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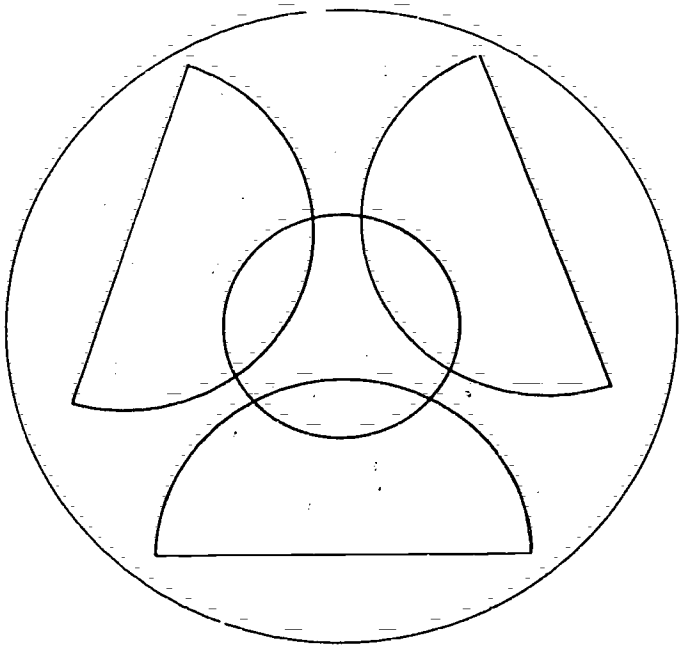
ABSTRACT

A project was conducted to identify the major conceptual problems associated with secondary cooperative vocational education (CVE) programs, develop a model that accurately depicts the CVE process, and develop a comprehensive set of measures for quality CVE programs. Based on their review of the related literature, the researchers concluded that an information system is an integral part of the effort to justify and improve CVE programs. They then developed a model that characterized the elements of a CVE program in terms of inputs, processes, and outcomes. According to the model, inputs and processes were divided into three categories: school, job, and linkage. In each category a number of elements were then identified as necessary for an effective CVE program. Having refined this schema of quality indicators, the researchers then drafted a CVE program evaluation model that encompassed the following activities: clarification of key CVE program outcomes valued by local leaders, establishment of local standards for CVE program outcomes, preparation of instruments to obtain outcome and input indicator data, establishment of a system for analysis and reporting of information, analysis of the outcomes of CVE programs by comparing program results to outcome standards, and dissemination of local program information. (MN)

Indicators of Quality In Cooperative Vocational Education:

A Review and Synthesis of Research

By Gary Leske and John Persico, Jr.



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Abstract

The Minnesota Research and Development Center has a major program of research focused on the improvement of secondary cooperative vocational education (CVE) programs. This research will be divided into several phases. The report described herein summarizes the efforts of Phase I. Phase I goals involved: (a) identifying the major conceptual problems with CVE programs, (b) establishing a model that accurately depicits the CVE process and (c) developing a comprehensive set of measures for quality CVE programs. The strategy used to attain these goals was a comprehensive review of the CVE research literature.

The report is divided into five parts. The first part provides a brief historical background for cooperative vocational education, a definition of cooperative vocational education and a description of the CVE model which provided the framework for this review. In part two an attempt has been made to address some of the major problems as well as criticisms concerning CVE programs and efforts at evaluating them.

The four major issues addressed in part two concern: identifying the proper plan for CVE programs in secondary schools, developing a concensus on outcome goals for CVE programs, addressing external pressures for accountability and evaluating CVE programs. Specific constraints impacting on each of these tasks were identified and a dialogue developed primarily to create a greater awareness of the forces affecting CVE programs. This dialogue was not meant to be definitive or conclusive and it is hoped that it will serve as a stimulus for further discussion.

Part three reviews and summarizes outcomes and outcome measures most commonly advocated for evaluating CVE programs. The outcomes reviewed in part three were organized into the following categories: economic, educational, social, per-

sonal and equity. A set of primary beneficiaries was also identified which included: the student, the community, the employer, the school and the family. Outcomes were categorized by major beneficiary to provide an alternative conceptual model.

Part four reviews the major components of a quality CVE program. Using the CVE model developed, the results of research into the quality of CVE programs has been organized so as to provide a comprehensive but concise description of the elements which insure quality in a CVE program. In this section the major components of a CVE program are presented in three categories. These are school, job and coordination activities.

A quality program will include in its school component: motivated students; supportive administration; qualified, competent staff; adequate, modern facilities; relevant, effective instructional materials; supporting programs and planned program evaluations.

Important elements in the job component category include: an effective worksite, a relevant and meaningful work assignment, appropriate supervision and work relationships that include high calibre adult role models.

Coordination activities in a quality program include: the need for the clear assignment and acceptance of responsibility by the employer and instructor-coordinator for the guidance and direction of assigned student-workers; joint evaluation, feedback from interested stakeholders and family involvement.

The final section describes a procedure to provide information for evaluating and monitoring CVE programs. This information is fed back into the system and used to insure that the CVE program is meeting its objectives. This procedure will be tested in phase two of the research project.

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CHAPTER I.
INTRODUCTION

Vocational education came into legal existance at the Federal level with the passage of the Smith-Hughes Act in 1917. Its primary purpose was and continues to be the development of an individual's specific occupational skills in programs of less than the collegiate level. Individual and societal benefits have been the basic rationale for Federal funding.

Accountability for vocational education dollars has been a perennial issue because education for work has been by necessity experientally oriented: the work skills have been taught in educational facilities which are simulations of the regular work environment. There has been continuing concern and debate about the effectiveness of work environment simulations and the relatively high cost of these facilities compared to traditional general education classrooms.

A solution in a number of schools has been to adopt the cooperative method of educational delivery. This method is simply defined as schools cooperating with local businesses who provide students jobs in the regular work situation. The dollars saved by not needing to purchase expensive equipment and facilities are substantial. Flexibility in the types of occupations students study is limited only to the types of cooperating businesses in the school area. There is also the strong logical argument that the on-the-job experience is the best learning environment -- the real world versus the simulation.

The cooperative method of delivering vocational education had its origin prior to the passage of the Smith-Hughes Act. It was mandated as an alternative method to school laboratories for vocational agriculture in the regulations for the Smith-Hughes Act. It appeared in the subsequent Federal legislation regulations for operation of other traditional vocational program areas. With the passage of the Vocational Education Amendments of 1968, the term cooperative

vocational education (CVE) was established as a funding category, and perhaps unfortunately it has been viewed as a program area by some people, not a method or delivery approach.

The Amendments of 1968 carried significant reimbursement incentives for development of CVE. The intent was to use CVE to broaden the occupations for which vocational education was being provided. State agencies responded in a variety of ways ranging from immediate use of federal funds for CVE to slow modification of State rules and regulations. The growth of student enrollment in CVE was apparently the result of a combination of new offerings and including traditional vocational program area students within the CVE category.

While the positive impacts were significant, a number of questions about CVE programs were given limited attention in the expansion effort. As the demographic situation changed from the 1970's to the 1980's and a back to the basics movement surfaced, many people questioned the release time for students. This highlighted a continuing problem associated with the cooperative method of delivery--how does one effectively communicate what a CVE program is not only to people directly invclved, but also to the tax paying public. The operational definitions for CVE advanced by individuals who are not directly involved in CVE programs are significantly different in content.

Not withstanding the problem of definition and communication of what CVE is, legitimate questions of program quality also were raised, e.g. Do students learn more on-the-job than in school? Are students developing saleable skills? Are students placed in situations that result in learning appropriate work skills? Do instructors/coordinators need all their coordination time? Local vocational program evaluations have addressed the cooperative vocational education component of programs and provided a range of information for local people. While a significant amount of positive publicity and decision making

appears to have resulted; limited effort has been made to systematically develop a process for gathering data for purposes of analyzing, changing, and publicizing the local CVE programs and for making comparisons between a local program and aggregate data for similar programs within a state.

In most states, the present evaluation criteria for CVE programs were derived from the 1976 Federal Vocational Education Act. These criteria constituted an initial effort at establishing a sound basis for monitoring vocational education programs. With the advantage of hindsight; it appears that these criteria are insufficient to measure the many changes which take place in vocational education programs. This has lead to the call (Evans, 1982; Pratzner & Russell, 1983) for new criteria which will effectively evaluate the full range of abilities, skills, and attitudes that are improved by vocational education programs.

Moss and Copa (1982) argued that "students' achievements should always be measured by the extent to which their relevant capacities have been improved (value added)" (p. 4). Since all students do not start at the same level, fixed program standards are counterproductive. In addition, there is the necessity to evaluate educational outcomes other than those directly related to economic criteria. Additional evaluation criteria include growth and personal development, social development, and equity outcomes. As Taggart (1983) noted "the building blocks of youth programs can only be improved and assured by better specification of standards, program content and procedures as well as through technical assistance combined with monitoring" (p. 12).

The research and evaluation issues for CVE programs are generated from the complex interaction of social, political, and economic forces affecting our educational system. The complexity of these forces is at least partially responsible for the conflicting research evidence regarding the effectiveness of

vocational education programs. Since several major evaluations of vocational education have been unable to conclusively demonstrate its effectiveness, one is prompted to ask: what accounts for the continued support for the vocational education process?

Grubb (1978) identified several possible answers to this question. The first answer stems from an implicit American faith in the power of education to provide solutions for a wide array of problems. Second is the persistent but recurring belief that vocational education programs can address such issues as: the integration of women, minorities, and immigrants into the work force; increased unemployment and technological obsolescence; the inability of traditional education to serve the needs of all students; and vast social problems such as crime and poverty. The final reason and the one which Grubb (1978) states may be the most powerful is that: "in a society where work and productivity is so crucial to an individual sense of accomplishment, it is immediately appealing to turn to work and work experiences as the appropriate way to socialize the young" (p. 210).

While the goal of this review is to identify the essential elements of a quality CVE program, it is not our intention to prove that CVE programs are always effective or that they are superior to all other existing work experience programs. Rather, it is hoped that our research and review of the literature will improve existing CVE programs by contributing to the attainment of the following objectives: (1) an increased understanding of the relationship between critical input factors and targeted outcomes (2) an increased ability to control outcomes through the manipulation of specific input factors, (3) an increased ability to differentiate external factors from internal factors affecting vocational education outcomes and (4) an increased ability to monitor, measure, evaluate and improve the quality of existing CVE programs. In order to

reach these objectives several tasks have been identified. The first task was to conduct a comprehensive literature review regarding the measurement and evaluation previously conducted on CVE programs. This review and synthesis is the product of this task.

Definition of Cooperative Vocational Education

The intention of a cooperative vocational education program (CVE) is "to provide students with an opportunity to alternate academic studies with the relevant work experience in which they will apply what they have learned in the classroom" (Barton and Fraser, 1978, p. 97). While Barton and Fraser (1978) indicated that there were certain definitional problems prohibiting a clear cut distinction between work experience and CVE programs, the 1968 Vocational Education Amendments specified a definition in which a primary distinction between work experience and CVE programs was that in a CVE program there is a definite relatedness of classroom instruction to the employment experience. Mason and Haines (1972) gave the following operational definition for cooperative occupational experience (COE) programs (COE was broader than CVE in terms of the range of occupations students were pursuing).

> Cooperative occupational experience programs have as their central purpose the development of occupational competence, using employment in a real-life job as a source of learning. The school selects as a training agency a firm that will provide the occupational experiences needed by the student, and the school supervises the student's experience. Class work in school provides those learnings basic to employment and to the occupation sought. The occupational experience is expected to be the source for gaining knowledges as well as a vehicle for applying and testing what has been learned in the school. (p. 15)

These definitions explicitly recognize that the primary distinction between work study, work experience or part-time work and CVE lies in the relationship between the students coursework in school and his/her work site

activities. The practical implication is that an effort has to be made to establish a cooperative relationship between the school and the work site which will foster student development and learning. This demands that mechanisms exist to coordinate the efforts of the various participants in the CVE process; primarily the school, the student, coordinator, and the employing organization. This effort extends beyond simply determining that a student completes courses x, y, or z which relate to job a.

The coordination effort in the overall context of vocational education is a complex educational process which includes such diverse activities as administrative functions, teaching, counseling and job placement. The more effective the coordination is, the more distinct the CVE program will be from a simple work experience program or a part-time job. Barton and Fraser (1978) are correct in noting that the problem of distinguishing between CVE and part-time employment is particularly likely to be bothersome if one does not relate the process of coordination to expected outcomes. It can be even more difficult to make this distinction when classroom activities and/or work activities are somewhat similar.

The criticism that all too often CVE programs at the secondary school level are nothing more than glorified work experience programs (Hanna, in Tonne and Nanassy 1970, p. 165) emphasizes the need to recognize the distinctive qualities of CVE programs.

Mason and Haines' (1972) comparison between simple work experience and COE programs is classic. They cited the following characteristics as the eight key elements of a CVE program:

1. The primary and overriding purpose is to provide occupational competence at a defined entry level.
2. The instruction both in-school and at the training station is based upon

the student's career goal.

3. The kind, extent, and sequence of the training station learning experiences are correlated closely with the kind, extent, and sequence of the in-school learning experiences.
4. Students may elect the cooperative plan only when they possess the employability characteristics acceptable in the market place as well as necessary basic knowledges and skills prerequisite to employment.
5. The employment situation must be truly a training station where the firm understands and accepts its teaching responsibility and where a supervisor is given the time to act as a training sponsor.
6. The employment conditions are not only legal employment, but acceptable by all other standards of the school.
7. The coordinator has sufficient time to carry out his coordination responsibilities and be accountable for quality education.
8. Instruction is characterized by its individualization, by the use of projects, by remediation as required, and by interaction with the program.

Although the 1963 Vocational Education Act refers to CVE as a program, recently there has been an emphasis on clarifing this terminology. Thus, a proposed 1983 Vocational Education Act (98th Congress, 1st Session, H.R. 4164) defines CVE as a "method of instruction in vocational education", as opposed to a "program of instruction". This distinction is important since the CVE method is a process within and not a substitute for vocational education. This review included vocational education programs in agriculture, marketing, business and trade and industry which utilized the CVE method.

Since the literature has characteristically applied the term CVE program, the authors have referred throughout this paper to CVE programs. However, the

reader is advised that the term CVE program is meant to indicate a vocational education program wherein the CVE method was used.

While it is recognized that no definition of CVE will satisfy everyone or convey all of the dynamics involved in a CVE program; the following definition is proposed as a useful one for conveying the essence of the CVE method:

> Cooperative vocational education is a method of instruction within a vocational education program whereby a student receives career related knowledge, skills and experience in an actual employment setting. The three unique characteristics of the CVE method are: 1) class room instruction is directly related to the students choosen vocational area and training needs, 2) written on-the-job training plans and agreements are cooperatively developed by the school and employer, 3) formal supervision and student evaluations are a cooperative effort on the part of the school and employer.

Statement of the Problem

Despite the evaluation mandate of the 1976 Vocational Education Act and its subsequent clarifications, few if any cooperative vocational programs have developed an effective evaluation system for monitering program outcomes. There is a lack of both normative and criterion based standards for vocational education programs. Without such standards it is impossible to determine if a program is meeting federal objectives or even if a program is meeting its own objectives.

> Since public education, training, and employment programs are important vehicles for helping youth-particularly minority and disadvantaged youth develop needed work related skills, it is especially important that a viable and recognized assurance system be developed for such programs. If public programs are not considered creditable their graduates will lack credibility, and any credentials or recommendation issued by the program will lack authority. The real skill gains made by the individuals will not be recognized as qualifications for entry into primary employment opportunities. (CEE, 1981, p. 5)

The goal of the research project of which this review is a part is to

develop and demonstrate a management information system for vocational education programs utilizing the CVE method of instruction. This system will incorporate local input to establish outcomes and to target desired outcome measure levels. Instruments and procedures necessary for monitoring overall program quality will be developed. As data accrues from the sites where this system will be tested; it should eventually become possible to establish appropriate standards and outcomes for CVE programs, and to relate these to various levels of program processes and inputs.

It is intended that this system will also be used in the local program formative evaluation and structuring of public information regarding the effectiveness of CVE programs. A key goal is to be able to demonstrate to school officials, local advisory committees and the general public, the advantages of the CVE method.

Organization of the Review

The model of CVE which guided the literature review for this project derives from a model of vocational education developed by Copa (1981), (see Figure 1). Essentially this model depicts vocational education as an interactive process in which changes in any component of the model will influence both outcomes and fundamental characteristics of other components.

Copa's (1981) model was originally proposed for planning vocational education but was judged as an appropriate framework for this review since it focuses on the interrelationships between a number of variables which must be considered in order to realistically portray the CVE process. Efforts to evaluate CVE programs must be grounded firmly on a model of CVE which accurately and realistically portrays both the method and the relationship of its various elements.

The principal components of Copa's model are the individual, the society,

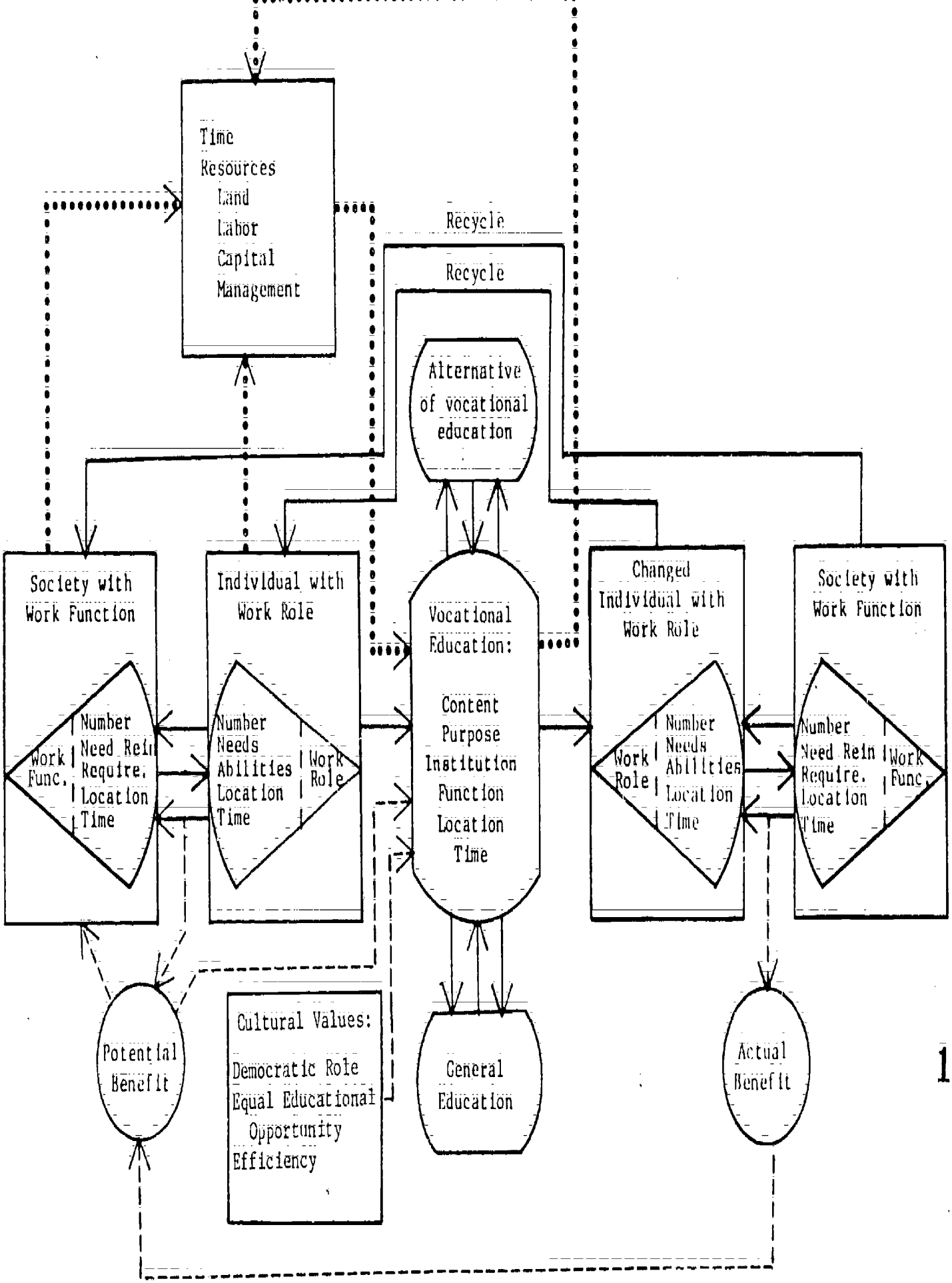

Figure 1. Copa's Model of Vocational Education.

the vocational education process, the outcomes generated by the influences on the individual and the feedback mechanisms linking the various components. For our CVE model, the vocational education process was modified to include both the addition of a work setting component and the linkage necessary to provide the coordination between the school and work site (See Figure 2). This linkage insures that the work experience component is functionally related to the students ongoing educational instruction. Without this relatedness the CVE process would not exist.

The organization of this review is based on the dynamics implicit in the Copa (1981) and revised CVE model. Section one (contextual issues) focuses on broader social and ideological issues concerning the administration and evaluation of CVE programs. The issues examined in this section primarily address goal setting and functional problems with evaluating goals.

The difficulty that education systems have with developing appropriate program goals and the standards for measuring these goals may be deduced from a brief examination of Figure 2. The society with a work function, the individual with a work role and the educational system are in a relationship wherein outcome goals may or may not be compatible. In addition, the values of a democratic society are often at odds with the equity concerns of individuals. Furthermore, the potential for any of these parties to achieve their goals is mitigated by the efficiency, distribution and availability of critical resource elements.

The five major subsections in the review of context issues reflect some of the tensions evident in our model. Efforts to address these problems as well as some alternatives to viewing the problem are considered. The latter concerns some cogent arguments against having high school CVE programs. It is the viewpoint of the authors that educational reviews should be willing to examine

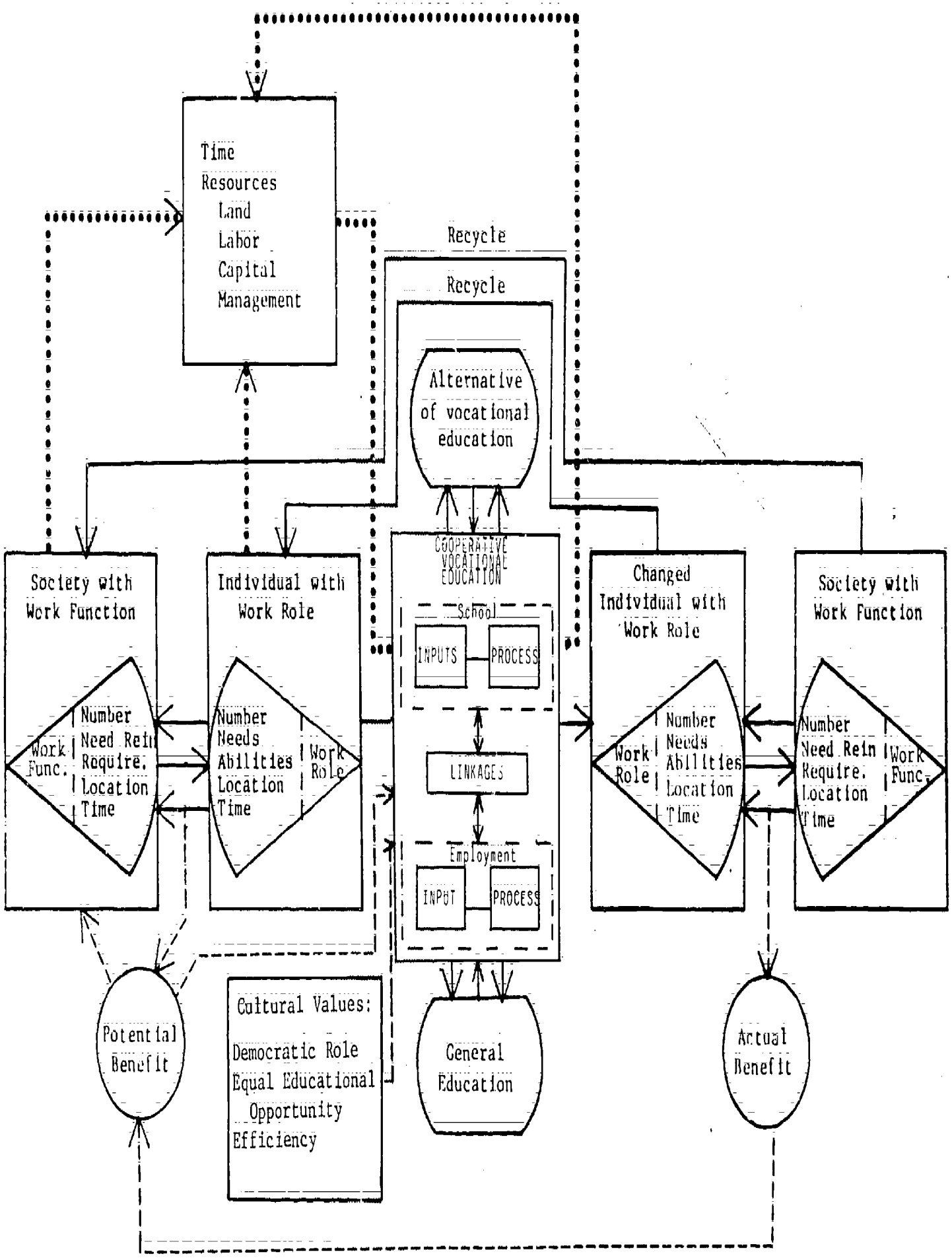

Figure 2. Cooperative Vocational Education Model

the arguments of critics as well as proponents.

Section two, outcome measures, examines literature concerned with the methodology and development of appropriate outcome measures for vocational education. Although Federal regulations describe a specific set of outcomes for vocational education, local vocational education programs have continued to reach beyond this narrow set of objectives in an effort to achieve goals that are exploratory and beyond the work role.

In section two, components of the model that will be examined include: actual benefits versus potential benefits and the changed individual with a work role versus the society with a work function (see Figure 2). Out of these dynamics there evolves a pragmatic concern with developing and evaluating specific measures for determining the impact of the CVE method vis a vis outcomes and changed relationships. The focus in section two is on the potential benefits and liabilities associated with the use of certain outcome measures.

Section three reviews research related to the inputs, processes, and linkage components of our model (see Figure 2). Inputs refer to the human and material resources needed for efficient program operation as well as the time and money available for program needs. Process refers to the manner in which program inputs are allocated and utilized and to the interaction of the inputs within both the school and employment component. The linkage component includes all of those elements, resources and plans which are applied in an effort to coordinate school and work activities.

The focus in section three is on examining the relationship of these elements to both intended and unintended program outcomes. In addition, various claims that certain elements are more conducive to program quality will be investigated with respect to the available research.

Throughout the review, literature which addresses related issues in vocational education programs without a CVE component as well as those with a CVE component will be cited.

The effort has been made to provide a broad coverage of the literature concerning the CVE method. A major risk lies in assuming that programs without a CVE component are conceptually similar to programs with a CVE component. This risk appears less critical than the risk of not considering research derived from the more substantial vocational education literature.

CHAPTER II.
CONTEXT ISSUES

Mangum and Walsh (1980) in reviewing the effectiveness of cooperative vocational education (CVE) programs stated:

> the bottom line of the evaluations was a crushing conclusion. Though the attitudes of high school work education participants were much more positive than those of non-participants while they were in school, two years later, there was relatively little difference between the two groups in attitudes, current employment status, employment stability, wage levels and job satisfaction. The participants had enjoyed the coop program but it had apparently made little difference in their subsequent employment experience. (p. 124)

A great deal of research has been undertaken with the latent purpose of disproving Mangum and Walsh's (1980) findings. However, as long as the research into CVE continues to ignore the underlying social and economics forces influencing CVE, Mangum and Walsh's (1980) assertion may remain valid. This is true because educational outcomes are severely constrained by the needs of the larger society as well as the overall context in which the program functions. In fact there are some researchers who feel that this influence is so strong that it renders evaluation research worthless,

> as a discipline within the applied social sciences, evaluation research survives despite mounting evidence that it is frequently peripheral and sometimes even damaging to efforts aimed at improvements in public policies and programs. (Dunn, Mitroff and Deutsch, p. 207, 1981)

Several major issues must be considered before CVE programs can be validly assessed. Some of these issues are reflected in the following questions:

1. Does vocational education belong in the secondary school today?
2. How can acceptable goals for CVE programs be developed?
3. Does Federal involvement in vocational education programs create substantial negative effects?
4. Can CVE and vocational education programs be effectively evaluated?

Each of these questions comprises a domain of criticisms and problems which have hampered educational programs in general.

The first question reflects the values of those who believe that vocational education has no place in the secondary school. In their view, the work function of society would be better served by a different or alternative educational model. This question challenges both the legitimacy and role of vocational education itself. This is not a naive question since the school is only one component in the model (Figure 2). It may in fact be naive to expect as much out of our schools as some do.

Question two addresses the problem of defining appropriate goals for CVE programs. Setting goals involves both explicating and prioritizing values concerning who are to benefit from the program and what are the benefits that can be expected by participants. All too often, actual benefits bear no relationship to potential or expected benefits. A thorough understanding of the values and expectations of program participants should help to clarify differences in goals that may hinder program operations. There is a need for expectations to be explicit so that it can be determined if the values we expect from our education and programs are both realistic and attainable.

Question three reviews some of the unintended but nevertheless aversive effects which Federal involvement has had on vocational education programs. The Federal Goverment's funding has resulted in the establishment of evaluation criteria. These criteria are influenced by the democratic role envisioned for citizens, by the concerns taxpayers have for the efficient distribution of their tax dollars, and by the equity issues generated from both majority and minority constituents. Some of the impact of Federal involvement in setting program goals will be briefly considered.

The final question and perhaps the most important one from a research

perspective is whether or not it is possible to effectively evaluate a CVE program. Are evaluations worthwhile or are they simply a waste of time and money? There are many who believe that the latter proposition is true. Critics of evaluation research have pointed out the futility of attempting to assess whether or not a program does make a difference. There is considerable evidence that our methodology is still not sufficient to determine cause and effect relationships between school programs and desired social outcomes.

It is not the purpose of this review to propose solutions to these problems nor is this attempted. Rather, these issues are explored because they seem to comprise at least one set of contexts which CVE programs must address. Two questions that need continuing study are whether or not these problems actually embrace the major issues affecting CVE; and whether or not an attempt to resolve them is worth the effort.

Does Vocational Education Belong in the Secondary Schools Today?

The first issue examined is the question of whether or not vocational education belongs in the high school. Swanson (1982) identified three types of arguments that critics of secondary vocational education usually express:

1. Vocational and/or occupational education is a stigmatizing activity.
2. Time spent at the secondary level could be better used than for vocational education.
3. An ambiguous argument that for some unknown reason, vocational education should be delayed until the post-secondary level.

Reubens (1974) cited several specific criticisms of CVE and vocational educational programs. Among these are the following:

1. The career education movement views young entrants to the labor market as full of deficiencies, but it accepts or even ignores unfavorable

labor market conditions.

2. Only a fraction of entry level jobs require specific high school vocational training.
3. Vocational education courses are often offered for some low level jobs that do not even require pre-entry school training.
4. Enrollment in many high school vocational courses is so far in excess of the average number of job openings that a regular over-supply would result if many enrollees did not drop out before graduation or did not take jobs outside their field of training.
5. The labor market situation of the young suggests that in fact there is a limited demand for high school graduates and that the type of skilled, well paved work extolled by vocational educators is not available to most high school graduates, whatever their curriculum.
6. Some courses are preparing students for jobs requiring specific skills but often the jobs pay so poorly that students will take unskilled jobs with higher pay.
7. The vocational courses may be so poorly designed that they fail to meet industry needs.
8. Although courses are often offered at the high school level, the actual jobs which the students are preparing for are only open to those with additional education.

Arguments such as Reubens (1974) are considerably more problematic to the CVE process than some of the other criticisms which CVE and vocational education programs must face. For this reason, it is important to examine some of the assumptions upon which her arguments are based. The problems which have been cited above can be summarized into two arguments. First, labor market conditions are often uncontrollable and thus preempt intended outcomes of the voca-

tional education system. Second, training is often insufficient, inadequate or even useless as it relates to industry needs.

The above arguments ignore several important facts. First, whether or not vocational education is restructured or even taken out of the high school setting, the need will still exist to better understand the impact of labor market dynamics on training and education program outcomes. Since vocational education programs are more job specific than general education programs, rapid changes in technology and the structure of the labor force impact strongly on these programs. The need for relevant vocational programs rests on the ability to foresee such changes in the job market. This is a highly complex problem, one which is not going to be solved by vocational education alone.

Second, Reubens (1974) faults vocational education on its ability and record of preparing students for well paying, high career potential jobs. In this she ignores the fact that the labor market is segmented into blue collar and white collar work.

Typically, white collar work is more socially prestigious. Social prestige is often related to the potential earnings of an occupation or to the number of years of education required for entry into the occupation. Talented people will most often seek those positions where the financial rewards are greatest and the competition for such jobs is keen.

A college education becomes a mechanism that has both preparation and selection functions for many fields. Over time those who cannot compete or who do not value the social or economic rewards attached to such highly competitive fields are often forced to pursue jobs that may have less "social desirability". Although there are numerous exceptions, frequently such jobs have both lower pay and lower career potential. This is also a very complex problem which is not going to be solved by vocational education alone.

Third, the assumption that training is useless because it is offered for unskilled jobs or jobs where on-the-job training has been traditional does not recognize the fact that in a highly competitive job market (all other factors considered equal) an employer usually will select the trained individual particularly if he/she perceives that this will result in a cost savings. Thus, the person with previous training has a definite advantage.

Considering the disadvantages which many vocational education students have to overcome in the labor market, this is at least one area where they can receive assistance. If the vocational education student has some prior experience or training in a career field, theoretically this should enhance employability and enable them to compete more efficiently for a job. If all too often the jobs that these students are competing for are entry level, low paying and require little training, these are often the only jobs that these students can obtain. The fact that such jobs lack career potential should be derided but the responsibility rests with the society and not solely with vocational education.

Much of the criticism which is directed at vocational eduction programs stems from the inconclusive and often negative reports (Mangum and Walsh, 1980) regarding the effectiveness of CVE programs. Such criticism can lead to the premature conclusion that if CVE doesn't work then it can just be replaced with a more effective and efficient program. This argument not only overlooks the cost of other alternatives, which as Welch (1980) mentioned are seldom examined, but it also overlooks the fact that it will probably not be any easier to evaluate or determine the costs and benefits of these other programs (Shugoll and Helms, 1982).

The above arguments are not meant to deny that there is a need for the consideration of alternative programs, particularly since preoccupation with

research into existing educational programs often inhibits efforts at investigating other alternatives. Fuller (1982) in an article sensitive to the problem of evaluating vocational educational programs stated that "we should carefully examine new human development strategies" (page 567). The central element of Fuller's argument is that it is important for program evaluators to acquire broader theoretical understandings so that they can then see beyond the confines of the immediate program which they are evaluating.

How Can Acceptable Goals for CVE Programs Be Established?

Perhaps the most difficult problem facing CVE lies in reconciling conflicting outcomes and goals for programs. Local programs are caught between trying to meet outcomes mandated by the Federal government and their own realization that there must often be a trade-off between goals. Cohen and Solmon (1976) noted that "the question of conflicting goals must be reconciled" (p. XIX), and a decision made as to who is going to be served by the program (students, administrators or employers) so that objectives may be matched accordingly.

The problem with finding acceptable outcome measures for CVE programs is compounded by the fact that as Copa and Forsberg (1980) noted "Vocational education may have many outcomes, both intended and unintended" (p. 1). In an era of increasing cost consciousness, portions of educational programs which are not quantifiable in dollars and cents are in jeopardy.

Hendrickson (1981) pointed out that the strong emphasis given to placement rates and employment objectives arises from a legislative desire that vocational educational programs train their participants for labor force participation. He indicated that both state and local vocational education directors objected to the Federal education requirements because: first, these requirements were considered too narrow for vocational education programs and second, job place-

ment was viewed as an unfair standard of accountability for schools. It was emphasized that if funding was keyed to the Federal standards it could have a detrimental effect on vocational education programs, since other goals would be forfeit in order to meet the Federal guidelines.

In a democratic system, the plurality of goals seems to present an insurmountable obstacle. The school, as depicted in our model, is literally caught in the middle. The challenge becomes one of clarifying goals and of making some highly value laden decisions concerning which goals will guide the system and which will be ignored. All too often educators bypass this problem by assuming that every goal can be met, and thus ignore that certain goals are not compatible or attainable.

Does Federal Involvement in the Vocational Educational Program Have Consequential Negative Effects?

The final report of the National Vocational Education study (1981) stated

> the required statutory evaluations of the placement of vocational education students in entry-level jobs related to training has led to the generation and collection of data of dubious validity and reliability. Moreover, even if these data were valid and reliable, they would have slight utility for the purpose of improving programs and deciding on program offerings. (p. IV/22)

Nunez and Russell (1982) in a study of State legislatures found that 69 percent of the 209 National Conferences of State Legislature members selected for participation, disagreed substantially with having the Federal government set goals for vocational education at all levels. McKinney, Gray, and Abram (1978), in a study designed to assess the differences in job placement rates reported by states (a statutory requirement), found that within the five states studied, personnel viewed the data collection primarily as an imposition by the Federal government. Furthermore, they were relatively unenthusiastic about its collection since they perceived little possibility that the data would be used

for program improvement.

Since both state and local educators are under a great deal of pressure to demonstrate compliance with the Federal requirements, evaluation research is often blind to other outcomes. Fuller (1982) stated that all too often policy issues predetermine the questions asked and the outcomes which will be looked for in the evaluation process. Shea (1977) reviewed 200 program evaluations and found only 17 that investigated outcomes other than employment and earning rates. Raizen and Rossi (1982) declared that Federal efforts at encouraging uniformity of measurement may even prematurely inhibit advances in program methodology and that some of the reasons for low quality of evaluations stem from the methods used by the Federal government to evaluate educational programs.

Thus, while there is clear evidence (Numez & Russell, 1982) that there is a demand for Federal involvement in evaluating CVE and vocational education programs, such involvement would also appear to have a number of undesirable consequences which must be resolved.

Can CVE Programs Be Effectively Evaluated?

Dunn, Mitroff and Deutsch (1981) stated "an adequate theoretical basis for evaluation research is still fundamentally lacking" (p. 208) and that the obsolescence of evaluation research is a result of its preoccupation with technique at the expense of examining the concepts and philosophy supporting the research.

Raizen and Rossi (1981) were also critical of evaluation research but have suggested a number of strategies for improving program evaluation in education. They noted that "current procedures constrain the quality and the use of evaluation, but how these processes operate is poorly understood, therefore it is difficult to design effective remedies" (page 43). Raizen and Rossi (1981)

believe that evaluation research suffers as a process because it is being widely used without being fully understood.

Two major points stand out in the research literature regarding the effective evaluation of CVE and vocational education programs. First, the research is replete with methodological problems and unexamined biases. In a national assessment of cooperative education research in which more than 2,000 documents pertaining to CVE and vocational education were reviewed, Cohen and Solmon (1976) identified the following as recurring limitations in vocational education research:

1. Impartiality of the research was often questionable.
2. Insufficient samples.
3. Failure to account for non-response bias.
4. Inadequate validation of survey instruments.
5. Unwarranted conclusions.
6. Inadequate information and definitions regarding goals, outcomes and objectives.
7. Inadequacy of control groups used for comparison.

One response to some of the problems mentioned above has been cost benefit analysis which emerged during the 1970's. As Shugoll and Helms (1982) noted it was often considered a "magic formula". In an examination of some of the shortcomings of cost benefit analysis, they found that:

> the methodological limitations inherent in the technique are too great to base such decisions (allocation of funds) solely on the results of cost benefits, particularly if the alternative programs serve different purposes and have dissimilar outputs. (p. 42)

The final report of the National Institute of Education (1981) cited several other problems with respect to the validity of educational research. Among the difficulties noted were the variability among procedures used to

secure data and the lack of comparability between state and local data. Lee (1979) states "lack of standardized definitions, the uneven quality of data reporting, fragmentation of sources, and the almost complete absence of some kinds of data make the entire data base far from adequate as well as difficult to use" (p. 73). The result, as far as evaluation research efforts are concerned is to generate confusion and ambiquity in the decision making process. It appears that problems regarding the validity of CVE research may stem from limitations other than methodological ones and that these are sometimes beyond the control of the researcher.

The second major point concerning the validity of CVE research was very well put by Feldman's (1971) comment that "the investigator must navigate between the Scylla and Charybdis of hypercriticalness and hypocriticalness....total rejection, or anything approaching it (hypercriticalness), may unjustly undermine the research efforts and knowledge of a field" (p. 94). Garcia and Kapes (1982) contended that:

> if the researchers applied the strictest research standards to the acceptance of any evidence that vocational education had a positive effect the likelihood was that no evidence of an effect could be found. In this case, the researchers would be condemned by their fellow vocational educators for failing to find the benefits we all know exist. On the other hand, should the researchers give the benefit of the doubt to methodological problems encountered in all of the studies reviewed and conclude that many effects of vocational education had been discovered they stood to be condemned by the research community for accepting shoddy research methods. (p. 6)

Many of the issues discussed lead us back to the question of whether it is in fact possible to evaluate a CVE program. Advocating a broader range of measureable criteria is not an answer to this problem because, while proposed criteria for evaluating the effectiveness of vocational education programs may appear deceptively simple, in reality they often turn out to be extremely complex and almost impossible to measure. For example the issue of relatedness

of training to subsequent employment has necessitated some very sophisticated strategies. (Rossmann, 1978).

The problem of the suspect reliability and validity of a good portion of the existing vocational education research also impacts on the question of whether and how CVE programs can be evaluated; as was previously noted, at least some of the reason for inconclusive research results is beyond the control of the researcher. This means that even increasing the standards and quality of evaluation research can not assure that CVE programs will be effectively evaluated.

The Consortium On Education For Employment (1981) stated "Obtaining quality in programs is more of an art than a science...the most critical elements for judging quality are lost when one concentrates too heavily on easily measurable, short term indicators of success" (p. 6). In addition, they noted that many indicators used to measure program impacts are poor indicators of long term objectives and "Measuring either participant student or program success only in terms of the ultimate employment outcomes misses many of the successes achieved by individuals within programs and by the programs..."(p. 18).

The Consortium report, while critical of the present state of evaluation in educational Federal employment programs listed the following strategies to deal with some of the confusion in educational evaluation:

1. A competency based client centered management system, which will provide a basis for relating program inputs to program outcomes and incorporating this information into the planning processes.
2. Development of adequate assessment instruments for measuring participant gains.
3. Implementation of statewide testing and profiency standards.
4. An external peer review system.

The primary shortcoming of the Consortium plan lies in the measurement of

specific outcomes. While it may be possible to measure certain competencies with a proficiency test or some sort of assessment instrument, there are a number of outcomes in the affective and social domain which are a great deal more difficult to measure (Henriot, 1972). The task though difficult is not impossible.

Copa and Salem (1981) conducted a study to find a set of social indicators for vocational evaluation in Minnesota. They described social indicators as being quantitative in nature and hence measureable. They suggested that while the measurement of social indicators is probably in its infancy the following criteria are important characteristics of useful indicators: 1) they reflect major ends and/or means; 2) they serve as good proxy measures for several other measures; 3) they are easily understood; 4) they are generally accepted as valid and reliable; and 5) they can be feasibly calculated in terms of time, cost and expertise available (p. 55).

Conclusion

The foregoing questions were reviewed with the intent to better understand the diversity and complexity of issues impacting on CVE programs. In the initial stages of this review, many such questions presented themselves. As the review progressed it became obvious that a process for resolving these questions must first understand the interaction between the internal and external elements of the CVE model guiding this research.

Steers (1976) outlined a method for evaluating effectiveness in organizations which may have some relevence for CVE and educational programs in general. Steers (1976) contended that effectiveness must be measured by a "process model" which will give equal weight to the concepts of goal optimization, systems analysis, and emphasis on human behavior.

Four specific advantages of goal optimization over conventional assessment

which Steers (1976) cites are:

1. The explicit recognition of multiple and even conflicting goals.
2. The recognition of differential weights for different goals.
3. The explicit recognition of internal and external constraints limiting goal attainment.
4. The allowance for increased flexibility of evaluation criteria.

Combining the framework outlined above with the systems model developed by Copa (1980) for vocational education adds an important dimension with which to view CVE programs. If the process and model combined accurately depict the CVE method, then it may be the start towards a viable solution to the problem of program evaluation.

CHAPTER III.
OUTCOME MEASURES

This review has already examined some of the issues concerning the development of appropriate outcome measures for CVE programs. This portion of the review examines a number of specific outcomes which have been used as criteria in studies measuring the effectiveness of CVE and/or vocational education programs. These outcomes are reviewed in five categories: economic, educational, personal, social and equity. These categories were developed by the authors after an extensive literature review to identify commonly used outcomes. The authors then examined several systems for clustering these outcomes (Moss, Smith, Copa, 1972 and Darcy, 1979). Since none of these systems were conceptually pure it was decided that a simple, if inelegant set of five categories would be utilized. It certainly must be admitted that this classification system is not perfect nor does it permit easy discrimination in every conceivable case. Its major advantages appear to be that most if not all outcomes can be classified in at least one category and the categories are defined in relatively distinct and easy to understand terms.

Economic Outcomes

The category of economic outcomes had the largest number of measures for evaluating CVE programs. The research review found 23 measures which were used to reflect various economic outcomes. These are grouped into three subcategories: wage/earnings, employment, and unemployment.

Wage/Earnings

Outcome measures in the literature related to wages and earnings included: wage rates, gross earnings, average hourly wages, wage on last job, lifetime earnings stream data, monthly earnings, earnings on first job, wage rates approximately two years later, and wage rates approximately four years later

(after graduation).

Wage rates can be defined as earnings divided by hours worked while earnings are a gross measure of salary calculated either on a weekly, monthly or yearly basis. Each of these two measures offers certain advantages for the researcher. Shugoll and Helms (1982) stated that "Earnings are a superior measure to wage rates, since wages do not account for differences among workers in the probability of being unemployed" (p. 42). The advantage of wage rates lies in their relative ease of computation and collection. It is clearly less problemmatic to obtain a workers hourly wage rate than his/her life time earnings stream data. Several researchers have attempted to circumvent the limitations of the above measures either by combining them or using one or more measures.

Hernstadt, Horowitz and Sum (1979) compared junior and senior high school students from several different programs: cooperative vocational, regular vocational, work study and general academic. They used four measures: average hourly wage, beginning hourly wage, final wage earned on last job and the wage progression. Stromsdorfer and Fackler (1973) used monthly earnings, earnings on first job and wage on last job in their analysis of the CVE program in Dayton, Ohio. The rationale for their indicators was that a time earnings profile is a more valid measure of program effectiveness even if it indicates only one aspect of economic effect.

Mertens (1981), Meyer and Wise (1980) and Lewis, Glyde, McKee and Kozak (1976) used multiple economic measures to evaluate educational outcomes. Meyer and Wise (1980) used wage rates one year after graduation and wage rates four years after graduation. Their data were taken from the 1972 National Longitudinal Study of High School Seniors. Mertens (1981) reviewed 117 local, state and national studies on the effects of participating in vocational

education. She found that while vocational education students make more initially over time they enjoyed no significant advantage over general students. Her data was based on an analysis of average hourly wages over time.

Lewis et al. (1976) used hourly wages on longest job, current job and first job over a two year period, to examine the cost effectiveness of CVE programs at the secondary level. They used a random sample of 33 high schools in 15 districts east of the Mississippi river. Data for CVE students was compared with data on students who had non-school supervised jobs and with students who had no jobs. They found no significant differences between the wages of CVE students and the comparison groups.

Frazier (1981) using wages one year after graduation found average hourly wages to be lower for cooperative graduates than for noncooperative graduates while Slick and Welch (1974) using weekly earnings (before deductions) and earnings eighteen months after graduation, found higher salaries for co-op graduates than for the total in-school vocational education graduates.

The conflicting results of the studies cited above should not be surprising since most of the data collected suffers from the effects of aggregating all vocational students without respect for curriculum or number of credits obtained in their respective vocational area. This is a problem which has been addressed by Campbell, Gardner, Seitz, Chukwamn, Cox and Orth (1981).

Campbell et al. (1981) divided vocational education students into five pattern groups based on their participation in a vocational education program. These patterns were operationally derived from the following concepts: "Intensity of training, continuity of training, proximity of training to time of graduation, diversity of program areas in which training was received, and the addition of logically related study outside the main area of specialization" (p. IX). The five categories in assending order of participation were:

incidental/personal, explorer, concentrator/explorer, limited concentrator and concentrator. Campbell et al. (1981) found that in terms of total effect, women and minority women concentrators tended to have significantly higher weekly earnings than women with no vocational education. For males, both in terms of total and direct effect, concentration was weakly associated with lower weekly earnings. Looking at hourly earnings, they found that with the exception of minority females (who had a significant positive correlation) and white male concentrators, "participation in vocational education does not appear to have a significant impact--positively or negatively--on the hourly earnings of most employed people" (p. 62). This finding is supported by the research of Grasso and Shea (1979); Copa, Irwin and Maurice (1976) and Walsh and Breglio (1976).

Employment

The large number of employment measures found was expected because employment is a federally mandated evaluation criteria. These measures included:

1. Placement rate.
2. Labor force participation rate.
3. Duration of employment.
4. Number of weeks worked.
5. Hours worked per week.
6. Full versus part time employment.
7. Self employment.
8. Military employment.
9. Number of full time jobs held since high school.
10. Rates of job advancement.
11. Time needed to find first job after high school graduation.
12. Occupational level and status.

Placement rate is the most common measure used for evaluating CVE and vocational

education program effectiveness. Despite the apparent quantitativeness of this measure, it is not without limitations. The National Institute of Education's (NIE) final report (1981) listed the following conceptual difficulties stemming from the use of placement data in program evaluations:

1. Determining when program completers are employed in "related" occupations.
2. Deciding whether or not rates should take into account only those individuals looking for full-time employment.
3. Calculating placement rates.
4. Determining the relative importance of placement rates in program evaluations.
5. Developing a base against which placement rates can be measured.

Johnson (1981), McKinney, Franchak, Halasz-Salster, Morrison and McElwain (1981), Hernstadt et al. (1979), Frankel (1973) and Cushman, Hill and Miller (1968) used rates of employment as one measure for evaluating employment. Frankel (1973) reviewed 30 CVE programs and while crediting them for a high rate of job related placements also accused them of "creaming", i.e., selecting the most highly motivated students. Hernstadt et al. (1979) looked at the employment experiences of CVE, regular vocational education, work study and academic students during their junior and senior years in high school and for a follow-up period of 16.5 months to 21 months after graduation. He noted that for the time needed to find a first job and labor force participation rates there were no significant advantages for cooperative education students unless separated by trade. Examining specific trades, he found that students from several of the CVE programs had a significantly higher rate of participation in the labor force then students from the general academic curriculums. CVE graduates were significantly more likely to work full-time, 35 hours or more per week, then grad-

uates from the other three programs.

McKinney et al. (1981) examined a number of program input variables and their effect on placement rates for secondary vocational education students. The six major classes of variables which they used were:

1. Employment.
2. Size of community.
3. Education level.
4. Extent of community change.
5. Enrollment composition of the vocational education program.
6. Services and activities related to the school program.

They reported that agriculture had higher placement rates in rural areas while distributive education had higher placement rates in urban areas. Size of community was negatively related to placement rates while the median level of education in the community was positively related to placement rates. These findings illustrate that factors influencing placement rates are often beyond the program operators influence.

Cushman et al. (1968) in a study conducted of secondary vocational agriculture students in off farm occupational specialties selected nine schools preparing students for work in ornamental horticulture and seven in agricultural mechanization. Following student graduation, they investigated the number of graduates who entered into curriculum related employment. Students in directed work experience, Try Out Centers, were compared with students enrolled in a similar course of study but without the directed work experience, comparison centers. Data were collected six months after graduation.

Try Out Center students were found to have obtained a significantly higher percentage of job related placements than the comparison center students. A shortcoming of this study was that there was no procedure offered to

acknowledge how "relatedness" was determined.

As an alternative to regular employment, several studies acknowledged the need to measure self employment as a positive outcome. Woods and Haney (1981) reanalyzed the National Longitudinal Studies (NLS) 1972 data sets for self-employment rates, as well as labor force participation rates, hours worked per week, number of weeks worked during the fiscal year, occupational level and status, full-time employment and relatedness of work to training and wages earned. Comparing vocational education graduates to general program graduates, they noted no specific differences in self-employment except that there was a tendency for blacks to be self-employed less often than whites. The NIE final report (1981) also noted no significant differences in self-employment between vocational curriculum graduates and general curriculum graduates. Using the NLS data they found that approximately five to seven percent of all white male graduates were self-employed. However, these data were inconsistent with the labor market employment data which showed zero percent males self-employed after four years.

In examining occupational level and status, Woods and Haney (1981) observed a slight tendency for males in trade and industry and business vocational programs to be employed in occupations with a higher social economic index (SEI) than general program graduates. For female graduates, there was a significantly higher percentage of commercial graduates than for general curriculum graduates in occupations with a higher SEI. While Woods and Haney (1981) noted that this difference did tend to decrease in years; it demonstrates the need to differentiate vocational education programs by individual program areas as well as by race and sex. In so doing, there is a greater likelihood that positive effects will be discovered.

Several outcome variables, including duration of employment, time needed to find a first job, rate of job advancement and number of full-time jobs since

high school were not as common as placement rates. Marvin, Hartog and Copa (1970) selected five schools in Minnesota for a project to demonstrate the general feasibility of a system for evaluating local vocational education programs and included one question pertaining to job advancement after graduation in their follow-up survey form, in addition to several traditional measures of employment success. Molnar, Pesut and Mihalka (1973) examined the cost effectiveness of CVE programs versus conventional vocational education programs in 12 school districts drawn from Minnesota, North Carolina and Ohio. Using the time needed to find the first full-time job, duration of longest full-time employment and the number of different employers after graduation as outcome measures, they found no practical differences between graduates of CVE programs versus non-CVE programs.

Slick and Welch (1974) in their evaluation of CVE programs in Pennsylvania also used time needed to find the first job after graduation and the number of full-time jobs since high school. They observed that only 24 percent of CVE graduates needed more than eight weeks to find their first full-time employment as compared to 36 to 40 percent for the conventional vocational education program graduates. With respect to the number of full-time jobs since graduating from high school, they noted no significant difference between the cooperative and conventional education programs.

It is interesting that both of the programs cited above excluded part-time employment as a measure of employment success. Raelin (1981) examined the issue of whether or not young workers whose first jobs were part-time lost either status or wages as a result. He used NLS data on young men from 1966 to 1975. His conclusion was that "part-time employment is an excellent early labor market alternative" (page 321) and that employment policies in this country should more throughly examine the idea of part-time employment experiences for youth.

In assessing employment related outcome variables, it becomes questionable what significance some of them have for CVE programs. Are the number of jobs since high school an accurate measure of success? What constitutes an inappropriate amount of time needed to find a first job? How important is job longevity? What defines acceptable job advancement? Unless the standards for evaluating these issues are clarified, the number of valid inferences which can be drawn from such data is limited.

Unemployment

The three most common outcome measures for unemployment were rate of unemployment, number of spells of unemployment during the previous year and number of weeks unemployed during the previous year. Rate of unemployment, (perhaps the most common indicator) was used by Woods and Haney (1981), Mertens (1981), Welch (1980), Meyer and Wise (1980), Hernstadt et al. (1979), Lewis et al. (1976), Walsh and Breglio (1976), Slick and Welch (1974), and Molnar et al. (1973). Several of these researchers also examined the number of weeks unemployed as well as spells of unemployment during the previous year. While some of the studies showed that CVE students may initially experience lower unemployment; no evidence was found that CVE students experience any long term differences in unemployment as compared to students from other program areas.

Harrell and Wirtz (1979) using data from the NLS survey of the Class of 1972 reviewed the amount of unemployment from 1972 through 1976 for students who did not continue full-time education after high school. As indicators, they used average unemployment compensation rates as well as number of weeks unemployed each year. Amounts of unemployment varied significantly by race and sex. A number of their findings support the emphasis which CVE programs have placed on work experience. Most notable were the following:

1. The more a student worked during the senior year of high school the

lower his/her unemployment compensation was during the subsequent four years. This effect was less pronounced for female graduates than for males graduates.

2. Unemployment rates tended to be persistent and recurring based on the experience of each previous year.
3. The type of employment was an important predictor of unemployment for each subsequent year.
4. Students who had participated in some type of job program during high school (such as cooperative vocational education or work study) had significantly lower unemployment rates.

Since unemployment rates represent the reverse side of employment rates, several of the criticisms directed at the use of employment rates as indicators of program effectiveness also apply to unemployment rates. Furthermore, during recessionary periods, and periods of uneven economic growth, the utility of such measures as placement rates and unemployment rates is severely diminished. As Walsh and Breglio (1976) noted,

> The relatively low placement rates for programs located in cities with above average unemployment indicates that even though it may not have been difficult to find part-time work stations for students...it was quite another matter for students to find full-time employment after graduation. (p. 12)

Despite the limitations set by economic conditions, employment and unemployment rates when broken down by program area, race, sex, and socio-economic status can still yield valuable information. Such information can lead to improvements in the areas of educational and equity outcomes.

Summary

Twenty-three outcome measures, based on economic data were grouped into three subcategories: wages/earnings, employment, and unemployment.

The evidence comparing the wages/earnings of CVE students to other students

was somewhat inconclusive. The major positive finding appears to be that females in vocational education tend to have some advantage in earnings over female students in general program areas.

The employment data consisted of a set of measures of varying relationship. The basic concern with this data appeared to be whether or not the student was actually employed after high school, a secondary concern was with the quality of the employment experience. The evidence here tends to support the importance of examining individual fields and not aggregating all programs into one general category. In the few studies where this was done, several specific program areas appeared to result in greater employment for CVE students as compared to general graduates and graduates in other program areas.

The findings with respect to the other employment measures reviewed generally found no difference between CVE students and students from other curricula. Several of the measures reviewed lacked any type of consistent operational definition, thus severely limiting their validity. This was particularly true of attempts to look at the quality of the employment experience rather than merely whether the student was employed or not. This may account for the fact that no study showed any evidence that the rate of job advancement was superior for CVE students, or that CVE students enjoyed any long term advantages in the labor market as a result of their school curriculum.

The data on unemployment for CVE students supports that in general local unemployment rates play a greater role in determining whether or not a CVE student will be employed than does high school curriculum. The important point that emerges from this research is that the amount of work during high school does seem to be subsequently related to lower unemployment rates. Although the specific source of employment was an unimportant factor, the evidence supports providing either work or job programs for high school youth as a viable means of reducing future unemployment.

Education Outcomes

Educational outcomes are primarily related to the implicit goals of the educational institution itself. The measures most commonly reported were: percentage of students graduating, cost comparison within program areas, percentage of graduates enrolled in further education, school attendance rates, relatedness of training to subsequent employment, and dropout rates.

A special word must be said about the conspicuous absence of such criteria as grades, basic skills, achievements tests and tests of technical or applied knowledge. This review found little evidence of any recent utilization of such data as a measure of difference between CVE and other academic programs. Mertens (1981) reported insufficient evidence to measure the effect of vocational education on the attainment of basic academic skills. Stromsdorfer and Fackler (1973) cited several older studies comparing the GPA of CVE students to students in other programs. They found no significant evidence to support that CVE students had either higher or lower GPA's than students in other curricula.

In their own research, Stromsdorfer and Fackler (1973) found that CVE students had lower GPA's than non-CVE students. But, the CVE student earned more credits and spent more time working, thus decreasing the amount of time available for study. Furthermore, they caution against the use of GPA as an unequivocal measure of success for two reasons: (1) because students may make rational trade offs between formal knowledge (reflected in school GPA) and on-the-job learning (reflected in performance evaluations), and (2) because as an indice of educational effect, GPA's are a measure of intermediate and not final program output. They stated that "ideally, we want to measure final outputs" (Stromsdorfer and Fackler, 1973, p. 157).

With respect to research utlizing achievement tests as a comparison basis

for CVE and other curricula, again, no recent national studies were found which attempted such a comparison. Stromsdorfer and Fackler (1973) cited several local studies which did attempt a comparison and found no strong evidence that high school curricula was an important determinant.

Cushman et al. (1968) compared students in the Try Out Centers (CVE program) with students in the regular vocational centers, on an achievement test of technical knowledge and competencies. They found that CVE students scored significantly higher than students in the conventional vocational education programs. No subsequent studies were found to support or refute Cushman's et al. (1968) findings.

The lack of utilization of systematic standardized tests to discern differences between CVE and regular vocational students reflects the resistance of educators in general with standardized performance tests and summative tests of academic achievement. Several educators have pointed out that these types of tests are costly, time consuming, and quickly outdated.

Stromsdorfer and Fackler (1973) and Molnar et al. (1973) reported lower high school drop-out rates for CVE enrollees, a fact which the NIE Report (1981) has also tentatively accepted. Welch (1980) using student self-reports from 193 CVE graduates in Pennsylvania found that 10 percent of those surveyed reported that they would have dropped out of high school if a CVE program had not been available. Hernstadt et al. (1979) note that 24 percent of CVE students viewed the program as having an influence on their decision to remain in school as compared to 16.5 percent for students in regular vocational education programs and seven percent for those in general programs.

Mertens (1981) in her review stated that there was insufficient evidence to make any conclusions regarding differences in dropout rates. Cushman et al. (1968) and Mangum and Walsh (1980) did not find any evidence that CVE programs led to reduced dropout rates.

School Attendance Rates

Lewis et al. (1976) found that students in CVE programs were significantly less likely to skip school than students not working. Stromsdorfer and Fackler (1973) comparing time absent for senior students in CVE, regular vocational education and general programs gave the following respective figures: CVE three percent, regular vocational education six percent and general six percent.

Molnar et al. (1973) looking at the number of days absent, found regular vocational education students ($\bar{x}$ = 7.4 per year) to average less days absent than CVE students ($\bar{x}$ = 10.1 per year). Hernstadt et al. (1979) found no significant difference between CVE students and regular vocational education in number of days absent during their senior year but found a noticeable difference in CVE ($\bar{x}$ = 18.6) versus general curriculum ($\bar{x}$ = 29.6).

Percentage of Students Graduating

One would expect that if the evidence that CVE prevented students from dropping out of school was mixed; that the same pattern would hold for differences in the number of students in CVE programs graduating as compared to other programs. This proved to be true. Stromsdorfer and Fackler (1973) indicated that CVE students had a higher probability of graduating than either regular vocational education students or general curriculum students. However, Cushman et al. (1968) and Molnar (1973) found no important differences in graduation rates for CVE students versus regular vocational education students.

Cost of CVE Versus Other Programs.

One important issue which became the subject of some research was whether or not CVE programs cost less per student than other programs. This particular line of research proved to be very complex and involved so many variables that it was impossible to conclusively determine the overall costs per students in various programs.

Stromsdorfer and Fackler (1973) in a very extensive analysis could not determine if CVE cost more, less or the same as other programs. Molnar et al. (1973) found no difference in the cost of providing CVE programs versus regular vocational education programs. Lewis et al. (1976) concluded that overall costs per work experience student were approximately 125 dollars more per year than for a student in regular vocational education programs.

Graduates Enrolled in Further Education

The number of students who go on to further education is ranked as one of the most important goals of CVE programs by many secondary school teachers. Given the complexities of modern industry many coordinators do not see high school as a terminal program but merely as a preparation for more advanced training. For students in vocational programs, it is anticipated that further education will usually be at a post-secondary vocational technical institute of either public or private financing. In some cases, the military might be considered as post-secondary training.

Cushman et al. (1968) was the only study to find positive results for CVE programs on this criteria. CVE students demonstrated a significantly higher rate of entry into related higher education programs than students in regular vocational education programs. Stromsdorfer and Fackler (1973) reported no difference among CVE, regular vocational education and general curriculum students in the likelihood of acquiring additional vocational education.

Reporting negative findings, Hernstadt et al. (1979) and Lewis et al. (1976) found that fewer CVE students "planned" to pursue further education than students in either regular vocational education or general academic areas. Whether or not these students kept to their intention is unknown.

Although there was no consistent evidence that fewer CVE students do pursue further education, it seems reasonable to conclude that many students in CVE

programs view their curriculum, not as a departure point for more training but as an entry point for work.

The Relatedness of Training to Subsequent Employment

From a logical point of view it seems worthwhile to examine whether or not the subsequent employment of CVE students is related to their training. In the first place, one may argue what is the point of an elaborate training program if it is not used or does not result in the student obtaining a related job. Despite the "logic" in these arguments it has often proved difficult to determine what constitutes a "training related placement". In addition, many argue that the nature of the job which a student obtains is irrelevant since there are many extraneous factors involved in job selection.

Cushman et al. (1968), Lewis et al. (1976), Stromsdorfer and Fackler (1973) and Welch (1980) all found either high levels of training related placements for CVE students or significantly more CVE students in training related jobs than students in regular vocational education programs.

Woods and Haney (1981) and the NIE study (1981) both noted that employment in jobs related to training varied considerably from one occupational field to another. No attempt was made to compare the placement rates of CVE students against those of students in other curriculums.

Walsh and Breglio (1976) surveying urban CVE programs classified them into the following categories: single occupation, general occupation cluster program and diversified program. The single occupation category qualified as a true CVE program since in this program, student jobs were closely related to their classroom training and occupational area. In the general occupation cluster program, jobs were loosely related within occupational clusters. In the diversified program, there was no specific occupational training and students were placed in a variety of jobs not necessarily related to their major. When data

on dropouts and training related placements were calculated, there was significant differences within CVE groups. Training related placements for the single occupational programs were 42 percent higher than for the diversified programs.

The average completion rate for the diversified program was between 21 and 22 percent points lower than the rate for either the single or general occupational programs. The fact that each of the programs described classified themselves as CVE programs highlights the need for educational researchers to carefully define the type of program they are evaluating in order to avoid inappropriate generalizations pertaining to program effectiveness.

Summary

Most of the data for the six criteria reviewed were either inconclusive or mixed. The two strongest trends seem to be that fewer CVE students planned further education and that more CVE students obtained training related jobs than students in the regular vocational education curriculum. The data suggests that many CVE students are not planning to pursue further education and enter their CVE curriculum with the intention that it will lead to full-time employment immediately after high school.

Social Outcomes

The outcome measures included in this category are divided into two subcategories: employer related outcomes and civic outcomes. The employer related category includes employer satisfaction with the CVE program and employer satisfaction with the worker.

A review of employer follow-up studies conducted by Asche and Vogler (1980) found that most employers were asked to rate the performance of the former student while the "Vocational Education Data System" (VEDS) asked employers to rate the workers training and preparation rather than performance. This review

also found that most studies tended to evaluate the worker rather than attempting to evaluate the effectiveness or employer satisfaction with the school program.

Employer Related

Numez and Russell (1982) randomly selected 2,000 National Association of Manufacturing employers to obtain their views about the effectiveness of vocational education. They found that overall, manufacturers most frequently gave secondary vocational education a "c" score (on a scale of a, b, c, d and f), with the exception of those companies currently involved with vocational education (ostensibly through a CVE program). Companies involved in vocational education programs graded vocational education higher than companies not involved. Lewis et al. (1976) mailed questionnaires to 250 CVE employers. In addition to asking them to rate the performance of former CVE students versus regular workers, employers were asked to rank seven possible advantages of participation in a CVE program. Of the 68 firms returning questionnaires, most indicated that the ability to hire CVE students was the major advantage of participation in a CVE program.

Stromsdorfer and Fackler (1973) selected a sample of 100 employers. Fifty of these employers had participated in CVE programs while 50 had not. Forty-nine of the CVE employers responded while only 24 of the non-CVE employers responded. Stromsdorfer (1973) found that while it was impossible to derive a net cost benefit to CVE employers, a significant number of them agreed that CVE programs were "acceptable to them" (p. 237).

Although employer satisfaction with the cooperative student is one outcome criteria stated explicitly in the 1976 Vocational Education Act, the NIE report (1981) cited several problems with the validity of this criteria. The foremost problems are the frequently low return rate and the built in response bias.

Bias may result for several reasons: CVE employers are often selected by the students themselves for follow-up; differences exist in individual standards of preparedness for students and finally, employers are unlikely to risk negative opinions.

Asche and Vogler (1980) found that employers preferred graduates of CVE programs to graduates of totally in-house programs (i.e., no work experience component). Both Asche and Vogler (1980) and Numez and Russell (1982) found that employers tended to be quite dissatisfied with the basic skills, reading, writing and math of younger workers in CVE as well as non-CVE programs. Frazier (1981) compared secondary school CVE students with students in regular vocational programs using data from the Oklahoma State Department of Vocational and Technical Education Student Accounting System. Employer evaluations were available only for the years 1978 to 1979, and only for students employed in training related jobs. The number of subjects was 4,668 former students. Based on measures of job preparedness, quality of work, technical knowledge and work attitudes; employer's rated CVE students higher in every category than regular vocational students.

The results of the remaining studies reviewed generally tended to show either very high ratings for CVE employees or else rated them higher or equal to other groups. In no case were CVE students rated lower in job performance. Although Lewis et al. (1976) found that employers rated CVE graduates low on communication skills, they qualified this by stating that it could possibly be a reflection of the low regard among employers for the basic academic skills of young workers in general.

Civic Related

In the subcategory titled civic related, two measures were found or suggested as possible program indicators: avoidance of trouble with authority

and citizenship. These indicators are very broad and imply value based judgments which are hard to defend. Nevertheless, if CVE programs are having any impact on these broad goals, a researcher must be aware of them.

Conflict with authority. Passmore (1980) analyzed data elements for the 1977, 1978, and 1979 annual demographic files of the Current Population Survey (CPS) to examine the characteristics of jobless youth in the United States. He stated that "Juvenile crime and youth unemployment are related...although whether crime or unemployment are cause or effect or are simultaneously determined, is unknown" (p. 3).

Taggart (1980) found that youth who work, whether in school or out of school suffer less unemployment subsequently than youth who do not and that there is a statistically significant correlation between youth unemployment and youth arrest for a variety of crimes. Johnson (1981) found a consistent but negative relationship between job satisfaction and job performance and reports of getting into trouble in his study of four youth groups. Lewis (1976) attempted to determine if holding a job while in school had any effect on student disciplinary problems. He noted relatively high levels of disciplinary problems both for students who worked as well as students not working. The only measure where he found a difference was for truancy. Students not working were significantly more likely to skip school than students who were working.

A study related to the issue of civic indicators was conducted by Freeberg (1976). His subjects consisted of 184 male and 215 females who had completed a worker training program for out of school youth. He surveyed them after graduation, then approximately six to eight months later. Freeman's purpose was to ascertain the relationship between a number of short-term program completion criteria and subsequent post-program criterion measures. Some of the variables in the short-term grouping were quite specific and included such measures as

actual police contacts, peer ratings, number of people giving the worker a hard time, and family feelings about the trainee. Freeberg's (1976) findings show a pattern of significantly consistent correlations between the short term and longer term outcomes. His findings suggest that specific criteria can be developed which will permit an effective evaluation of he impact of education and training programs on youth socialization.

Citizenship. Several researchers attempted to assess citizenship through such means as voter registration and voting patterns. Stromsdorfer and Fackler (1973) looked at voter registration and found no relationship between probability of voter registration and types of curriculum. The NIE report (1981) also found no difference in voting behavior between vocational education students and general curriculum students. Woods and Haney (1981) suggest that both voter registration and voting itself are poor proxies for citizenship.

Summary

CVE programs generally appear to receive favorable marks from cooperating employers. In several cases CVE students were rated higher than students in regular vocational education programs. It remains unclear which businesses benefit most from participation in CVE programs and to what extent CVE programs provide an economic benefit for employers.

The evidence that CVE programs lead to civic benefits, i.e., reduced crime, higher voting patterns is far from conclusive and only suggests that working while in school may deter some forms of delinquency. Citizenship behavior as reflected in voting behavior did not seem to be influenced by type of high school curriculum.

Personal Outcomes

For purposes of this review, personal outcomes are broadly defined as any outcome which is related to the personal, social, attitudinal, knowledge or skill development of the individual. Many of these outcomes are not explicitly mandated for evaluation by Federal legislation. However, most educators acknowledge the importance of such outcomes in contributing to subsequent labor market success. The following measures were most prevalent in the literature: job satisfaction, affective work competencies, occupational knowledge, satisfaction with school program, basic academic skills, communication skills, job seeking skills and occupational competencies.

Meyer, Crawford and Klaurens (1975) divided personal outcomes into three subcategories that provide a measure of "vocational competency."

I. Technical Competencies: mastery of occupational duties and responsibilities.
   - Occupational competencies or skills.
   - Basic academic skills.
   - Job seeking skills.
   - Communication skills.

II. Occupational adjustment competencies: personal adjustment to the work environment.
   - Job satisfaction.
   - Affective work competencies.

III. Career development competency: understanding ones self and then relating to specific career goals.
   - Occupational knowledge.
   - Satisfaction with school programs.

Technical Competencies

Considering the importance of technical proficiency, it is surprising that few researchers have used this measure as an outcome variable. This may reflect the difficulties in collecting the data to measure this outcome. In many cases, measuring occupational skills would require batteries of tests, most of which have not even been developed. The NIE (1981) report stated "there is a major practical problem with occupational proficiency measures and criterion referenced testing. The first do not yet exist for most occupations and criterion referenced testing is still in its developmental stage" (p. IV-20). Since developing these tests would entail a considerable expense, it is no surprise that the NIE (1981) study found only 14 states assessing student performance and these were described as using tests of questionable reliability and validity.

Cushman et al. (1968) in their study of CVE students devised multiple choice achievement tests to assess "the impact of work experience on vocational student acquisition of technical, occupationally relevant knowledge" (p. 28). In an ornamental horticultural program, due to the heterogeneity of curriculum content from school to school they were forced to devise six subtests to use in measuring occupational competence. In the agriculture mechanization area, program homogeneity allowed the use of a single instrument. Comparing CVE students as a group with the regular vocational education students, they found that CVE students scored significantly higher on the achievement tests.

With respect to basic academic skills, several studies have used grade point average (GPA) as a proxy measure. However, no major studies of CVE programs were found which directly assessed basic academic skills, job skills or communication ability. Some evidence supports the importance of assessing these abilities.

The Research for Better Schools Study (RBS, Richards 1981) of regional

employers in Delaware, New Jersey and Eastern Pennsylvania used a questionnaire to survey 178 employers on the importance of 9 transition skills (school to work). The questionnaire included basic academic skills and communication skills. The categories were derived from 11 earlier studies of employer attitudes towards young workers. The RBS survey found communication skills to rank number three in importance to employers while basic academic skills ranked fourth in importance to employers. The NIE (1981) report also listed basic academic skills, as well as ability to cope with job change as major goals for vocational education. It suggested that these goals are implicit in the Federal vocational education legislation.

Occupational Adjustment Competencies

The two outcome criteria in this category are affective work competencies and job satisfaction. Beach and Kazanas (1981) defined affective work competencies as "social psychological characteristics including habits which are manifestations of preferable work behaviors that persons demonstrate" (p. 51). Their research indicated that proper work habits are critical for entering the job market as well as maintaining a successful employment record. They noted that despite the evidence supporting the importance of affective work competencies, it is an area which is often overlooked by many educators.

A substantial amount of research attempted to evaluate outcomes that could be classified under Beach and Kazanas's (1981) definition. The only personal outcome category which was found more frequently in the literature was job satisfaction. Perhaps a reason for the large amount of research in this area is that it is an extremely broad classification. In Beach and Kazanas's (1981) AWCI inventory, it included 59 individual characteristics grouped into 15 clusters.

Luft and Suzuki (1981) described affective characteristics as non-technical employment competencies and identified 59 non-technical competencies from which

a list consisting of 31 items was developed. This list was sent to coordinators, counselors and employers who had worked with CVE students. They were asked to indicate the level of importance of each competency on a five point scale. The results showed that coordinators, counselors and employers tended to agree on the importance of these competencies. The similarities in the competencies identified by Luft and Suzuki (1981) and those in the Kazanas inventory (1981) are striking.

Two studies of CVE programs which used selected affective work competencies as outcome criteria (Slick and Welch, 1974 and Lewis et al. 1976) found no difference between CVE students and non-CVE students. Johnson (1981) found that CVE students scored lower on work attitudes and ability to get along with co-workers than regular vocational education students.

One of the most ambitious studies in the area of affective competencies was conducted by Dunn, Ridley, and Walker (1982). Their study used regular vocational education students as subjects and drew on 25 of the 51 secondary level educational agencies served by the Office of Occupation and Continuing Education in New York to collect data on 7,[illegible]0 students including 3,842 graduating seniors enrolled in 75 different occupational areas. They compared the students from occupational high schools with students from home feeder schools on nine attitude scales which included a broad grouping of affective competencies as outcome variables. Two of the scales used in this study could not be categorized strictly in terms of affective competencies since they also measured attitudes toward school as well as job finding competency.

A major purpose of the Dunn et al. (1982) project was to develop a reliable and valid instrument for measuring students' school and related social attitudes as well as to compare the attitude of students in occupational programs with students in other high school programs. They found that occupa-

tional seniors clearly exceeded home school seniors in four of the nine measures used: 1) positiveness towards their school experience, 2) positiveness toward their classmates, 3) confidence in their career goals, and 4) confidence in their job keeping skills.

In examining the results for post high school graduation job satisfaction, eight CVE studies used job satisfaction as a criteria while one study compared students satisfaction with in-school work education jobs to student satisfaction with a part-time job held while attending high school. Of the eight studies reviewing post-high school job satisfaction, six found little or no difference between CVE students and non-CVE students. Stromsdorfer and Fackler (1973) found CVE students to have a higher degree of job satisfaction than non-CVE students and Welch (1980) who did not use a comparison group, reports that 66 percent of CVE students were satisfied with their jobs.

Silberman (1974) compared data from 1,016 students in 50 work education programs with data from 696 students not in a formal work education program but who were holding part-time jobs. Students in formal work education programs were significantly more satisfied with their jobs than students not participating in a structured program. Silberman (1974) suggested that students participating in a school supervised work education program achieve greater satisfaction because of the meaningfulness attached to a job which is closely related to their career goals.

Career Development Competencies

Two outcome criteria are listed in this category: occupational knowledge and satisfaction with the school program. Occupational knowledge can be defined as an individuals general knowledge of the skills, requirements, duties, and responsibilities in a variety of vocational areas. This is an important category in many states. For example, one of the explicit goals of secondary vocational education in Minnesota is the exploration of occupations with the

intention of providing the student with information needed to make realistic career goals, (Minnesota Rules and Regulations, Department of Education SMCAR 1.000811). Edin (1979) in a study of 155 teachers in 19 secondary vocational centers in Minnesota asked them to rate three goals in terms of importance: occupational exploration, preparation for further training and job placement. Sixty six percent rated occupational exploration as the most important goal.

Notwithstanding, the obvious importance attached to the goal of occupational exploration, this review found only one study which attempted to measure CVE programs for effectiveness on this variable. Lewis (1976) et al. gave a short test consisting of 17 items to current CVE students. Each item included a job title and three job descriptions, one of which was a match for the job title. When students holding school supervised jobs were compared with students holding non-supervised part-time jobs and students not working, they found that male job holders scored significantly higher than non job holders. However, the difference in scores, approximately one percentage point is probably of no practical significance.

Examining students' satisfaction with their school programs was a particularly popular effort for CVE researchers. Six studies used this criteria as an outcome measure and all indicated a consistently high level of satisfaction on the part of students enrolled in CVE programs. Johnson (1981) and Welch (1980) both noted a very high level of program satisfaction on the part of CVE students, while Hernstadt et al. (1979), Lewis et al. (1976), Slick and Welch (1974), and Frankel (1973) each concluded that students in CVE programs were more satisfied with their school programs than were students in a variety of other comparison groups, including work study programs, regular vocational education programs and general education curriculums.

Summary

In looking across the studies reporting on the job satisfaction of CVE students versus those in other programs, there appears to be no strong evidence that CVE students are any more satisfied with their jobs than are other students. In the development of affective work competencies, the evidence was mixed. One study reported a negative effect for CVE students; one a primarily positive effect based on self-reports; and others found no difference in either self-esteem or relationship skills between CVE students and students in other programs. Occupational knowledge was a criteria which only one study attempted to measure and this study did not find many practical differences between CVE students and the working students. No research was found that CVE programs result in the development of greater occupational skills, job skills or other kinds of abilities categorized as technical competencies. This finding primarily reflects the lack of attention directed to this area as well as the difficulty of measuring such skills.

The most positive findings for CVE programs was in the area of overall student satisfaction with their school programs. All six studies reviewed found CVE students to be either more satisfied or significantly more satisfied with their program than students in selected comparison groups.

Although personal outcomes are consistently viewed by educators as a primary goal of schooling, it appears that standardized, systematic efforts to measure such outcomes are still only in the development stage. The task remains for educators to develop effective measures of these outcomes.

Equity and Equal Opportunity Outcomes

The philosophical arguments over what equity and equal opportunity mean would extend well beyond the scope of this review. The fact that the defini-

tional problems seem to be far from settled (Burbules, Lord and Sherman 1982) presents a dilemma for educators since evaluating the results of the services provided for special populations is an outcome specified in the Federal regulations for evaluation. The five criteria in this category are: (1) services to women, (2) services to members of minority groups, (3) services to handicapped persons, (4) services to disabled persons and (5) services to persons of limited English speaking ability.

Hendrickson (1981) noted that less attention has been given to evaluating these requirements than for any other federal requirement. The NIE report (1981) stated that some of the reason for this may be do to inadequate program resources as well as inadequate Federal guidelines provided for program deliverers. The NIE (1981) report noted that for a state to evaluate services to special needs populations in terms of planning and operational processes as well as availability of services and access to programs would call for a "battery of sophisticated and costly evaluations" (page IV-XXI).

There are others who see a different reason for the low emphasis on evaluating services to special populations. Barton and Frazier (1980) stated that schools tend to encourage destructive societal stereotyping through restrictive course offerings, curriculum materials, and biases on the part of teachers, counselors, and administrators. They noted that vocational school programs in particular have tended to restrict the role of women in the labor market.

Reubens (1974) echoes Barton and Frazer (1980) in her statement that " A significant aspect of vocational courses is their sex role stereotyping and particularly, the relegation of girls to the occupations that lead to less favorable labor market outcomes or have no connection to work at all" (p. 301). McClure (1979) stated that "Vocational schools prepare minorites and women for their place in the economic and social order" (p. 284). McClure (1979) implied

that this is as true today as it was in the last century.

The project on National Vocational Education Resources of the National Institute at Berkeley conducted a random survey of 1,200 local agencies providing vocational education in ten states during 1980 to 1981. Benson (1982) compared the percentage of districts hiring or reassigning staff to promote sex equity between the years 1978 to 1980. Only five percent of the secondary district programs as compared to 20 percent of the postsecondary districts reported hiring or reassigning staff to promote sex equity.

Benson (1982) also used this data to compare the percentages of secondary and post-secondary agencies incurring excess costs for handicapped and disadvantaged students. In five service areas, the percentage of agencies incurring special costs at the secondary level ranged from four to 23 percent while at the post-secondary level, the range was 20 to 42 percent. Hamilton (1979) reported that 60 percent of the handicapped people between the ages of 16 and 64 do not finish high school and that few are acquiring the skills and training necessary to prepare them for employment. The research suggests that vocational education may be ignoring the intent of the Federal equity requirements.

Another explanation for the low priority assigned to equity issues stems from the conflicting goals which confront CVE and vocational education programs. Lecht (1974) suggested that economic and efficiency criteria can sometimes conflict with equity concerns. He noted somewhat facetiously that if effectiveness and efficiency are to be the primary goals for vocational education than it would make sense to invest resources in the most capable people and to ignore the special needs population. Numez and Russell (1982) in their survey of manufacturers found that they assigned a low priority to establishing special opportunities for minorities and for providing nontraditional occupational

training by sex. Somewhat paradoxicly the NIE (1981) report showed that while most State vocational education directors support the federal evaluation requirements for special needs population, only one State favored using "serving special needs" as an indicator of program quality.

Looking more specifically at research concerned with CVE programs, Walsh and Breglio's (1976) study on urban CVE programs indicated that since 1968 there has been a substantial increase in the number of programs for disadvantaged and special needs students. Nevertheless, with respect to outcomes for minorities, they found that the range of occupations was narrower for minorities than non-minorities and that high school minorities were slightly less satisfied with their cooperative experience than their non-minority counterparts. Considering the outcomes for women, Walsh and Breglio (1978) found that they were lower than for men. Women had a more restricted occupational range and when they entered the labor market, their wages were significantly lower than the wages that men received "even when both had been trained in the same occupational area" (p. 35).

Molnar et al. (1973) found that on the average, CVE programs handled proportionally more disadvantaged students than noncooperative programs in the junior year, but that there was no difference in the senior years for proportion of disadvantaged students served by programs. The percentage of handicapped students in all programs, cooperative as well as non-cooperative was low. Also, there was no difference found by type of training. They noted that more CVE graduates were females. Non-cooperative graduates tended to be male and the percentage of graduates who were non-white was greater for cooperative programs than for non-cooperative programs.

Lloyd (1981) used a panel of experts to select five states for a study of quality indicators for CVE programs. State directors in these five states recommended 80 high schools of which 67 were included in the study. One hundred

thirty-four CVE students, 126 training sponsors and 75 teacher coordinators responded to questionnaires and survey instruments. Lloyd found that 73 percent of the teachers had special programs for special needs students including handicapped and disadvantaged students. Forty-nine percent had programs for high school dropouts. The percentage of disadvantaged students enrolled in the CVE programs ranged from a low of four percent to a high of 16 percent within the five states. The mean for all five states was eight percent. The percentage of handicapped students served ranged from six tenths of a percent to three percent with a mean of one percent. A rather surprising finding was that 14 of the 75 teacher coordinators dealt with all of the handicapped students. With respect to sex equity, Lloyd found that the majority of males and females were primarily enrolled in the traditional male and female occupations. Ethnic groups appeared to be adequately represented in the study group; however, some confusion with respect to the number of responses on this issue rendered the findings suspect.

Summary

Although there has been some significant gains made in services to women and minorities over the last decade; the evidence suggests that the work to establish an equitable distribution of services and opportunities to women, disadvantaged, minorities and special needs students is far from completed. More troubling is the fact that the evidence shows a mixed commitment to the goals of equity in education.

CVE programs by definition are dependent upon local employers for jobs and training stations. Perhaps because of this fact they appear to reflect the current equity status of the world of work.

Conclusion

A number of outcome measures were examined which have been used by those assessing vocational education programs. These measures are assumed to reflect what are both implicit and explicit goals for vocational education and CVE programs. None of the theoretical frameworks reviewed provided a system wherein goals, criteria and outcome measures were easily distinguished and conceptually distinct.

The literature reviewed suggested the two major limitations of criterion outcome measures stemmed from: 1) philosophical differences concerning the goals of vocational education and 2) measurement problems within a dynamic social system. A major philosophical issue contributing to some of the goal conflict in vocational education derives from the lack of a concensus concerning the purpose of vocational education in the public secondary school system.

This latter issue highlights the need for careful and continuing examination of the goals established for vocational education programs. Without a concensus on goals, decisions cannot be effectively made regarding the allocation of limited program resources and manpower, nor can appropriate program outcomes be selected and evaluated.

The outcomes reviewed derive from a social system which includes a shared culture, cultural values, roles, role expectations, and institutions or groups wherein members conform to shared standards of behavior (Moss, Smith, Copa, 1972). Every society is an organized network of smaller groups. The culture of each group providing a way of life shared by its members. Groups and institutions connote roles (some assigned and some voluntary) in which members are expected to behave in prescribed ways. These group expectations induce a set of standardized behaviors which denote "expected roles". Both groups and individuals share an expectation of derived benefits from this organized

collaboration (Moss, Smith, Copa, 1972).

Benefits are assessed by measuring outcomes which should reflect the perceived goals and mission of each group. In a socio-educational nexus, goals and outcomes, are intertwined so that outcomes are not always distinguishable from goals. Outcomes may be categorized within a schema which portrays various aspects of the individuals role as impacted by the demands of influence groups or stakeholders in the larger social structure. In our CVE model these include, the individual, the family, the school, the employer and the immediate community. The individual is normally viewed as the hub of each of these subsystems. Figure 3 illustrates these relationships.

The Figure 3 social system model suggests that five sets of goals can be derived from an analysis of the role expectations implicit in the individual's performance within each of the constituent groups in the framework. Thus, there would be a set of goals for the individual within a school context, within a work context, within a family context, within a community content and a more general set of goals deriving from the individuals perspective of him/herself. In general, one would expect that outcome criteria or benefit indicators could be developed which would adequately measure the extent of goal attainment.

In the review of literature, the outcomes found corresponded to the expected roles and behaviors prescribed for the individual in the context of the CVE program.

Figure 4 presents the outcomes reviewed, abstracted and organized by beneficiary categories. The argument can be made that all of society benefits from the education of the individual, and that several outcomes cut across certain classifications. However, it is maintained that outcomes can be viewed as primary (direct) and secondary (indirect) benefits. The effort in Figure 4 was to categorize items by assigning outcomes to the primary beneficiary groups reflected in the literature reviewed.

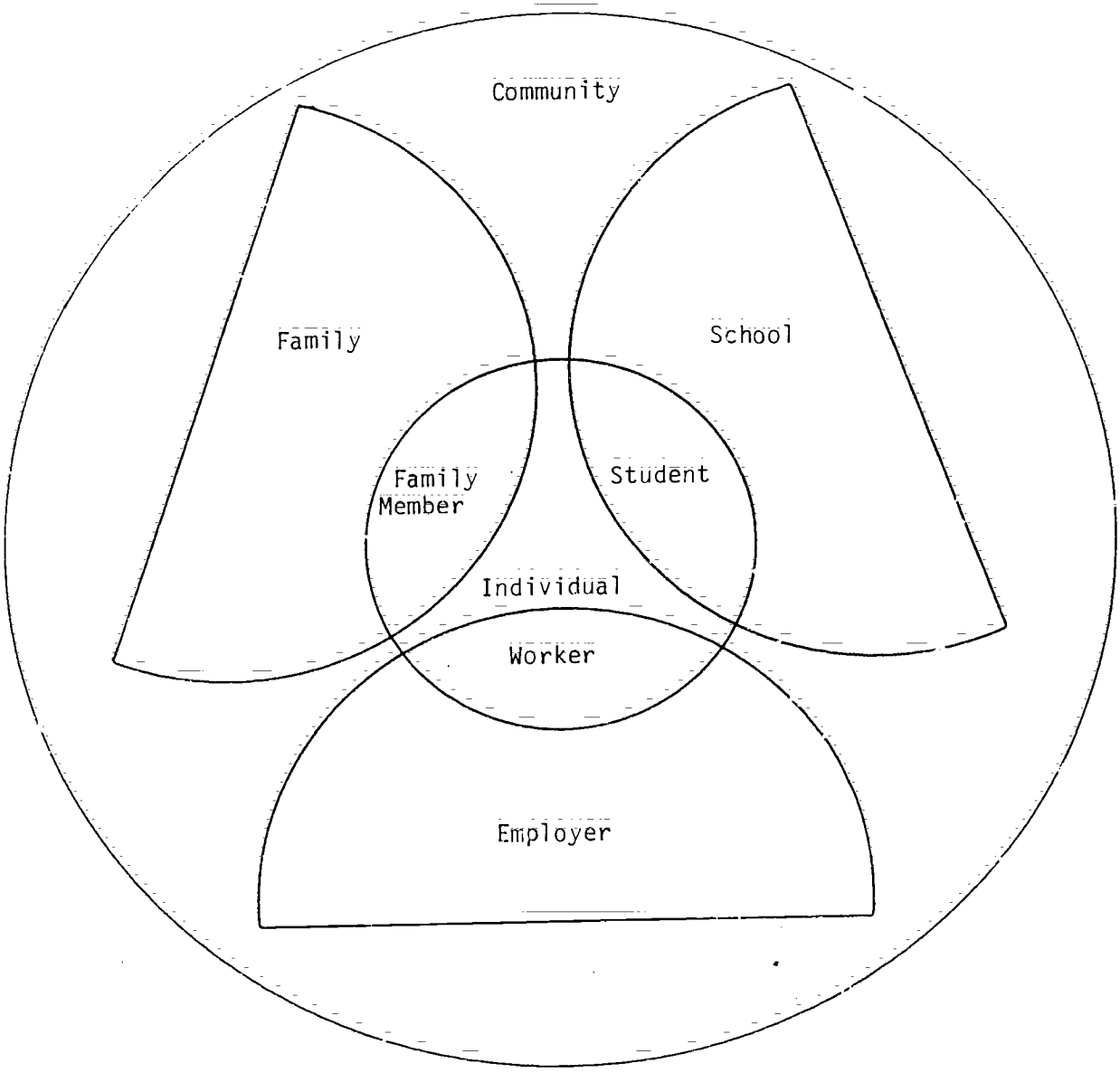

Figure 3. CVE Social System Model.

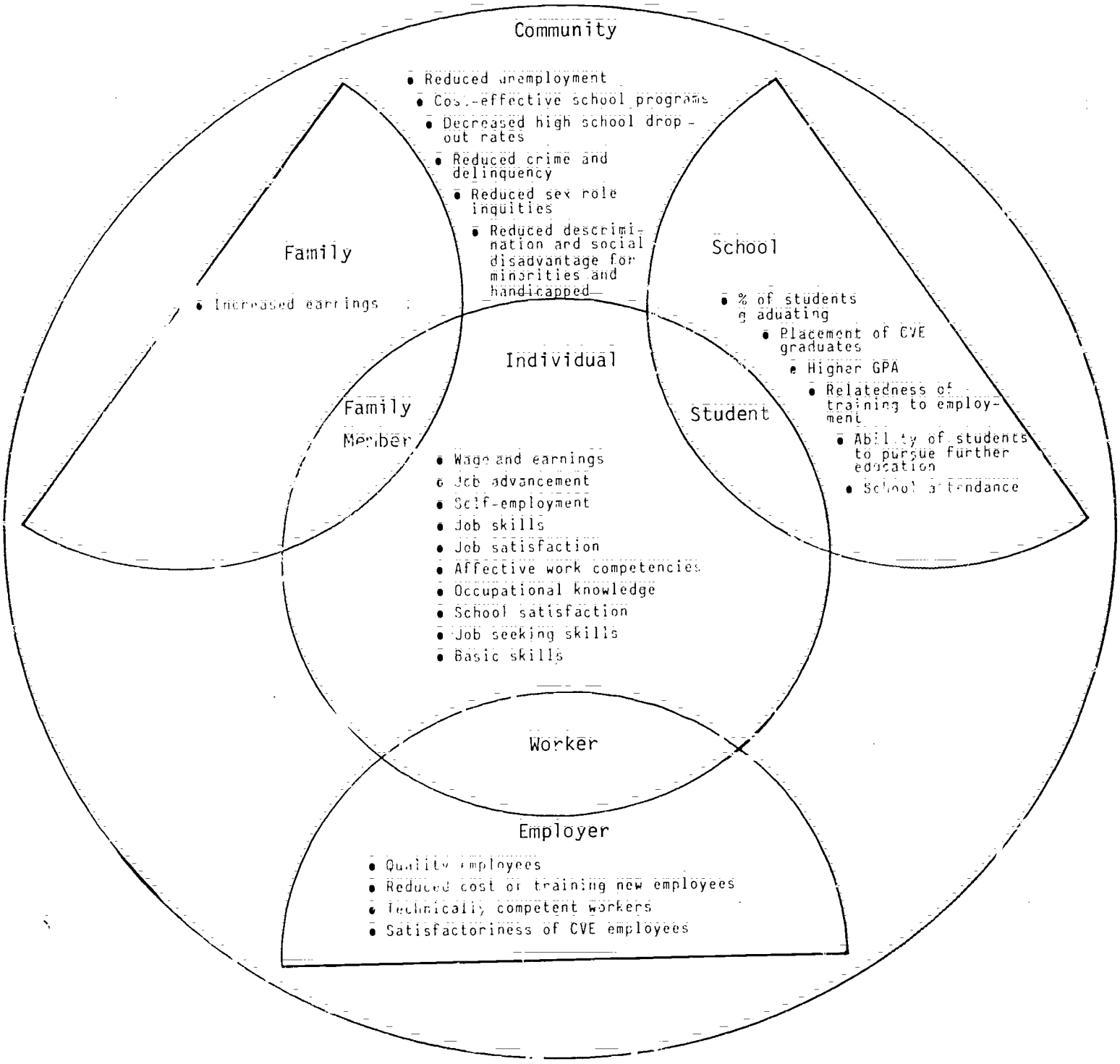

Figure 4. CVE Social System Model with Benefits.

Figure 4 reflects outcomes which have been studied. It does not endorse values assigned to outcomes, although it is hoped that outcomes with a higher social priority are indeed those that are being studied. The lack of studies addressing outcomes pertaining to family benefits and conversely to the families impact on the CVE program may be an issue that has to be addressed.

If local goals for CVE programs in secondary school are to be established, it is important that local community value priorities underlying these goals be examined. This should be done in concert with an examination of the values priorities underlying the goals set for CVE programs by both Federal and State legislation.

CHAPTER IV.
INPUTS AND PROCESSES

This section of the review examines research literature pertaining to the inputs and process components of the CVE model proposed. The literature was reviewed to find those program characteristics which had some empirical basis for being considered as an indicator of program success. Such indicators should have the ability to distinguish a good CVE program from a fair CVE program. The characteristics referred to in this section as quality indicators are divided into the following categories: school components, job components, and coordination activities.

Referring again to our revised model of vocational education (Figure 2), the school components and employment component consist of both inputs and processes. School inputs includes such items as students, staff, textbooks, classrooms, materials, payroll, budget, and any other resources which in themselves could not be construed as a process. Similarly employment inputs denote the job site, supervisors, equipment, payroll and all other resources used in the training of the student.

School processes consists of any systematic series of actions directed towards the attainment of one or more program goals. A number of these outcomes were described in the previous section. These activities could be placed in a heirarchy, from the most important to the least important. One of the problems with this heirarchy would be that often a higher rated process could not be implemented were it not for the presence of a lower rated process. For this reason no such scaling was attempted, although it seems reasonable to assume that some processes are more important than others.

Employment processes includes training activities, work activities and supervisory activities. The major difference between employment processes and

school processes is that the primary focus of the school processes is the individual while in the employment process the individual is secondary to the goals of productivity and profitability. The school exists to serve the individual while the worker exists to serve the company. This is a consideration that many individuals who are not in the private sector ignore.

The coordination between the school component and the employment component takes place through a series of formal and informal activities. Some of these activities include visits between the coordinator and employer, employer input via advisory councils into the curriculum and joint evaluations of both students and programs.

Several caveats should be mentioned regarding the indicators in this review. First, the list that was compiled is by no means exhaustive. Second, the justification for an indicator's inclusion is based on research findings which differed considerably in scope and quality. Third, the research does not enable us to determine which are the critical indicators and which are essential but not critical. In theory, this could be accomplished if a common measure of significance existed which would permit weighing the value of one indicator against another.

Finally, considerable latitude was taken in restating some of the characteristics used as quality indicators in this study. Whenever it seemed apparent that two or more characteristics were similar in nature or were describing similar processes, they were combined. Most characteristics are not phrased exactly as in their original study. It is hoped that the descriptions are not so broad that the essence of the original characteristic is lost. Since there was no body of literature defining key quality indicators, the researchers had to judge which indicators merited special consideration due to their ability to positively influence program outcomes.

This portion of the review is characterized by two important features. First, each of the studies reviewed attempted to make an association between a program input or process and some objective measure of program success, i.e., a program outcome. Second, the literature considered included studies drawn from research on youth employment and training programs, youth work experience programs, experiential education programs and CVE programs. Since the outcomes of these programs are similar, it was reasoned that factors which distinguished good programs would be generalizeable across program areas. This is an assumption which may be challenged.

School Components

This section of the inputs and processes includes the many diverse elements of the educational process itself (see Table 1). A great deal of CVE research has been directed at examining the impact of these elements on student goals and motivation. Given the American educational philosophy, it is usually the school which receives the credit when these goals are met and the blame when they are not. This situation exists despite the fact that the school is but a partner in the educational process and in a CVE program, industry and the economy are additional partners. Nevertheless, it seems likely that the school will continue to carry the major share of responsibility for the success or failure of such programs as CVE.

Students

The basic criteria for enrolling students in CVE programs has been that they are motivated and can benefit from the program. Many schools, however, place a grade level and age (Lloyd, 1976) requirement on entry into the CVE program. With respect to "motivation" (a rather difficult quality to measure), it appears that many coordinators attempt to control this by working closely

Table 1

QUALITY INDICATORS FOR A COOPERATIVE VOCATIONAL EDUCATION PROGRAM: SCHOOL COMPONENTS

Students

1. Programs should be balanced in enrollment with respect to age, sex, race, and socio-economic status.
*2. Students selected for the program should be highly motivated.

Administration

3. The administration is responsive to the needs of the program, individuals and businesses connected with the program.
4. The administration takes responsibility for program placement.

Staff

5. School staff should resemble racial balance of the community.
6. Teacher-coordinator is provided with extended time when and if needed.
7. Teacher-coordinator teaches the related class.
8. Flexible salary scales for vocational education teachers.
9. Appropriate coordinator and student ratio and coordinator work load.
10. All staff have valid teaching licenses in their specific vocational area.
11. Each staff member meets the vocational education work experience requirements of the state.
12. The coordinator is implementing the goals of the total educational program.
13. Staff members obtain help from other teachers in recruiting and selecting students.
14. Coordinator has a rapport with youth.

Facilities

15. A private area exists for the coordinator to counsel with students.
16. Adequate space, equipment and instructional materials are provided for the coordinator to carry out their responsibilities
17. Transportation to jobs is available.
18. The cooperative staff has adequate control of facility and equipment utilization.

Instruction and Training Materials

19. Class schedules allow students flexibility to participate in directed work experience.
20. Reading level of materials matches student's reading level.
21. Competencies, objectives and number of hours of instruction are appropriate for the learning of the specific occupations.
22. Instruction and training materials are current and meet prevailing business needs.
23. Students are provided with meaningful laboratory and project experiences which allow them to apply knowledge and skills learned in the classroom.
24. Competencies exist to insure acquisition of basic education skills.

Table 1 (continued)

Instruction and Training Materials (continued)

25. Instruction and training in affective work competencies is available.
26. Instruction and training in career exploration and decision making is available.
27. Student youth organizations are available and utilized.

Special Programs

28. Counseling services are available.
29. Job placement serv[illegible] are available.

Program Planning and Evaluation

30. A comprehensive training plan is used to direct the achievement of learning experiences and to determine learning performance.
31. Students are kept informed of their skills and knowledge achievement via a comprehensive training plan directed by the cooperative coordinator.

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*Indicates an item where there is some disagreement in the literature

with school counselors or other teachers who will refer "motivated" students for CVE enrollments (Lloyd, 1976).

A few researchers suggested that there should be stricter entry requirements for CVE students. McKinney et al. (1981) suggested that student admission to CVE programs be restricted to students with interest and potential -- the traditional vocational education legislation positions. Mangum and Garth (1978) advocated restricting the numbers of "unmotivated youth" placed in work experienced programs.

Taking a stand quite opposed to stricter program entry requirements, (Frankel, 197[illegible]) condemned CVE programs for their use of "proper student attitude" as a selection criteria. Frankel (1973) concluded that program coordinators should not exclude students on the basis of attitudes (since these are often discriminatory) and that guidelines should be established for CVE programs with respect to their exclusion of students for either behavioral or attitudinal reasons.

The issue of whether or not there should be special entrance qualifications for CVE programs reflects a basic difference in educational philosophy regarding both the role of a CVE program as well as its potential ability to deal with a heterogeneous population.

Administration

Several studies emphasized the need for the school administration to be responsible for the overall needs of the CVE program. Benson (1982) stated that "The second factor which determines quality in vocational education is administrative leadership" (p. 20). He implied that vocational education has often been placed in the role of the ugly stepchild by principals who have had little interest or background in the trades or private business. Lloyd (1976) found that 90 percent of the teachers in his study believed that a positive relationship with the school administration was vital to coordinating a successful CVE program.

Wubbena's (1980) findings also indicated the need for an administration which can assume a supportive role in the operation of a CVE program. Wubbena (1980) conducted an investigation on the perceived importance of 288 selected program characteristics. The population of his study consisted of all secondary distributive education teachers within the central region (13 states). From this population, a random sample of 450 teachers was selected. To avoid any possibility of bias, these 450 teachers were further divided into 6 subgroups. Three groups were used to rate the importance of each item, while the other three groups completed a fulfillment rating for each item. The response rate was approximately 57 percent for the mail questionnaire. The respondents were asked to select from 6 statements regarding the perceived importance of an item. These statements ranged from very high importance to no importance.

The study selected as high importance items, all those which had been rated

either very high or high. Fifty-seven of the items met this criteria and were identified as important elements for an effective CVE program.

Two of the items which supported the involvement of the administration in the operation of a CVE program were:

- The administrative structure is flexible enough to serve the diversified needs of individuals and distributive businesses.
- The administration is responsive to serving the diversified needs of individuals and of distributive businesses. (p. 156)

The issue of administrative responsibility for job placement was also raised by the McKinney et al. (1981) study of the factors related to the job placement of former secondary education students in training related jobs. They found that high placement existed in schools where administrators, principals, counselors and teachers viewed placement in employment related training as the primary purpose of the vocational education program and where principals in particular were committed to the placement of former vocational education students in jobs related to their training. High placement sites were also characterized by the responsibility for job placement being spread among many school personnel.

Staff

Indicators for a quality staff include the personal characteristics of the CVE coordinators as well as external conditions which may impact on the coordinator's work role. Such conditions include: staff time, salaries, work load, experience, accreditation and equity. Of these conditions, the issue of salary for CVE coordinators was often overlooked. In the 288 items listed by Wubbena (1980) not one concerned salaries for CVE coordinators.

Benson (1982) stated that the principles of tenure and equal pay "make it virtually impossible for comprehensive high schools to keep their vocational

programs up to date and competently staffed" (p. 55). Benson (1982) lists the ability to respond to local labor market conditions as an important attribute of a quality program. Since vocational salaries are highly effected by prevailing industry wages, the characteristics of flexible salary scales has been included as a quality indicator despite the fact that no empirical evidence exists to support its value in a CVE program.

McKinney et al. (1981) also addressed the issue of equity as an indicator of quality programs. He found that higher job placement existed at sites where the school staff had a racial balance similar to the community served. This criteria was stated as an "impression" derived from his integrating both the qualitative and quantitative data. Wubbena's (1980) study included several statements pertaining to the issue of equity as it applied to program characteristics, but none of these were rated as high importance items.

The issue of staff time as a quality indicator was raised by several studies. Both Wubbena (1981) and Lloyd (1981) found that CVE coordinators need a considerable amount of extra time to devote to coordinating the overall activites of the programs as well as to teach the related instructional class. Additionally, Wubbena (1981) and Lloyd (1981) stressed the importance of an appropriate coordinator to student ratio. Lloyd (1981) found that 34 of 75 CVE coordinators rated student-teacher ratio as a primary reason for program success, while 37 out of 75 rated sufficient time for coordination as a primary reason for program success. In terms of program components needing improvement, Lloyd's (1981) study ranked teachers needing more coordinating time as the second most important item.

The need for staff licensure, experience, and accreditation are also supported by the literature as essential elements of a quality CVE program. Wubbena's (1981) respondents considered the need for the CVE coordinator to have a valid teaching

certificate in distributive education as a high importance item, while Lloyd (1981) stated that a CVE coordinator should be certified in at least one vocational area as defined by the United States Department of Education. Johnson (1981) found that certified, qualified staff were one of the five categories of program qualities which were significantly related to positive program outcomes. Qualified staff included teachers who had more work experience, were more involved in professional organizations, and frequently attended inservice meetings.

Facilities

Several of the items in this category appear to be self-evident, in particular the need for space, equipment and materials. Wubbena (1981) was very explicit on this issue and goes so far as to specify that a telephone be available in the CVE coordinator's office, as well as that a private area exist where the coordinator can council with students. Johnson (1981) also cited the need for adequate facilities and equipment in a quality program.

The need for adequate transportation was addressed by both McKinney et al. (1981) and Walsh and Breglio (1976). McKinney et al. (1981) cited it as a significant barrier to high placement while Walsh and Breglio (1976) note that in several cities the inadequacy of public transportation coupled with the distance students were expected to drive to work stations limited the enrollment in CVE programs to those students who had the luxury or use of a private automobile.

Instruction And Training Materials

Harris (1971) surveyed employers and teacher coordinators working with distributive education programs in a five state area. Four hundred and ninety six (72%) of the teacher coordinators and 544 (50.1%) of the employers responded. One of the major objectives was to determine how important certain program procedures and operations were to the success of a cooperative plan distributive education program.

Employers and coordinators were asked to rate the importance of nine selected items on a three point scale including: very important, important, and unimportant. All nine items were rated as very important or important. Of the 9 items, "training materials for the student to study in school which are related to his training station experience" received the second highest ranking while "the need for the classroom instruction to be related to the work experience of the student" received the highest rating.

The importance of training related instruction is evident in the research literature. Benson (1982) cited comprehensiveness and depth of instruction as one of the three m factors of a quality program. McKinney et al. (1981) found that high placement existed where vocational education curriculum was oriented to the needs of local employers. Cushman et al. (1968) noted the need to coordinate "the content and sequence of instruction with job requirements" (p. 36). Johnson (1981) found that a realistic, competency based curriculum was one of five program characteristics which had a significant impact on program outcomes. Wubbena (1981) reported the need to have related laboratory and project experiences. He also identified the need for the reading level of training materials to match the students reading level. Lloyd (1981) adds to this list the need for programs to develop students' basic educational skills as well as vocational skills. Lloyd (1981) found that 64 percent of the training sponsors surveyed thought that the intellectual level of the students in their programs needed improvement.

Affective work competences. A substantial amount of research indicated a need for instruction and training in developing affective work competencies (Beach and Kazanas, 1981) and that such competencies must address the behavioral, cognitive and attitudinal needs of students. In practice, this translates into a need to build employability skills, good work attitudes, appropriate work

behaviors, job seeking skills and job coping skills in students.

Mangum and Walsh (1980) in their list of "do's and don'ts" for work experience programs stated that programs must include the following skills: "working with others, controlling impulses, processing and interpreting information, communicating, problem solving, and working with an authority structure" (pg. 74). Lloyd (1981) noted that the CVE coordinators who taught the related class placed a high priority on teaching communications skills, attitudes and employer/employee relationships. This emphasis seems well placed since training sponsors most frequently stated that the reason they selected certain students was their "strong impressions about the students skills in the area of human relations and the ability to communicate" (Lloyd, 1981, p. 128). Lloyd (1981) ranked attitudes, employer/employee relationships and communications skills as the three most important items of instruction for the CVE related class.

Harris (1 , stated that instruction should be designed so that students develop the following competencies at a higher level than presently possessed: "following directions, working with peo and acceptance and adherance to company policies and procedures" (p. 35). McKinney et al. (1981) found that sites with high placement rates provided students with training in job readiness skills.

Career exploration. Wubbena's (1981) list of essential items for a CVE quality program included both instruction in human relations and occupational adjustment. One of Cushman's et al. (1968) high priority items for CVE programs was the ability of the program to help clarify a student's occupational choice. Mangum and Walsh (1980) emphasized the need to allow youth to sample a variety of occupational areas and stated that special classes should be coordinated for the purpose of enhancing career exploration.

Youth organizations. McKinney et al. (1981) noted that where there is high

level of placement, there is also a high level of student participation in youth organizations. In Benson's (1981) study, 50 state directors of vocational education identified student organizations as a dimension of program quality; however, he did not find a significant association between this criteria and program outcomes. Lloyd (1981) found that an active student vocational organization was one of the primary reasons for CVE program success and recommended that an ideal CVE program include a strong vocational student organization.

Special Programs

Several of the studies reported a need for quality activities to support the objectives of a CVE program. Mangum and Walsh (1980) stated,

> ...the experience of the past seems to indicate that the mere provision of jobs to youth, without program enrichment, is not effective in reducing school drop-outs, encouraging youth to return to school, or in improving the employability of youth. (p. 72)

Following are some of the findings with respect to two different services which have been included in CVE programs.

Counseling. Johnson (1981) found that counseling services had a significant impact on program outcomes. This finding is supported by the work of Mangum and Walsh (1980), Benson (1982), and Lloyd (1981) and Walsh and Breglio (1976). Mangum and Walsh (1980) noted some negative findings on the value of counseling in a supported work experience program, but concluded that it would be inadvisable to either curtail or expand existing counseling services on the basis of the present research.

The CVE coordinators in Lloyd's (1981) study listed the need for more counseling support as the number one problem which must be addressed in order to improve their CVE programs. Benson (1982) noted that the role of the counselor is an especially important one in vocational programs, since he/she can advise students about skill and job requirements as well as help establish a strong link with local industry. Walsh and Breglio (1976) found that 47 percent of the

students who had discussed CVE with a counselor (62 percent of the participants indicated they had talked with a counselor) thought that it was either very helpful or somewhat helpful. The opinion of CVE coordinators toward their schools counseling services was less favorable.

Placement services. Johnson (1981) found that placement was another of the five major characteristics which had a positive impact on program outcomes. Mangum and Walsh (1980) encouraged building in or at least using outside placement services for students, and Lloyd (1981) recommended that each high school provide a placement service for students seeking full-time employment after graduation.

On the negative side McKinney et al. (1981) found that more low placement sites had at least one designated job placement officer than did high placement sites. At the high placement sites teachers were included in placement activities and the placement office provided the coordination for such activities. They concluded that although responsibility for job placement is important, it must be shared.

Program Evaluations

An important issue in education today is the concern for evaluation and feedback. The literature clearly indicates the need for students in a CVE program to be evaluated and kept informed of their program achievements through some type of formal training plan and evaluation instrument.

Lloyd (1981) found that 96 percent of the teacher coordinators in his study used training agreements while 82 percent used training plans. Harris (1971) noted that both coordinators and employers ranked the need for a training plan and training agreement as either very important or desirable for a program. Between the two groups there was a difference in terms of perceived importance. Coordinators judged the training agreement as more important than a training plan, while employers rated the training plan higher than the training agreement.

Cushman et al. (1968) found that teacher coordinators ranked the "systematic evaluation of program progress and development solicated principally from students and employers" (p. 35) as a high priority item. Students ranked program evaluation and feedback as an intermediate priority item but rated the need to discuss and resolve training related problems in the classroom as a high priority item. Employers ranked the need for some kind of agreement establishing their responsibility as a high priority item.

Despite the general belief that program evaluation and feedback is an important characteristic of a quality program, Lloyd (1981) noted that "Teacher coordinators do not, in general, share with students the written measurable objectives that they have developed for their CVE programs" (p. 141).

Summary

A total of 31 school component items were selected from the literature because they have been identified as quality indicators (Table 1). They are a composite of both inputs and processes which seem to be important in the overall operation of a successful CVE program. These items were divided into seven subcategories considered inclusive of the components functionally administered by the school itself. These include: students, staff, administration, facilities, instruction and training materials, special programs and program planning and evaluation.

Many of the items listed are problematic in that they lack precise operational definition. For example, several studies indicated that the CVE coordinator should have a rapport with youth. This item would seem to have at least high face validity but very low construct validity. In few cases is "rapport" given a precise definition. This problem is shared to several other indicators.

Another problem with this list is the specification and range of "quality" that could presumably be found in several of the items. For instance, for place-

ment services have been found by at least one study to result in high placement: a major goal of most CVE program. However, this information does not permit determining whether or not any job placement service is better than none or whether there is an important element of quality that must be present in the service. If this quality must exist, then it is important to determine precisely what distinguishes a quality placement service from a poor placement service.

At some point the assessment of quality can be so reductionistic that it is overly time consuming and costly. A very practical decision must be made regarding the trade off between feasibility and validity and between pragmatism and idealism. It is easy to lose sight of the fact that the ultimate criteria is a student who is adequately prepared to enter the work world and that resources directed to this end may have to be allocated despite a lack of conclusive evidence establishing a causal relationship between a program and its goals. This is particularly true when the law of diminishing returns suggests the cost of "conclusive evidence" is prohibitive.

Job Comp[illegible]

An important dimension of a quality CVE program includes those characteristics related to the training site (see Table 2). The literature specifies certain characteristics which a good training site must possess in order to be conducive to student growth and development. These elements reportedly can either be developed through appropriate coordination between the school and participating business or else through careful selection and screening of potential training sites. The indicators of a quality worksite have been categorized into four areas: structural characteristics of a work site, job characteristics, interpersonal relationsh[illegible] and supervision

Table 2

QUALITY INDICATORS FOR COOPERATIVE VOCATIONAL EDUCATION PROGRAM: JOB COMPONENTS

	Structural Characteristics of the Worksite
1.	Employers are in compliance with Federal, state and local laws.
2.	Job sites located in the private sector and with small companies are preferrable.
	Job Characteristics
3.	Job content should be meaningful.
4.	Job should be challenging enough for the students ability level.
5.	Jobs should be related to students course of study.
6.	Duration of work experience should be long enough for the students to perform a variety of meaningful tasks.
7.	Job activities should foster responsibility.
8.	Students should be offered the opportunity to explore the work site.
9.	Students should indicate satisfaction with their job.
10.	Jobs should provide an adequate amount of work to keep students busy.
	Supervision
11.	Adult encouragement is offered for [illegible] done at the work site.
12.	Early and thorough orientation of [illegible] to job duties and responsibilities by the employer.
13.	Adequate feedback related to job per[illegible]ce.
14.	Adequate supervision should be provide[illegible] at the work site.
	Interpersonal Relationships
15.	Appropriate adult role models at the work site.
16.	Good social relationship between trainee and fellow workers.

Structural Characteristics of the Work Site

Wubbena (1981) stated that employer compliance with Federal, State and local labor laws is a major indicator of a quali[illegible]rogram. His conclusion is supported by the often noted comment that CVE programs should pay minimum wage and provide equitable remuneration for services rendered by student workers to an employer (Cushman et al. 1968).

Several studies reported that commercial sites were preferable to public

sites and that small [illegible] preferable to large sites. Harris (1971) noted that 39 percent of [illegible] coordinators believed that firms employing between two and ten workers provided the best training sites. This belief was reported more frequently by rural coordinators than by urban coordinators. McKinney et al. (1981) found that post-high school job placement rates were positively correlated with sites having more smaller industries and fewer large industries. He noted that this could be due to the fact that, for one or more reasons, vocational education is not serving large industry.

Cushman et al. (1968) found that teacher coordinators rated as a high priority item placing students in a "commercial out-of-school setting" as opposed to public service settings. Ball and Gerould (1980) noted that in an analysis of 520 work sites, the very large work sites (more than 25 youth employed) tended to be of substantially lower quality than the smaller work sites (4 or less youth employed). In addition, the youth who worked in the private sector perceived more value in their work than youth working at nonprofit agencies.

Job Characteristics

Owens and Owen (1981) conducted a study of 1103 high school students enrolled in 18 Experienced Based Career Education (EBCE) Programs in 16 states. EBCE is a program designed to integrate individual learning experiences in the school and in the community. Two of the key questions asked were: what happens at specific work sites which enhance or detract from student learning and what job site characteristics do youth believe make an excellent learning experience? Respondents were asked to indicate the degree to which various work site factors contributed to an excellent or poor learning experience. The results indicated that four out of the five items most associated with a good learning site had to do with specific characteristics of the job. These were

stated in order of importance: hands on activities, i.e., being able to try out the work itself, being given challenging tasks to perform, having adult responsibility and the content of learning was job specific.

Conrad and Hedin (1981) found that students felt a good work site included challenging tasks, the opportunity to do things themselves, instead of merely observing, a variety of work, responsibility, the freedom to explore personal interests and ideas, and the feeling that one made some important decisions which could contribute to the companies goals. Silberman (1974) in his study of students in work education programs found that "meaningfulness of the work role" was one of the important contributing factors to job satisfaction. Mangum and Walsh (1980) emphasized that work training programs should not place students in jobs which required little supervision or made few demands on them.

Employers in the Cushman et al. (1968) study rated as high priority that students be involved in tasks which would develop useful occupational skills and that the duration of the work experience be long enough to give students the opportunity to perform a variety of job tasks. Teacher coordinators rated students having a "real job experience closely related to the students course of study" (p. 35) as a high priority item, while students rated being prepared for a particular job as a high priority item.

McKinney et al. (1981) noted that one characteristic of high placement sites was that the vocational education programs placed students in jobs which were related to their training programs. In the Harris (1971) study, the need for classroom training to have a relationship to the student's job was ranked number one in a list of major important program variables by teachers, coordinators and employers. Walsh and Breglio (1976) found that strong relationships existed between the criteria of success and the highly rated integration of classwork and on-the-job training.

The Youth Incentive Entitlement Project was established under the Youth Act of 1976 (Public Law 95-93) to provide jobs in 17 communities for disadvantaged 16 to 19 year olds, conditional on their returning to or remaining in school. Each youth enrolled in the project was provided with a part-time school job and full-time summer job. Ball, Gerould and Burstein (1980) studied the project worksites in order to gain a greater understanding of what constitutes a quality worksite. Ball et al. (1980) selected a random sample of 520 work sites which had sponsored youth in the period of September, 1978 through November, 1979. Nineteen experienced assessors collected data on a variety of job characteristics through field visits, where they recorded the perspective of the youth and work sponsors as well as their own perspectives. They analyzed statistically those factors which made the greatest contributions to the ratings recorded by the youth, their supervisors and the assessors. The following job characteristics were first identified through a literature review as indicators of a quality work site:

1. Content of the job (skill level; perceived value of the job; and intrinsic interest in the tasks perform).
2. Extent to which youth were kept busy.
3. Youths' awareness of standards and job duties.
4. Youths' perception of the utility of the work performed (whether or not they felt they made a contribution to the sponsor's mission and if they felt appreciated for their work).
5. Youths' overall satisfaction with their jobs.

Ball et al. (1980) developed indexes for each of these areas based on a composite of subcharacteristics which made up each of the major characteristics (listed above). An analysis of these characteristics indicated that the three major determinents of work site quality (based on assessor ratings)

were (1) whether the youth were [illegible]sy; (2) whether the youth were satisfied with their job and (3) whether the jobs had relatively high job content (p. 71). Determinents based on youth ratings were related to a preference for jobs which had a high skill content, varied and interesting assignments, an ample amount of work to do and the same work standards for youth as for regular employees.

Supervision

Supervision specifically refers to the manner in which the student is advised of his job responsibilities, job progress, and job performance. These processes include a need for feedback; however, feedback is merely one component of supervision.

Owens and Owen (1981) found that adult recognition for the student's work and being given clear directions to follow were major reasons why certain job sites resulted in excellent learning. In Conrad and Hedin's (1981) study, students indicated it was important that they received help when they needed it and that adults did not criticize them or their work. Mangum and Walsh (1980) stated that supervisors should demand good work habits on the job without being overly strict. The study by Walsh and Breglio (1976) found that programs where the training and supervision was highly rated had higher success outcomes in the following categories:

1. Job satisfaction of students.
2. Student school satisfaction.
3. Overall student rating of programs.
4. The likelihood students would recommend program.
5. Attitude towards programs.
6. Attitudes toward jobs. (p. 33)

Silberman (1975) found that feedback was one of the major factors which

contributed to the job satisfaction of work experience students in his study. He noted that CVE coordinators should assign students to sites either where such feedback is available or where the coordinator can assist the employer in developing the skills to provide such feedback. An emphasis on feedback is also shown in the Cushman et al. (1968) study where the teacher coordinators rated as a high priority item the "systematic evaluation of program progress and development solicited principally from students and employers" (p.35). In the Cushman et al. (1968) research, all three respondent groups also rated as a high priority item the need for a thorough orientation of the students to their job duties either very early or even before beginning work experience.

Ball et al. (1980) listed among the 14 major determinants of a quality job site five items which support the need for good supervision, these were: (1) youth understand duties, (2) youth are informed of attendance and performance standards, (3) supervisor and youth interact frequently, (4) participant to supervisory ratio is less than one to five and (5) the assessor judges the quality of youth/supervisor interaction as average or above average. The assessor's judgment was guided by a field instrument which encompassed a number of both general and specific factors. Related to supervisory/youth interaction there were 13 characteristics specified which the assessors took into account in their determinations. These included:

1. Supervisor had experience doing tasks required of youth.
2. Supervisor had experience teaching tasks required of youth.
3. Supervisor staff works in close proximity to youth.
4. Supervisor speaks frequently with youth (general statement).
5. Supervisor speaks with youth about tasks (general statement).
6. Supervisor speaks with youth informally (general statement).
7. Supervisor states he speaks with youth about tasks.

8. Supervisor states he speaks with youth informally.

9. Youth state they speak with supervisor about tasks.

10. Youth state they speak with supervisor informally.

11. Staff usually available to answer youth's questions.

12. Youth feel supervisor helps them do better job.

13. Worksite assessor judges quality of youth-supervisor interaction to be above average. (Ball et al., 1980, p. 38)

Owens and Owen (1981) noted that students with higher grade point averages [illegible] and Hispanic students were less likely to value being closely supervised than were students with [illegible] grade point averages. This illustrates a potential difference between some of the attitudes held by youth. While some students may want to be free to explore, take responsibility and do things on their own, others may place less emphasis on these characteristics and more on a need for closer supervision. Individual differences emphasize the need for careful coordination on the part of the work supervisor.

Interpersonal Relationships

An important element of an individual's job success stems from their ability to get along with their co-workers. This point was emphasized in the literature which explored youth attitudes and work adjustment skills.

Owens and Owen (1981) found that there was a significant difference between excellent and poor learning sites based on the relationship students had with adults at the worksites. Students at the excellent sites rated their relationship with adults as significantly [illegible] than students at the poor sites. Silberman (1975) found that one [illegible] factors contributing most to job satisfaction was the availability of adult role models. He suggested that coordinators should look for sites with "assessable adult models".

In the Harris (1971) study, one of the activities rated by both coordinators

and employers as highly important was the assignment of a specific individual to serve as an on-site training sponsor for the student. Conrad and Hedin (1981) reported that the development of a personal relationship with someone at the work site ranked fifth among the 14 most important characteristics contributing to student growth.

Another additional interpersonal characteristic which was noted in the literature as being an indicator of a quality program was the students' ability to develop good social relationships with fellow workers within a congenial work environment. This is not necessarily the same as developing good work relationships with co-workers and supervisors. Silbermans (1975, cited group atmosphere as an important variable contributing to job satisfaction. He described this as "the social climate of the work team, the availability of supportive stimulation, and sense of family on the job" (p. 266).

Summary

The job components category of quality indicators included 16 items which were divided into 4 subcategories. These included: structural characteristics of the work site, job characteristics, supervision and interpersonal relationships. The brief examination of some of the research which looked at causal relationships between these items and program outputs was far from conclusive.

One major weakness of most of these indicators is that the judgment of their "quality" stems from self-ratings. Such measures are only one potential method of establishing the validity of a specific treatment. Before it is possible to determine with more confidence that these items are in fact quality indicators, an effort must be made to link these measures with specified program outcomes.

Coordination Activities

A major difference between CVE programs and unstructured work study programs derives from the effort in CVE programs to synchronize the students' employment experience with their educational activities. This requires the addition of a number of linkage mechanisms to facilitate the interdependences between the school and the employment site. Since the CVE coordinator has the primary responsibility in this system, his/her role is considered the vital element in insuring that the school and work site are in harmony.

Nine specific items were identified which summarize the most critical indicators for coordinating CVE programs (see Table 3). Coordination indicators are divided into four categories: employer responsibilities, coordinator's responsibilities, joint evaluation, and third party input. Each of these activities are needed to insure a functional relationship between the educational and employment components of a CVE program.

Employer Responsibilities

Both coordinators and employers in the Cushman et al. (1968) study rated allowing the employer the right to interview and select the applicant of his/her choice as a high priority item. In addition, students rated as a high priority item "obtaining placement for work experience through the normal hiring process of application and interview" (p. 36). It seems logical that employers would have a better attitude towards those programs which respect their right to select employees.

Coordinator's Responsibilities

The coordinator's main responsibilities (outside of the educational institution) can be summarized as: making an adequate number of supervisory visits to students and employers; conjointly planning and managing the employment experience with the site sponsor; being professionally involved in

the field; and providing the employer with appropriate input for conjoint evaluations of the student.

Table 3

QUALITY INDICATORS FOR A COOPERATIVE VOCATIONAL EDUCATION PROGRAM: COORDINATION ACTIVITIES

	Employer Responsibilities
1.	The employer has the prerogative to interview and select the student application of his choice.
	Coordinator's Responsibilities
2.	Teacher coordinator is professionally involved in the field.
3.	Coordinator has a training agreement to insure training sponsors are aware of their responsibility and performing appropriately.
4.	Follow-up results are obtained for students completing or leaving the program.
	Joint Evaluations
5.	The employer and coordinator are jointly involved in the evaluation of the student.
6.	Teacher coordinator makes an adequate number of visits to employers of cooperative students.
	Third Party Input
7.	An advisory council exists to ensure community and employer input and support the cooperative program and for program development.
8.	Program should obtain local union support.
9.	Parents are contacted to help determine student needs when appropriate.

Making an adequate number of supervisory visits to employers has consistently been noted as one of the major indicators of a quality program, (Cushman et al., 1968; Harris, 1971; Lloyd, 1981; and Wubbena, 1981). The coordinator's responsibility for developing a training agreement and a training plan with site sponsors has also been well established, (Cushman et al., 1968, Harris. 1971; and Wubbena, 1981). The purpose of the training agreement is to insure that the student and employer are aware of their mutual responsibilities concerning pay,

length of service, hours of work, etc. A training plan details what learning is to take place and what competency levels must be reached by the student trainee. Despite concurrence on the value and need for adequate training plans and agreements there is some evidence that they are not always used.

In the Walsh and Breglio (1976) study of urban CVE programs, 73 percent of the participating employers interviewed reported that they had not signed any formal agreements with the schools, while less than one-half of the coordinators reported developing any formal training agreements. Walsh and Breglio (1976) noted that "in most cases, no training plan or contract stipulations were written for employers to follow" (p. 18). They further reported that since most employers participated in grading students "without specific training plans... employer ratings of student performance...were only marginally related to educational objectives" (p. 18).

The most ambiguous of a coordinator's responsibilities concerns his or her professional competence as well as dedication and commitment to the profession and students. Johnson (1981) found greater positive outcomes in programs where teachers were more involved in professional organizations, had more work experience and attended more inservice workshops to upgrade their job knowledge. Benson (1981) cited as a second major attribute of a quality program a sense of closeness between school and industry. This meant that teachers and employers had frequent contact with each other and often visited the others environment as well as lending equipment and skills when needed. Lloyd (1981) stated that in a quality CVE program, the teacher coordinator frequently attends inservice workshops; contacts employers about job openings for students and works with the students' vocational organizations. Two of the criteria which McKinney et al. (1981) found associated with high placement were a high level of staff enthusasium for job placement and a need for teachers to have regular contact with employers.

Such characteristics of professionalism as involvement in the field, contact with local industry, and on-going training may require a considerable amount of a coordinator's time. Since these are not often the kind of activities which a coordinator is directly contracted to complete, it may be necessary to provide additional motivation for coordinators.

One important coordinator responsibility is the need to obtain follow-up results for students completing or leaving the program. Lloyd (1981) recommended that a quality CVE program conduct follow-ups of former students, while Wubbena (1981) stated that staff members should follow-up all students either completing the program or leaving the program with a marketable skill. Finally, Cushman's et al. (1968) study found that although teachers did not rate periodic follow-up studies of students as a high priority item, they did rate it as an item of intermediate importance.

Joint Evaluations

The two major tasks that must be addressed by joint evaluations of CVE programs are: the need for the training sponsor to be involved in the students on-the-job evaluation and the need for students, coordinators, and sponsors to jointly participate in the development of a training plan (Wubbena, 1981).

In the Cushman et al. (1968) study, teachers rated as a high priority item the solicitation of information from employers and students that could be used to evaluate student progress. Students rated the need for employer input into evaluations as an intermediate priority item, while student evaluations were not rated as a priority item by employers. This last finding may reflect the loss of time which an employer feels is involved with evaluations as well as the general distaste many employers have for employee evaluations.

Third Person Input

Third person input concerns the need for CVE programs to coordinate

their activities with other parties who may have an impact on the CVE Program. This includes, not only employers in the local area, but also the community, local labor organizations and the families of students. More effort has been directed to examining the role of the advisory council in CVE Programs than the need for labor support or direct involvement of parents. Research into the role of an advisory council is almost unanimous in qualifying it as one of the major indicators of a quality program.

In Cushman's et al. (1968) study both teachers and students rated an advisory council and employer input into the planning process as a high priority item. Surprisingly, employers rated the functions of an advisory council as a high priority item but rated the establishment of such a council low. Cushman et al. (1968) noted this inconsistency and stated that "It is probably attributable to employers concurrences with specific advisory functions, to which they did not avert in evaluating the advisory boards establishment" p. 39.

Johnson (1981) found that 80 percent of the state directors listing quality indicators agreed that advisory councils were essential. In his final analysis, Johnson (1981) noted that advisory councils were one of the five major determinants of positive program outcomes. Programs using councils generally obtained information which led to higher levels of student satisfaction and higher placement rates.

In the Harris (1971) study, the advisory council was ranked fifth by employers in the list of nine most important activities. Wubbena (1981) did not include an advisory council as one of the most important characteristics of a quality CVE program, but did include the need to "involve or inform employers, parents, faculty, students, counselors and civic groups" (p. 153) as an important characteristic of a quality CVE program. The majority of Wubbena's (1981) respondents rated the functions of an advisory council as at least having some

importance.

Despite the general support for an advisory council, Lloyd (1981) found that when CVE coordinators were asked to compare their program to a list of characteristics which least contributed to programs success, they listed the following: active use of an advisory council, intellectual ability of students and cooperation of unions. Twenty percent of the teachers replied that the advisory council had rarely or never contributed to program success while 39 percent of the teachers indicated that it had frequently contributed to their programs success.

One possible explanation of Lloyd's (1981) findings is that the involvement of the advisory council determines whether or not it is seen as a positive factor. In Lloyd's (1981) study, 28 percent of the coordinators reported that their advisory council met only once a year while 30 percent reported that their council met three or more times each year.

In the area of union support for CVE Programs, the findings are mixed. The coordinators in Lloyd's (1981) study did not find unions to be very helpful to their program. Fully 90 percent of the coordinators indicated that the union gave "no visible assistance". Only one teacher indicated that it had been helpful while six teachers (8 percent) indicated that the union had actually hampered their program. Walsh and Breglio (1976) did not find union opposition to be a major constraint, however most of the work stations for their students were in non-union areas. They indicated that any adverse influence by unions has yet to be tested.

Frankel (1973) advocated that coordinators actively encourage unions to participate in CVE. He noted that administrators and teachers are often reluctant to pursue jobs or training spots in union organized businesses. He suggested that by more actively involving unions in an advisory role, employer

reluctance to employing non-union trainees can be overcome. Frankel (1973) found that programs with active union involvement directly benefited their students in terms of job placement and also because with union participation it was more likely that student training would count towards subsequent apprenticeship requirements.

The final third party indicator is the need for parental cooperation. This characteristic should be distinguished from the need to include parent representation on an advisory committee. Parent cooperation refers to the need for counselors and coordinators to directly solicit the input of parents regarding needs or problems affecting their children. The evidence to support this indicator is slight since little research has been done on the role of parents in the CVE process.

Students in the Conrad and Hedin (1981) study ranked the discussion of school and work experiences with family and friends as seventh in importance out of a list of 13 items which they felt most contributed to their growth. Unfortunately, Conrad and Hedin (1981) did not distinguish between the effects of parental influence and peer influence. Wubbena (1981) listed as a high priority item for a CVE program that each member of the school staff "contact parents...to help determine students' needs" (p. 167).

Summary

The coordination activities category of quality indicators included nine items. These items were divided into four subcategories: employer responsibilities, coordinators responsibilities, joint evaluations and third party input. A close analysis of these items raises the same questions concerning definitions, specificity and validity which have already been raised regarding the indicators in the school and job components. Again, since most of the items were derived from self reports or ratings, there is little evidence linking

their impact to program outcomes.

Few studies have attempted to go beyond the use of expert opinion, and those that have usually attempt to establish a relationship between one or more indicators and some type of economic outcome (for example a relationship between coordinator/student rapport and placement rates). While such efforts have considerable merit, there is a need for additional efforts to link processes and outcomes using a broader and more comprehensive set of program outcomes.

Most of the rationale for including an indicator presently derives from a concensus that the item is a quality indicator. Such a concensus should not be slighted, however, neither should it be confused with conclusive evidence. The responsibility remains for proponents of CVE programs to establish a position link between their proposed list of quality indicators and targeted program outcomes.

Conclusion

The term inputs has been used to refer to a broad category of resource endowments which include land, labor, time, capital and equipment. Educators have considered the impact of these elements on their programs, and limited funds make their consideration critical. In the day to day operation of our educational programs, it is vital that we not only have quality teachers, quality instructional materials, and quality facilities, but that there be enough of these resources for efficient and economically rational program operation.

The literature indicates that although there is usually a concensus on which resource endowments are a critical part of a quality program, seldom was any formal effort made to gauge either the quality of these inputs or their sufficiency. Ideally, society will provide resources for all of the students who

could and want to benefit from the advantages of an efficiently operated CVE program. The necessity to ensure the quality of our inputs must be matched by an effort to ensure that sufficient amounts of these inputs are available.

A substantial portion of the research reviewed in this section was concerned with the processes that are involved in a quality program. Processes organize or transform inputs in order that a set of preestablished goals can be attained. There were three categories to which processes were assigned: school, job and coordination activities.

In the school category, effective instruction, administrative assistance, supportive programs and planned program evaluations were all identified as major elements of a quality program. Important processes in the job category included: adequate supervision, meaningful job responsibilities, appropriate coordination with school activities and high caliber working relationships. Finally, quality coordination processes included: a clear acceptance and specification of responsibilities on the part of the instructor-coordinator and work supervisor for student workers, planned joint evaluations and the solicitation of relevant feedback from interested stakeholders and families.

If all of the above activities are undertaken, will this be sufficient to insure that program goals are accomplished? Although educational programs are often systematic and directed to some end, they are often inadequately monitored to determine if their ends have been met. Often the only indication comes far too late in the process for any corrective measures to be taken. The concern with this problem has been a recurring theme throughout this paper and while there are still no satisfactory answers, one possible solution will be outlined in the following section.

CHAPTER V.
IMPLICATIONS

The task for vocational educators is to create effective programs for addressing the needs of youth and society. CVE programs appear to be one important element in such a strategy. However, CVE programs cannot meet the needs of all youth; they are neither a cure-all for youth unemployment nor a complete solution to such educational problems as high school dropouts. It is important to keep in mind that as Sklar, Hollis, Byrne & Tollett (1983) caution, no single program can meet the needs of all youth. Quality CVE programs are, however, a viable strategy for accommodating the educational and training needs of a significant portion of the high school youth population. Actual on-the-job training and supervision, periodic performance evaluations by both teacher-coordinator and a work supervisor, coupled with closely related classroom instruction demonstrate to many people that CVE is a valid educational methodology.

Nevertheless, the continuing tension created by different views of the purposes of education demands evidence of the value of educational programs and methods. CVE programs as a method of instruction must also meet the public's demand for accountability. Ultimately, professional educators involved in CVE programs must strive not only to demonstrate the effectiveness of CVE programs but also to develop methods to improve CVE education.

An information system is an integral part of the effort to justify and improve CVE programs. Emphasizing the need for decision information in planned evaluation efforts, necessitates in expansion of the original CVE model used to structure this review. It adds a formative evaluation component which can provide ongoing program information and a summative evaluation component for assessing the overall strengths of the program relative to its goals and in comparison with those of other school systems. Figure 5 depicts the revised CVE

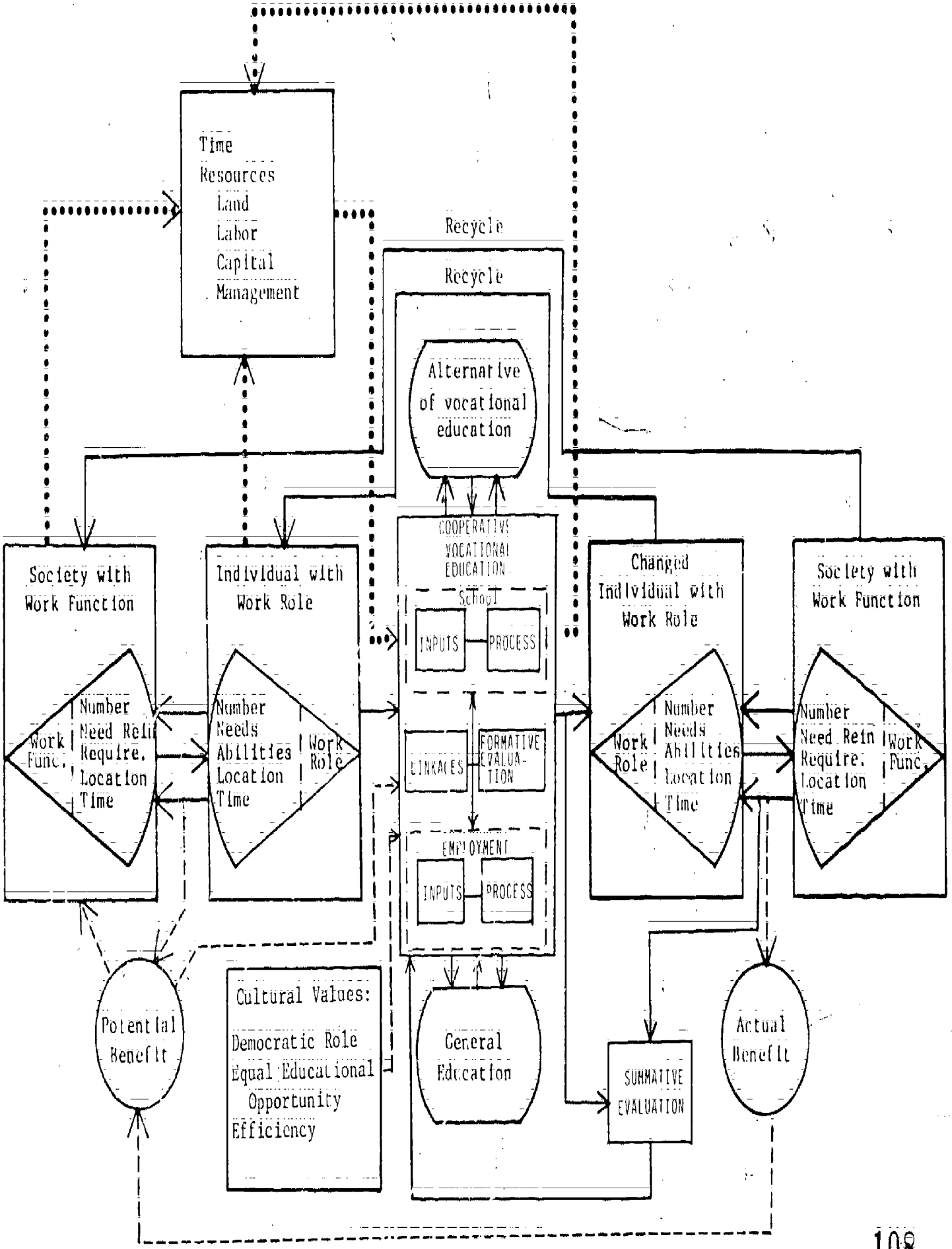

Figure 5. CVE Model with Evaluation Components.

model with these additional components. These components are a necessary part of a system for the successful operation of a quality CVE program.

This review has characterized the major elements of a CVE program in terms of inputs and processes and outcomes. Outcomes were looked at through a series of questions which addressed several issues instrumental in establishing goals for CVE programs. These issues pointed out the need to develop a consensus on the goals that a school has for its program. Ideally, consensus is a necessary antecedent for a CVE program and will involve input from the individual stakeholders in the system: teachers, administrators, employers, parents, students and concerned taxpayers. Realistically the goal establishment process is completed in the political arena and compromise may be the best word for the results. The challenge is to provide the participants with appropriate alternatives.

Inputs and processes were divided into three categories: school, job and linkage. In each category a number of elements were identified which are necessary for an effective program. These elements were labeled as quality indicators. A system for monitoring the effectiveness of these indicators must be discriminating enough to select items which will lead to desired program goals.

Once a set of indicators are selected, the next step will be to periodically monitor (formative evaluation) whether or not the program is functioning as intended. This can be accomplished thru either formal or informal procedures. Formal procedures should include student and employer surveys, while informal procedures could include group discussion or meetings with a student committee established for this purpose.

Program outcomes measures must consist of items which will enable program planners to determine if program goals are being met. Since the goals are the

heart of the system, unless effective outcome measures are selected it will be impossible to know whether or not the system is functioning appropriately.

Each of these three major elements, goals, inputs and processes and outcome measures can be linked through the use of a procedure that integrates the formative and summative evaluation process into a comprehensive system for the overall guidance and direction of the CVE program. In order to accomplish this, the process must be more than merely a vehicle for data retrieval. This new system added to our original model may be defined as an instructor-coordinator information system. Figure 6 is a model of such a system for the analysis and improvement of CVE programs. The model suggests that the key elements of the system are the processes of goal setting, data collection and summation, analysis of data relative to goals and guidelines, and information dissemination. In Figure 5, these elements were simply labeled as summative evaluation and formative evaluation.

This information system will encompass the following activities:

1. Clarification of key CVE program outcomes valued by local leaders.
2. Establishment of local standards for CVE program outcomes.
3. Preparation of instruments to obtain outcome and input indicator data.
4. Establishment of a system for analysis and reporting of information.
5. Analysis of the CVE programs: comparison of results and outcome standards.
6. Specification of possible changes.
7. Dissemination of local program information.

Clarification of the Key CVE Program Outcomes Valued by Local Leaders

The specification of program evaluation criteria for local schools has frequently been only the acceptance of criteria set forth or perceived to be set forth in Federal and State funding legislation and regulations. While the pro-

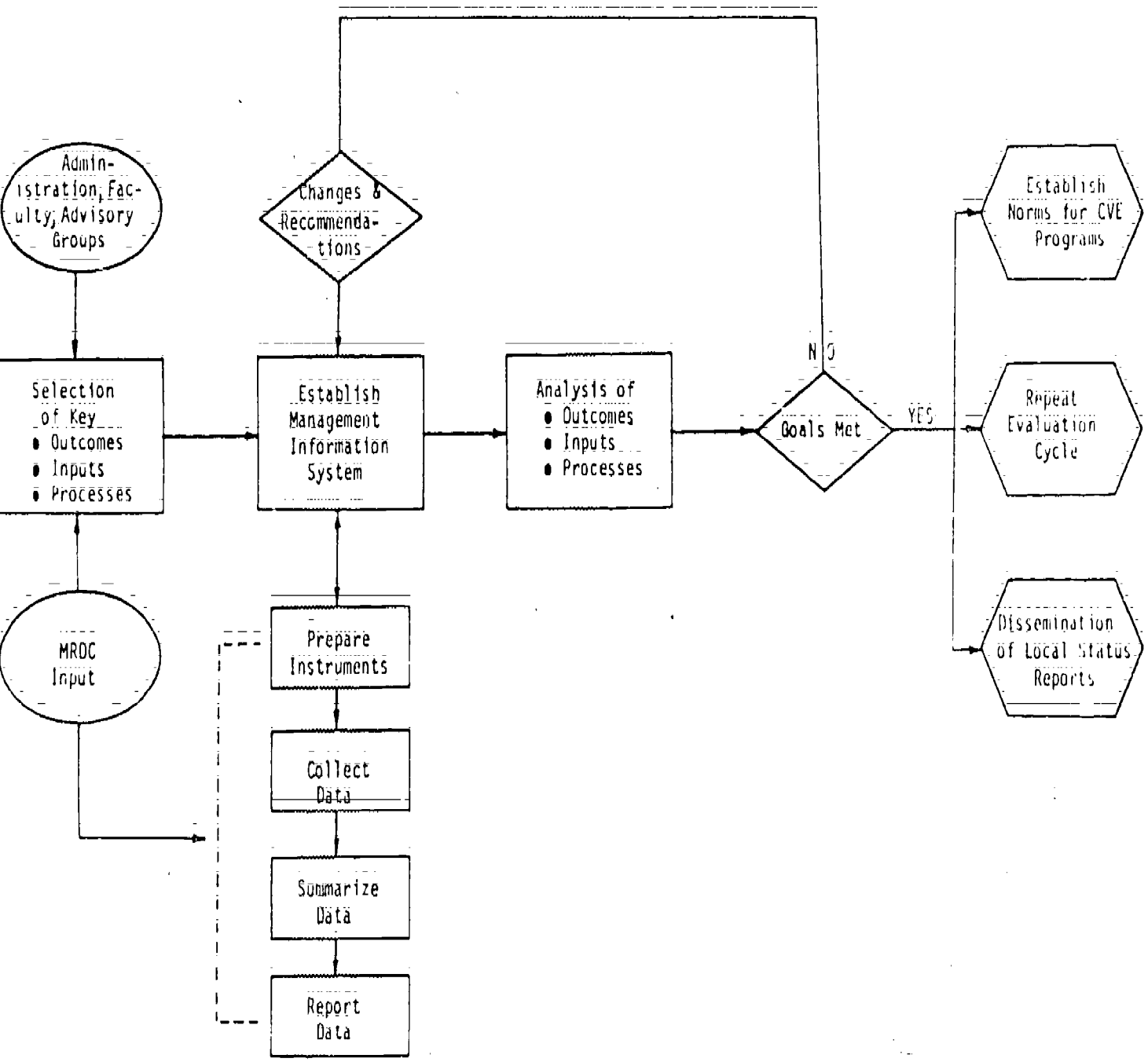

Figure 6. Instructor-Coordinator Information System

cess suggested for the establishment of local CVE program goals does not ignore these mandates, it also recognizes the importance of considering the effect of local "support groups" and their expectations on CVE programs. Since these groups provide the majority of the resources and have the most direct control of program operation, their interest must be a factor in analysis.

A potential strategy for clarification of "key outcomes" is a modified delphi procedure. A list of commonly accepted outcomes for CVE programs can be prepared and submitted to individuals who have immediate involvement in the CVE program. This includes: advisory committee members, instructor-coordinators, administrators, faculty, school board members, and other locally selected individuals judged to represent key community interests. Each individual should be asked to review the list of outcomes to add items which they believe are needed and to rate all items on an importance scale. This information can be summarized to provide raters with the mean ratings by group. They can then be instructed to eliminate a specific number of "least important" items. Individuals involved in the rating process should be given the opportunity to present arguments for the retention of items which they believe are key outcome measures of program quality but would be in their list for elimination. A committee of five or six persons should be selected by the advisory committee to finalize the key outcome list.

Establishment of Local Standards of CVE Program Outcomes

Each community will need to select appropriate measures of outcome and standards for program quality. The effort in this step may be simply an educated guess because validated external standards are not available or may not be appropriate for the local situation. Once these targets are set, they will serve as benchmarks for decision making and as the basis for communicating program status to the public.

The purpose of these targets is to assist a local school in developing standards and to encourage critical analysis of these standards. While satisfaction of local program goals is a primary concern, one must look at the performance of others to clarify the reasonableness of local program outcomes. Consequently, a coordinated effort should be undertaken to consolidate data from a variety of schools to provide external standards for comparison -- external validity indicators. These standards might be a range of values for each outcome.

Preparation of Instruments to Obtain Outcome and Input Indicator Data

The instructor-coordinator information system proposed is concerned not only with data which allows determination of program status but also with information which allows assessment of key process and resource inputs. The challenge in the selection of input items is to identify only the critical processes, resources, etc., that must be satisfied if significant loses in program quality are to be avoided.

It will be necessary to develop a set of instruments to gather the data for outcomes and process items from CVE students, instructor-coordinator, on-the-job supervisors, and building or school administrators. In addition, the instructor-coordinator's CVE program management forms, such as the training plan, student evaluation reports and student weekly reports can yield much of the data needed.

The outcome measures will require a follow-up of CVE students, probably a short term follow-up approximately six months after graduation using a standardized follow-up procedure such as the Minnesota Secondary School Follow-Up Survey. This procedure can be modified for local CVE completers.

Establishment of a System for Analysis and Reporting of Information

To aid in the interpretation and use of data, the analysis can be presented as a set of tables displaying the summary data for comparison with established local outcome standards and eventually a target range standard.

Analysis of CVE Programs: Comparison of Results and Outcome Standards

Since a signficant amount of data will be accummulated by the end of the school year and a follow-up phase is also envisioned, analysis compariscns may be undertaken at two different times. The process involved will be similar each time.

The information gathered to measure attainment of outcomes will be compared to established standards by the local advisory committee who will decide if program goals have been met.

Specification of Possible Changes

If an outcome goal is not met, possible changes are considered which my include: (1) revising standards, (2) revising data items, and/or (3) revising program processes or resource inputs. These changes will be based upon the analysis and interpretation of data gathered. The instructor-coordinato. information system suggested here assumes that the process/resource inputs are causally related to the outcome measures, e.g., the quality of work site supervision is expected to affect the growth and development of a student-learner. The purpose of studying these relationships is to isolate critical process and resource inputs and to establish minimum threshold levels for these inputs.

Dissemination of Local Program Information

Greater public awareness of local CVE program outcomes is assumed to be a need. Consequently, dissemination of the evidence associated with program outcome goals is a critical objective. Not only the advisory group, but the key support groups and general public should be provided appropriate data on program successes as it is available.

CVE instructor-coordinators need to continue to demonstrate to the public that the program is more than "students leaving school to work part-time." The proposed instructor-coordinator information system is not a new concept.

It is a renewed call for a systematic treatment of planning and evaluation information plus a call for an effort to establish local data bases that allow accumulation of information across schools. This effort will lead to the establishment of valid standards for outcomes, processes, resource inputs and an analysis of the relationships between these elements.

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