing students with supplemental income which either permits or induces them to remain in school. Work-Study programs allow high school and college students to hold down part-time jobs to help finance their education, and programs such as Neighborhood Youth Corps (NYC) In-School and WECEP allow dropout-prone youth to earn money if they remain in school. WECEP (Work Experience Career Exploration Program) is an experimental program in which 14 and 15 year olds are allowed to hold jobs in the public and private sectors in order to encourage them to remain in school.

Career exploration programs were defined for this study as those in which students are given the chance to explore different occupational opportunities by observing workers of different types as they go about their work and by actually performing tasks for pay on different types of jobs.

To obtain the data, interviews were conducted with the following types of persons in each of the 50 work education programs: Program administrators, approximately 20 students participating in the work education program, a sample of students in the same school who held jobs but were not participating in a work education program, up to four employers who were participating in the work education program under study, and two employers who were not participating in the program. At some sites, interviews were also conducted with representatives of participating and nonparticipating unions, but the very small number of participating unions which were operating at the program sites precluded the possibility of highly elaborate statistical analysis techniques being applied to the data. Therefore, only a comparatively brief description of the union data was obtained and included in the data analysis report.

B. SIGNIFICANT FINDINGS

1. Analysis of Program Types

According to this study's findings, specific occupational training programs (cooperative education programs for the most part) appear to be generating the most enthusiasm among students, employers, and school officials because they are meeting the expressed needs and objectives of all three groups. Students feel that cooperative education programs are providing them with valuable job training. Employers feel that they are getting their money's worth out of their student workers and are contributing to their occupation. School administrators and teachers are satisfied with the learnings and job placements after the training period resulting from these programs.

Specifically, it was found that a cooperative education program is more likely than any other type of program to:

- Provide students with job-related instruction in school
- Have a followup program for its graduates
- Have an advisory committee

- Provide job placement services
- Have a high rate of job-related placements
- Provide students with jobs that offer formal on-the-job training
- Help students in deciding on an occupation
- Provide students with jobs that fit into their career plans
- Provide students with jobs that have a high level of responsibility
- Provide students with jobs that afford a high degree of satisfaction

From a negative standpoint cooperative programs, when compared to the other types of work education programs, are most apt to discriminate against students on the basis of student attitude; they are less effective in reducing student absenteeism; and, because they place students in more responsible jobs, they are more apt to interfere with a student's other activities such as school work, dating, sports, etc. Cooperative programs were more likely than other types to restrict their programs to students with rather conforming middle-class behaviors; and at the secondary level they were also more apt to segregate their job placements by sex with only men or women being assigned to a specific employer.

Dropout prevention programs are limited by their basic objective which is to keep students in school by providing them with financial assistance. While many of these programs have additional goals such as improving disadvantaged youngsters' attitudes toward school and work, practically none of these programs attempt to offer students related classwork or intensive vocational training. When viewed in terms of their limited objectives, dropout prevention programs appear to be successful. It was found that they are more likely than any other type of program to offer students jobs paying at least the minimum wage, but they were second (by a slight amount) to specific occupational training programs as most likely to improve students' attitudes toward school.

The inherent aim of career exploration programs is to assist students in deciding on their occupational choices. However, none of the career exploration programs studied provided students with systematic exposure to several different types of jobs which would better enable them to choose a career best suited to their own needs. This type of program was the least likely to have assisted the student in his choice of occupation, so in this regard, has been much less successful than the occupational training and dropout prevention programs since career exploration is the stated purpose of these programs. These programs have not constructed effective job rotation mechanisms; they receive the lowest level of support from the schools of all three types of programs; and they do not have standardized formats or operational configurations that are widely accepted or written into Federal statutes. Among all other types of programs, it was found that 70 percent of the administrators devote 100 percent of their time to their work education programs, while none of the career exploration program administrators devoted 100 percent of their time to their work education programs. In querying these administrators, supporting evidence was found that they were more likely than the administrators from any other type of program to feel that the organization and staffing of their programs were not effective for meeting their goals; and that they rate their program's coordination and direction significantly lower than do the administrators of the other types of programs. One area in which career familiarization programs were more successful than the other types was racially integrated job placements with this type of program being more likely to provide a given employer with a racially-mixed student work force.

2. Analysis of Employer-related Factors

One of the most significant findings concerning the employer's point of view is that the purpose of the program had very little impact on his attitudes toward the program (possibly because the employers have never been oriented regarding the different purposes of various work education program configurations),

even though these types of programs possess very different characteristics. However, the educational level of the program with which the employer was associated did make a significant difference in his outlook. Employers participating in secondary level work education programs, regardless of purpose, rated overall program quality significantly higher than did employers participating in postsecondary programs. Yet, from the standpoint of related placements and quality of training, the postsecondary occupational training programs were superior to their secondary level counterparts.

The employer ratings of individual work education students proved to be a very significant variable in gaining an understanding of work education programs. It had significant impact on the attitudes of both the students and the employers. For students, a higher rating by the employer was associated with greater job satisfaction; and for employers a higher average rating of his students was associated with a higher rating of overall program quality. Thus, careful matching of students to jobs which meet their career objectives, so that they are likely to succeed and be highly rated by their employers, appears to be one of the most crucial tasks for work education programs, in terms of both student satisfaction and employer acceptance.

3. Analysis of Pay Factors

Pay factors played an important role in the way the employers viewed work education programs. Employers who paid students higher wages were significantly less likely to rate the program's overall quality as excellent. More important than the absolute rate of pay given to the work education students, was whether or not students were paid less than the regular employees for the same work. Where students were paid less, employers were significantly more likely to rate the program's overall quality as excellent. Specifically, 54 percent of the employers who paid students the same wages as regular workers rated the program as excellent in overall quality, while 72 percent of the employers who paid the students less than they did their regular workers rated the program's overall quality as excellent.

From the student's point of view, pay factors play a minor and somewhat ambiguous role. Whether or not the student is paid for his work has only a weak impact on his satisfaction, and, in fact, this influence is opposite for two types of satisfaction measures. Students who are paid for their work are slightly, though not significantly, more satisfied with their jobs, while students who are not paid for their work are somewhat more likely to like school better after joining the program. The reasons for this are unclear and need further study.

4. Analysis of Program Setting

The industrial setting in which the program was located played a minor role in the characteristics displayed by the work education programs under study. Most of these findings were not unexpected; e.g., pay rates and the proportion of ethnic minorities were higher in programs in urban areas. A surprising finding was that the level of students' satisfaction with the jobs was significantly higher among programs in rural settings than among programs in any of the other three types of industrial settings.

5. Analysis of Educational Level

The educational level of a program (secondary or postsecondary) was examined in relation to specific occupational training programs and dropout prevention programs. In examining specific occupational training programs, it was found that postsecondary programs are more effective than secondary programs in performing nearly all aspects of program operation. They had higher ratings on job-related instruction, student followup, job-related placements, helping students to decide on an occupation, providing students with jobs that fit into their career plans, providing students with jobs with high responsibility ratings, and providing students with jobs with which they are highly satisfied. The two areas where postsecondary programs scored lower than secondary programs were employer satisfaction with the students and student pay. It was found

that employers rated secondary students higher than their postsecondary counterparts and that, somewhat surprisingly, secondary students earned slightly more than postsecondary students. When the differential between what employers pay their regular workers and their student workers was examined by educational level, there was no significant difference. No reasons can be given as to why employers prefer secondary cooperative students to postsecondary cooperative students, or as to why they pay the older postsecondary students less. Both of these questions should be subjected to more intensive study.

Educational level was not a significant variable in examining dropout prevention programs. In this type of program, educational level was not related to the students' pay, type of work, or perceptions of the job. The one exception to this was employer satisfaction ratings with employers preferring the secondary students.

6. Analysis of Student-related Factors

Two components of student satisfaction were considered in this study. One was their degree of satisfaction with the jobs they had. The other measured improvement with their satisfaction toward school since they had joined the work education program. These two measures of satisfaction were analyzed in two ways. First, students participating in work education programs were compared to students not participating in such programs in terms of these measures. It was found that the two groups differed little in terms of their satisfaction with their jobs. On the other hand, satisfaction with school was increased to a significantly greater degree by participating in a work education program, while only 15 percent of the nonparticipating students have improved attitudes toward school since they began working.

The other way in which student satisfaction was analyzed was to determine, for participating students, the factors that most impacted on their degree of satisfaction with their jobs and school. The most important influences on the student's job satisfaction were how well he was rated by his employer and the degree to which he felt his job afforded him responsibility. This same level of job responsibility also had a positive impact on improving a student's attitude toward school. Other than this, only the non-manipulable background characteristics of the student--mainly ethnicity, sex, and age--had an impact on whether or not his satisfaction with school was improved since enrolling in the program.

The study was also concerned with determining to what degree these programs were fostering discriminatory practices. It was found that while no programs would admit to overt discrimination, subtler forms were rather common. Thus, while the majority of the programs were integrated, only 30 percent of the interviewed employers had been assigned students of more than one race. Sexual stereotypes were being fostered in a similar manner with only 39 percent of the employers receiving students of both sexes.

In terms of pay rates, it appears that when compared to nonparticipating students with jobs from the same schools, work education programs tend to pay female students more than their contemporaries earn but pay Black students at lower rates than are being earned by Black students not in work education programs. Explaining this will also require further study.

7. Analysis of Program Features

A product of this study was three models, each based on multivariate data analysis which analysed individual components in the student, program and employer data bases in order to identify those components which were linked to different types of successful program outcomes and those which were serving as constraints on program expansion. The models are included as Appendix A.

C. POLICY RECOMMENDATIONS

While there is a definite risk in suggesting ways in which the structure of work education programs can be improved when the suggestions are based upon a sample of only 50 programs with widely varying characteristics and goals, certain findings of this study were sufficiently definitive to allow policy recommendations to be developed. These recommendations are:

1. Further Explore the Concept of Establishing Occupational Training Programs with a Nonpaid Work Experience Component

An interesting finding of this study is that at least some students can enjoy and benefit from nonpaid work experience. A number of specific occupational training programs were examined in which students were not paid for work performed in on-the-job settings. Nearly all of these were clinical programs in the health field where financial compensation is not normally provided for work experiences gained in working in hospitals and other medical facilities during training. Other programs in the study which did not pay students, included one similar to a diversified cooperative program which offered work experience in many occupational fields and at the same time also located training classrooms within the plants or employers where students were working without pay; and another program which allowed college students, not qualifying for financial assistance but desiring vocational experience, to perform work identical to that done by students being paid for their work on a volunteer basis. According to this study's findings, clinical programs and the two additional programs in which students were not paid for work, were very successful in providing students with good job training and work experience.

Another finding of the study was that one of the best predictors of employer satisfaction with a work education program is the difference between what he normally pays for labor of a given type and what he pays for student labor; and there was some evidence that employers who paid students less were willing to provide them with more training time.

This suggests that there might well be a place for work education programs in all occupational fields, incorporating a component in which students spend part of their time performing supervised work within an employer's facilities without pay. While such programs should never take the place of traditional cooperative programs, they can open up training slots and job placement opportunities with employers who are unable or unwilling to take on part-time student employees under a cooperative training agreement.

For such programs to operate at present, special arrangements have to be made to satisfy the Fair Labor Standards Act, workmen's compensation programs in different States and other labor laws that impact on student employment. Vocational educators are often unaware of the procedures for doing this; and they are often concerned with the reaction of labor unions toward such programs.

It is recommended that a more detailed study be conducted of the programs of this type presently in existence with the objectives of documenting program configurations capable of meeting training needs without exploiting students or antagonizing labor organizations, and setting forth specific recommendations regarding changes in labor laws and workmen's compensation statutues which would allow these programs to operate on a standardized basis.

2. Expand the Scope of Dropout Prevention Programs

Most of the dropout prevention programs examined were either Work-Study, Neighborhood Youth Corps, or WECEP programs. In most of these, students were receiving part-time jobs in government offices or nonprofit institutions which either provided them with funds needed to stay in school or else served as an incentive to stay in school. While these programs appeared to be meeting their basic objective of keeping students in school, they were less successful than cooperative education programs in improving high school students' attitudes toward school. Also, it was apparent that far too many students in the dropout prevention programs were placed in rather boring dead-end jobs which didn't challenge their capabilities, gave them no real appreciation for the world of work and failed to allow them to explore career interests on their own. As indicative of this, only 6 percent of the secondary students in specific occupational training programs were in the lowest category on the job responsibility scale whereas 75 percent of the secondary dropout prevention students were located in this category. Similarly, when asked whether or not their work education programs helped them to decide on an occupation, 35 percent of the secondary students in specific occupational training programs said yes as compared to only 18 percent of the students in the dropout prevention programs.

It is strongly recommended that consideration be given to expanding the scope of dropout prevention programs by requiring the employers participating in such a program to offer students at least one of two alternatives:

- The opportunity to link working for pay to specific occupational training offered at the job site by the employer. The employer (usually a government office or a nonprofit agency) would provide the training in return for obtaining a student's services without having to pay the student's wages. Under this type of plan, which would entail changes in the present legislation, it would probably be possible to involve more private employers in dropout prevention

programs, since they would be operating as a training facility, and not obtaining free labor at the taxpayer's expense.

- The opportunity to explore different occupational areas while enrolled in a dropout prevention program. This would involve rotating students among employers on a scheduled basis and arranging for the student to have different responsibilities at each job site so that students would be given the opportunity to study the different environments in which jobs exist. Again, since most students in dropout prevention programs are performing rather menial work with little training being required, rotating a student every 30 or 60 days should work no hardship on employers who would adopt this option in place of the training option given above.

Efforts should also be made, within the scope of the present legislation, to place students in jobs far more interesting than are available at present in most of these programs. While dropout prevention programs at the secondary level often have students enrolled who are significantly lower in academic ability than students found in the cooperative and career familiarization programs, the spread is not so great that the scope of these programs cannot be broadened considerably.

3. Develop Formal Structures for Career Exploration Programs

Unlike specific occupational training and dropout prevention programs, there are no Federal statutes which support career exploration programs of any specific types. This has resulted in career exploration becoming a catchall category into which many different types of programs place themselves by claiming that their primary objective is to familiarize students with the world of work and to help them to make an informed career choice.

A rather disturbing finding of this study was that only 9 percent of the students in secondary career exploration programs stated that their programs

had helped them to decide on a career whereas 35 percent of the students in secondary specific occupational training programs and 18 percent of the students in secondary dropout prevention programs made this assertion. Another distressing finding was that none of the career exploration programs included in the study had provisions for allowing students to sample different types of jobs on a scheduled and predetermined basis. Instead, they were usually placed with a given employer for the complete semester, as was the case with students from other types of work education programs. In fact, without looking at the program's specified objective, there was no way of differentiating career exploration programs from other types of work education programs and we are forced to conclude that in nearly all cases, career exploration programs are actually no different in configuration from specific occupational training programs or from dropout prevention programs. There was one notable exception to this where the program was structured around helping Eskimo students to decide whether or not they wanted to leave their villages and move to cities to obtain jobs.

Also, it was found that career exploration programs were far less apt to have a full-time program coordinator and, according to the coordinators of these programs, these programs are far more poorly organized than are the other types of programs.

All of this suggests that an organized structure for career exploration programs is needed, and should be developed and incorporated into law with guidelines similar to those established for other types of work education programs. At a very minimum, these programs should include work familiarization, diagnostic testing for skills and interests, and scheduled job rotation within their configuration. In this way, it can be ensured that students will be offered a program giving them a wide perspective of the world of work.

4. Develop More Effective Followup Components

Program coordinators in all three types of programs agreed that student followup was the weakest component in their work education programs. Similarly, one of the employers' most voiced complaints was that they never find out what happens to students after they leave school. This lack of followup information is hindering programs by making it very difficult to base program revisions on solid data. Also, several employers stated that, if they were regularly informed on accomplishments of students formerly in their employ--especially those who entered the field on a full-time basis--they might be more inclined to expand their programs and accept more students.

It is recommended that work education programs be strongly encouraged to follow up on all students for 5 or 10 years after leaving school. This could be done by each district or school on an individual basis, or it might be done on a statewide or national basis with a central operation responsible for collecting data, disseminating results to individual schools for transmission to employers, and for program planning purposes. The data might also be analyzed on a regional or national basis in order to document trends, successes, and problems with different types of work education programs. Similarly the data could be used to improve local programs and curriculum materials.

5. Encourage Unions to Actively Participate in Work Education Programs

This study included only a small sample of programs in which unions actively participated. Nearly all of these unions rated their cooperation with the schools as being excellent and their representatives were as positive toward the programs as were the participating employers. This is important because many of the program administrators mentioned that they were reluctant to solicit job slots in union-controlled operations because of anticipated problems; and because several of the administrators reported that a favorite excuse given by employers who refuse to make training slots available, was the

fear that admittance of students would lead to problems, or a weakened bargaining position, with the plant union local. Interviews with nonparticipating unions showed that, like the nonparticipating employers, the majority of them claimed that they would participate in a work education program if someone would actively pursue them.

Aggressive solicitation of union participation appears to be well worth the effort. Programs with active participation benefited in permanent job placements of graduating students; in students being granted automatic acceptance into union apprenticeship programs with time in the work education program sometimes being credited toward the completion of these programs; and by students being allowed to become fullfledged voting members of some locals while they are still in school.

Programs should be actively encouraged to seek union participation and coordinators should offer to approach union officials directly when a businessman is reluctant to participate in a work education program because of a fear of union problems. Union officials should be made members of program advisory committees and should be given the special charter of soliciting union support for these programs. In addition, funding priorities should be assigned to programs with active union participation.

6. Improve the Effectiveness of Public Relations Activities

In a similar vein, many programs of all three types have not paid sufficient attention to other forms of public relations. The most common reason given by employers for not hiring work education students was that they had never been approached about participating--even indirectly by means of advertisements or newspaper articles--and/or that they didn't feel that they had enough knowledge of the programs in their community to offer to participate. Similarly as mentioned earlier, many employers weren't even familiar with the objectives of the program with which they were involved. As has been demonstrated by

programs with strong public relations components, this situation can be rectified by arranging for frequent newspaper, radio, television, and trade magazine coverage; hosting annual banquets to which present and prospective employers are invited (along with school administrators, students, parents, union officials, and local political officials); involving parents of students in the work education program; and establishing contacts within the local political structure.

Public relations activities of these types can be promoted by means of inservice seminars and training materials; by requiring that a public relations' plan be included in all project proposals; and by encouraging States to set up work education public relations offices which would serve the dual purpose of assisting and training local coordinators, and promoting work education on a statewide basis.

7. Strengthen the Role of Program Advisory Committees

Study results indicate that advisory committees are an effective tool for building ties with the business and industrial community, but most of these committees seemingly maintain a very low profile. Invariably, employers who are not members of advisory committees associated with their industry do not know of, or have not been contacted by, these committees. This means that the effectiveness of these committees is severely limited since the members appear to interact only among themselves and not bring other employers and union officials, whom they supposedly represent, into the picture.

A lesson might be learned from the community advisory committees being established under the Emergency School Assistance Act (ESAA) to promote desegregation: Appointments to advisory committees are announced in the newspaper--in classified advertisements as well as in news stories when coverage can be obtained--and announcements of meetings are publicized in a similar manner with nonmembers encouraged to attend and voice their concerns and opinions.

A similar strategy might well enhance the effectiveness of the program advisory committees. Certainly, at a minimum, such meetings should be publicized in trade and local newspapers and magazines so that nonaffiliated employers are informed as to who the members are in their community, when different issues will be discussed, and the results of these discussions.

8. Discourage Discrimination on the Basis of Student Attitude

Several of the programs included in the study used "proper student attitude" as a program entry requirement. In some of these cases, it appeared that only students of a given race possessed the proper attitude; in other cases it appeared that this requirement was causing program entry to be limited to middle-class youngsters who could have obtained their jobs (often in distributive education) without the school's assistance or with any special training being required. In both of these types of instances, the programs ended up excluding students who could have benefited from the training. Rather than exclude students on such a basis, it would be far better for program coordinators to handle problems such as these on an individual basis and work with these students in order to make them more eligible for employment. In many cases, regulations of these types appeared to have been adopted more for the convenience of the program coordinator and the ease of program operation than for any overt desire on the part of the school or employer to disciminate against a particular group.

It is recommended that plans or proposals for any work education programs incorporating Federal funds be required to state, in specific terms, any behaviors that can cause students to be pronibited from entering a particular program, and that regulations should require schools to notify students excluded on this basis as to why they are excluded and what they can do to make themselves eligible for admission at the next entry date.

9. Use Vocational Aptitude and Interest Instruments in the Counseling of Students

The study found that the counseling components of all types of programs were relatively ineffective and did not contribute significantly in any manner to student success. It also found that careful matching of students to jobs results in satisfied employers and students. Yet, the use of standardized measures to counsel students prior to entry in work education programs does not appear to be especially common and the placement of students in jobs in which they have little aptitude or interest is not unusual. These problems are fewest in specific occupational training programs where the classwork that preceeds work experience serves to screen out many of the poorly matched students. Fifty-nine percent of the secondary students and 74 percent of the postsecondary students in this type of program report that they intend to work full time in the occupations for which they are training. In the other types of programs, 41 percent of the postsecondary dropout prevention students, and 38 percent of the career familiarization students (all secondary) reported that they intend to work full time in the occupational field in which they are training. In the dropout prevention programs in particular, it is fairly common to find students working in jobs in which they have little interest and for which they are overqualified from a cognitive standpoint.

To increase the effectiveness of counseling components, it should be required that students be given vocational interest and aptitude tests before entering any work education program, and have a chance to discuss their test results with a qualified person before being assigned to their first work station.

10. Establish Internship Programs for Work Education Coordinators

Approximately 70 percent of the programs studied in this project have full-time coordinators or administrators, whose capabilities varied greatly. Most were knowledgeable in the vocational fields for which they were responsible, but they differed widely in their ability to sell their programs to employers,

students, and the community; their ability to safeguard students from being exploited by employers or working in unsafe or unpleasant working situations; their management skills; and their knowledge of vocational counseling techniques.

Internship programs should be established in which inexperienced or comparatively ineffective coordinators would have a chance to work under the direction of more successful coordinators for at least one or two semesters. Such a program should be supplemented by formal coursework in fields such as career counseling, public relations, marketing, finance, and occupational safety legislation since even many of the most successful coordinators were deficient in some of these areas.

11. Increase Funding of Cooperative Education Programs

This study presents very strong evidence that cooperative education programs are highly successful in the United States. They appear to be meeting their intended objectives and generating support from participating students, vocational instructors and administrators, and employers. They also appear able to serve far larger numbers of students than are presently enrolled. Further, it appears that expanded student involvement would not be deterred by lack of employer interest and ability to accept student placement. Therefore, it is strongly recommended that funding be increased for this type of work education configuration.

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APPENDIX A

DESCRIPTION OF ANALYSIS MODELS

The purposes of this study included the following:

- To evaluate existing programs to determine successful program components
- To delimit constraints on program expansion
- To examine incentives that could increase employer participation

As one means of accomplishing these aims, an analysis model was developed for each of these major groups of respondents: The program administrators, the participating students, and the participating employers. The models divide the variables in each data base into two distinct sets: The independent or predictor variables, and the dependent variables which are outcome measures of program success.

Using this structural framework, individual predictor items have been related to outcome measures by means of crosstabulation; and tested for statistical significance and strength of association with the chi-square statistic and other appropriate measures for the strength of association (phi or contingency) coefficient for nominal variables and gamma, tau or Somer's d for ordinal variables). These analyses allow us to emprically determine the program components that have a major impact on the outcome measures of program success.

Figures A-1, A-2, and A-3, show the significant linkages between the various independent and dependent variables in each model for programs, employers, and students respectively.

In attempting to identify successful program components, Figure A-1, which depicts the program analysis model, will be most useful. Among the more interesting linkages demonstrated in this model are the relationship of job-related instruction to teacher enthusiasm (i.e. teachers are much more enthusiastic about work education programs in which they have the opportunity to provide students with job-related instruction); and the relationship of

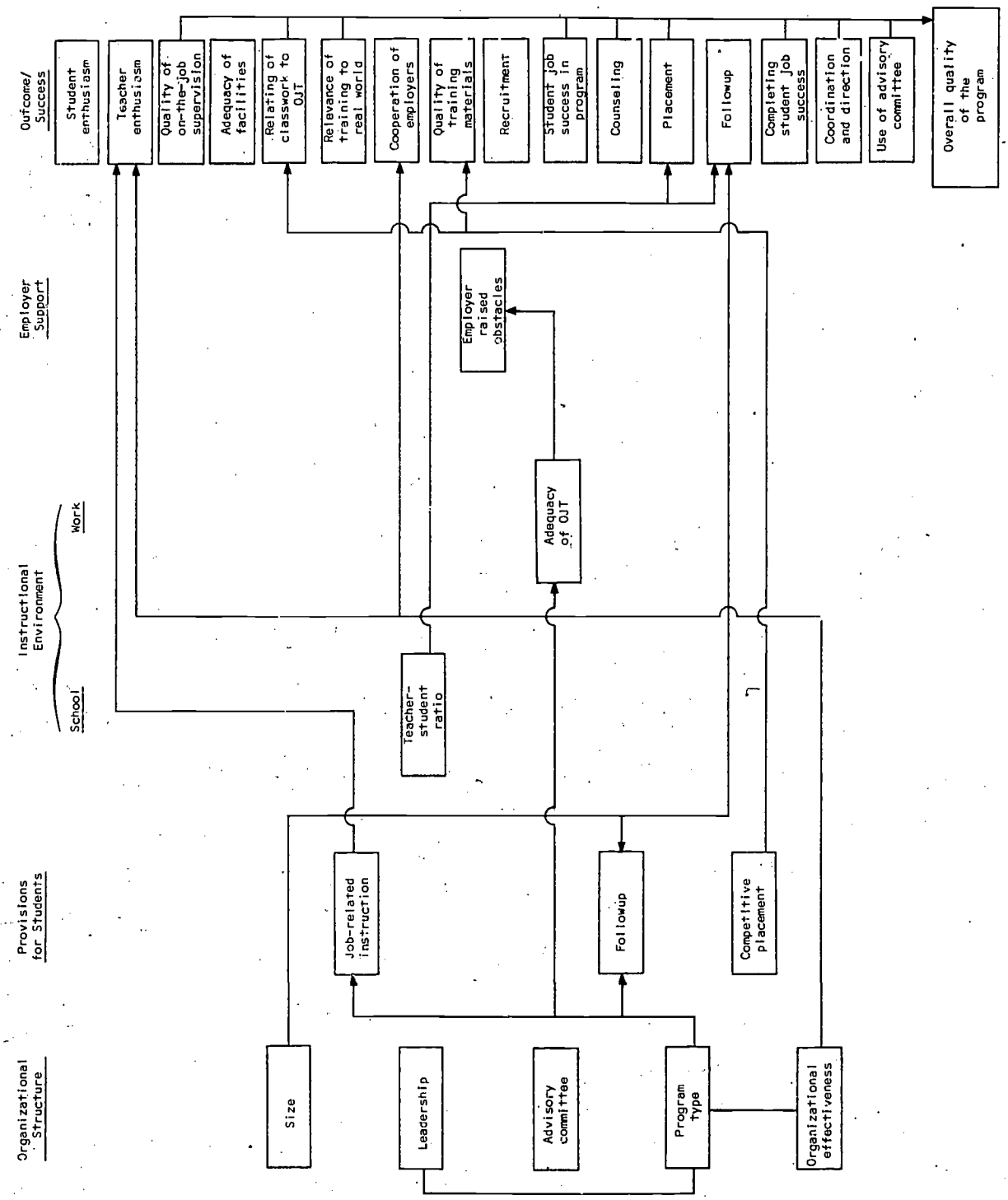

Figure A-1. Program Analysis Model

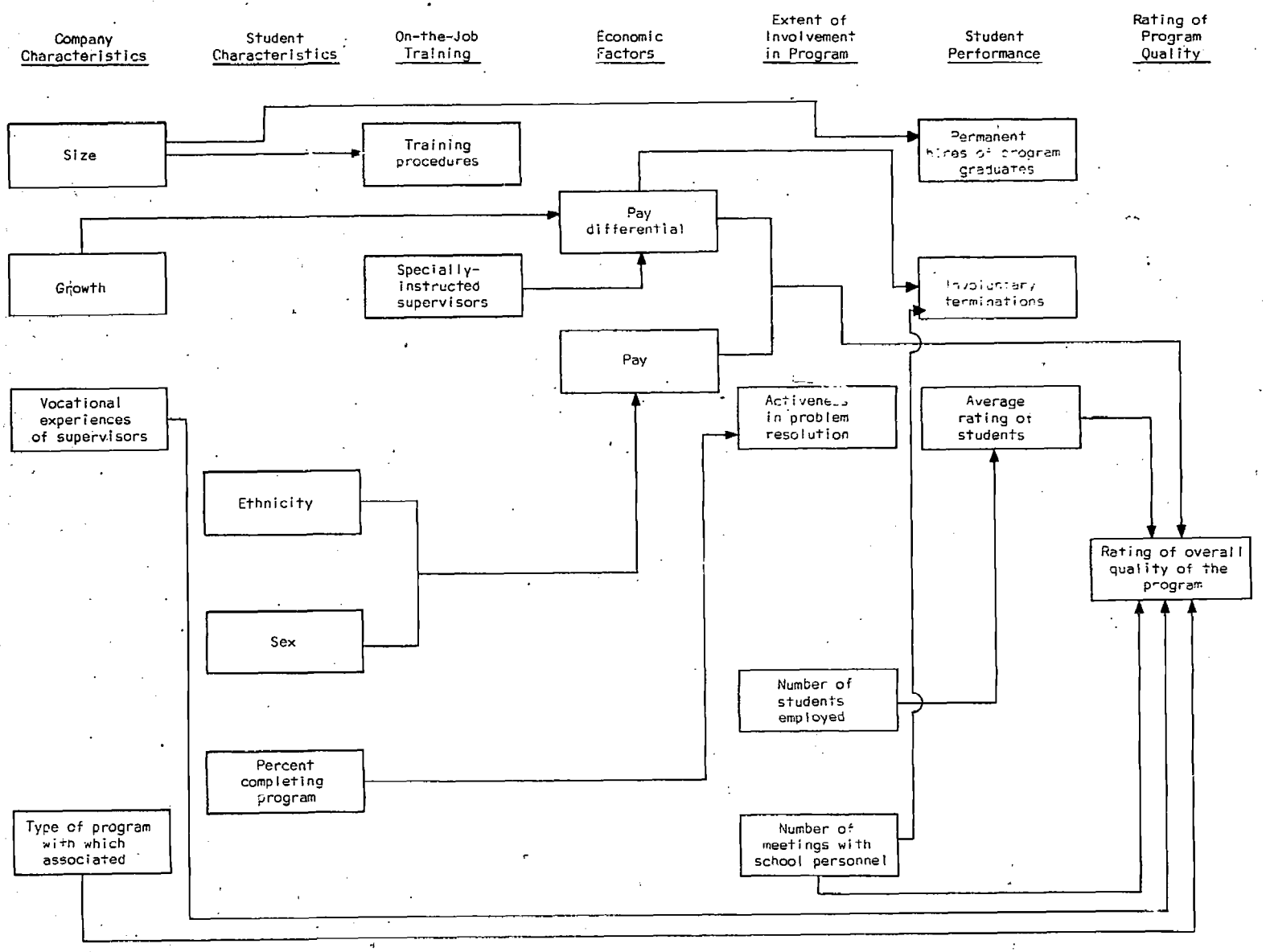

Figure A-2. Employer Analysis Model

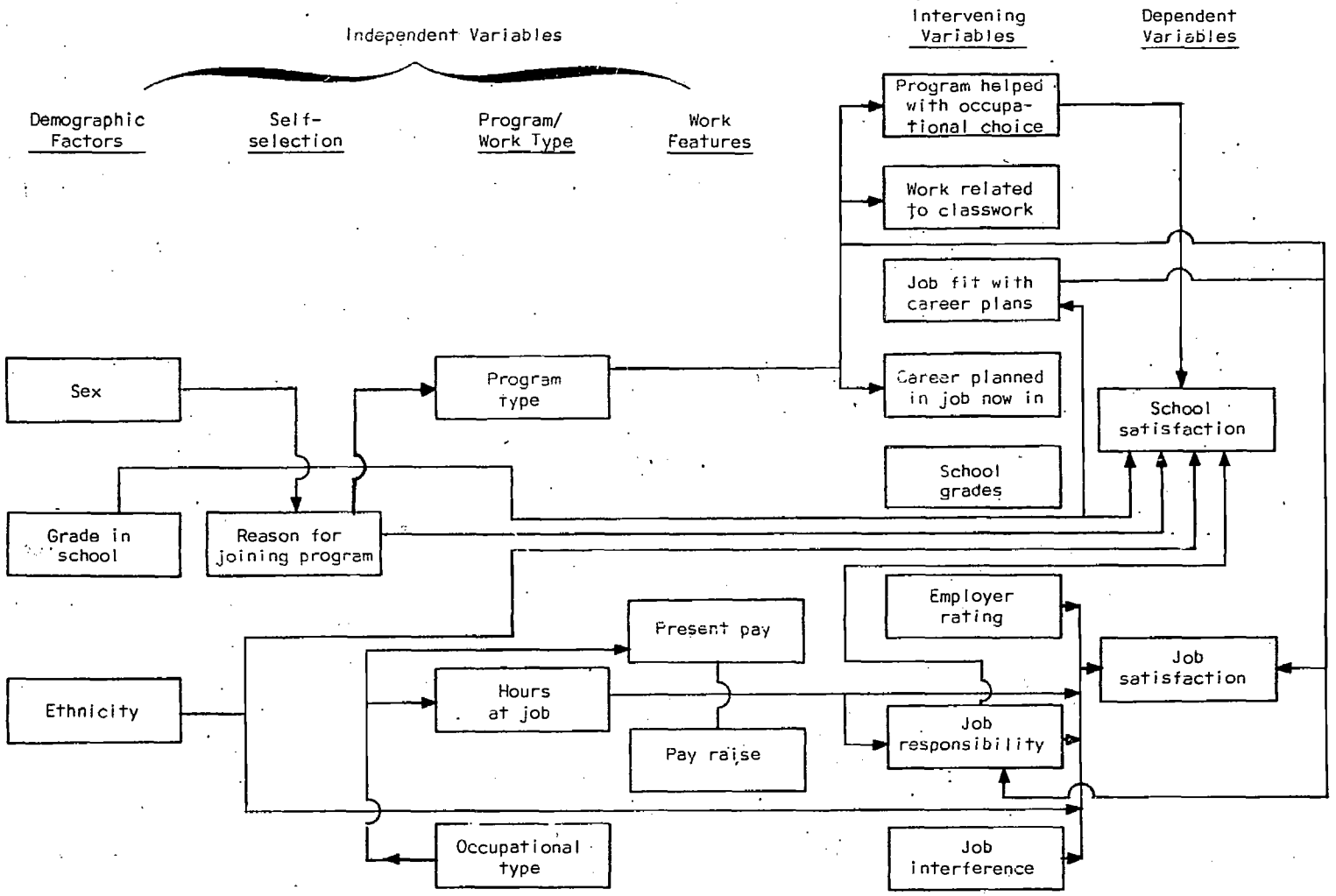

Figure A-3. Student Analysis Model

competitive placement in training slots to the relating of classwork to on-the-job training (i.e. programs where classwork is highly related to actual on-the-job training experiences tend to make students compete for training slots by sending more than one student to be interviewed for each position available in the work phase of the program).

Constraints to program expansion appear in all three models. The employer analysis model shows for instance, that size of the company is related to on-the-job training procedures in that only companies of a certain size can offer formal on-the-job training programs. The program analysis model shows that organizational effectiveness is significantly related to teacher enthusiasm and this implies that unless teachers are convinced as to the worth of the program in which they are participating, the effectiveness of the program will suffer. Conversely, the student analysis model shows that present pay and pay raises are not related to student job satisfaction. This implies that pay is not a constraint to job satisfaction.

Incentives for increasing employer participation in work education programs appear in the employer analysis model. Among the linkages depicted here are the relationship between pay differential (the difference between what employers pay regular employees and students for performing the same work) and involuntary terminations. This can be interpreted as saying that the larger the pay differential, the more unlikely are employers to involuntarily terminate students from their employ.

The examples listed above are deliberately simplistic so that the means of interpreting the models will become clear. Other, more complex relationships between variables are discussed at length in the Data Analysis Report resulting from this project. However, the figures can be used by readers as a means of gaining an overview of these findings once by understanding that an arrow from one box to another in a figure indicates that there is a statistically

significant relation between these two variables. For example, in Figure A-3, the arrow connecting job responsibility to job satisfaction indicates that a student's degree of satisfaction with his job is significantly related to the level of responsibility the job affords him.

It should be noted that the predictor variables in the student analysis model have been further subdivided into two groups: Independent variables and intervening variables. Intervening variables are those which can be treated as independent variables when related to the dependent outcome measures of student satisfaction; but, in relation to the other independent variables, they can be considered as causally dependent. Thus in the analysis they were treated in both ways--as independent predictors of the outcome variables and as dependent variables of other independent variables.