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ABSTRACT

One of a series of sixteen knowledge transformation papers, this paper deals with the nature and extent of use of evaluative data by administrators in vocational education. First, the following conditions which govern the use of the data are described: availability, reliability, credibility, utility, and consistency. Since the legitimacy of most actions supported by evaluative data is obvious, it is not discussed, but one less well recognized use, public relations, is acknowledged. Also explained is the role of evaluative data in state planning. While it is difficult to determine the actual extent to which vocational educators use evaluative data, it is stated that sources do exist for this type of information, such as systematic analyses of state plans and surveys of state planners and administrators. Other evidence of the data's use is found in the possibility to derive by inference. Research is reported as currently underway on both the use and effectiveness of evaluative data. The state and local management information systems are described since they are the most extensively used data bases. Other potential sources are mentioned on the state and national level, particularly the new national Vocational Education Data System and the National and State Occupational Information Coordinating Committees. (ELG)

USE OF EVALUATIVE DATA BY VOCATIONAL EDUCATORS

written by

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FOREWORD

Despite the emphasis on evaluation and accountability in vocational education, little is known about how vocational educators use evaluative data, the extent to which they use the data, and the results they obtain from the use of these data. This paper represents an attempt to deal with the lack of commentary on the nature and extent of use of evaluative data by administrators of vocational education. Topics discussed include conditions governing the use of evaluative data, the use of these data for state planning and improvement of public relations, the extent of use of these data, and some observations on the effectiveness of and problems in the use of evaluative data in vocational education.

"Use of Evaluative Data by Vocational Educators" is one of a series of 16 papers produced during the first year of the National Center's knowledge transformation program. The 16 papers are concentrated in the four theme areas emphasized under the National Center contract: special needs subpopulations, sex fairness, planning, and evaluation in vocational education. The review and synthesis of research in each topic area is intended to communicate knowledge and suggest applications. Papers should be of interest to all vocational educators, including administrators, researchers, federal agency personnel, and the National Center staff.

The profession is indebted to Dr. Arthur M. Lee for his scholarship in preparing the paper. Recognition is also due Dr. George M. Copa, University of Minnesota, Dr. H. C. Kazanas, University of Illinois, Champaign/Urbana, and Dr. Norval McCaslin, the National Center for Research in Vocational Education, for their critical review of the manuscript. Dr. Carol P. Kowle, research specialist, supervised the publication of the series. Ms. Jo-Ann Cherry coordinated editing and production.

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INTRODUCTION

Despite the emphasis on evaluation and accountability in vocational education, little is known about how vocational educators use evaluative data, the extent to which they use the data, and the results they obtain from the use of these data. The term evaluative data refers to the program results used to measure direction and progress toward intended objectives. Considerable research has been conducted on approaches to evaluation, data to be obtained, forms and instruments to be used, and procedures to be followed. At the same time, very little has been published on the use of such research by vocational educators.

There may be an assumption that research of this kind is not needed. Edsall (1973), in A Guide for Local Program Evaluation, says that the use of evaluation results "should be obvious" (p. 11). Lamb (1977) discusses a model for evaluating vocational education programs on the basis of job placement and labor market supply and demand. She states, however, that locating available information, obtaining additional information, and analyzing information are primary concerns. Forming judgments and making decisions are omitted in the discussion. This pattern is repeated throughout the literature on evaluation.

CONDITIONS GOVERNING THE USE OF EVALUATIVE DATA

The present study is based on three assumptions: (1) the use of evaluative data cannot be assumed; (2) "use" is an active, not passive function; and (3) a number of interrelated elements govern the use of evaluative data. Each assumption has an important role in the evaluation process.

The first assumption should be self-evident. The problem may be in the second assumption. When the term "use" is taken to mean the function of judgment only, for example, finding out which programs are performing well and which ones are not, it is easy to assume that evaluative data will be used. When evaluative data lead to an understanding of what certain programs are accomplishing and allow conclusions to be drawn and judgments to be formed, the data are obviously beneficial. But as long as their use is passive, nothing has really happened. When conclusions and judgments lead to action of some kind, if only to be incorporated into the planning process, there is evidence that evaluative data have been put to use.

"Use" in this sense is not a simple response to the acquisition of evaluative data. Few vocational educators command total control over the design and implementation of their programs. Administrative and legislative action, even the prerogatives of a teacher in the classroom, are rarely exercised without the advice or approval of others.

The use of evaluative data under these circumstances is made increasingly difficult as such data encounter the scrutiny, and sometimes the hostility, of a variety of interests. As Datta (1978) says, "There is little evidence that programs are dismantled because of unfavorable evaluations. If anything, evaluators have lamented that demonstrably ineffective programs march on political feet undeterred by evidence" (p. 33).

As Datta also notes, however, there is "cause of hope" (p.37). Moreover, there is evidence (Lee, 1976) that evaluative data are being used by vocational educators even though their use is not being documented. Yet, vocational educators should know why and how to realize greater benefits from evaluation.

Availability

There are a number of deterrents to the use of evaluative data. One is availability. Researchers often develop good evaluation systems and have no knowledge of the variety of persons who could use the data, because the systems are implemented by administrators responsible for the program.

This does not mean that every evaluation report should be publicized or distributed indiscriminately. Stevenson and Ward (1973) are right in cautioning that, while

> There are many uses for evaluation results;...this is not to say that all results should immediately be made public. Some results are in-house items and should be used to correct situations prior to public disclosure. (p. 3)

Using evaluative data improperly in the wrong context or without adequate understanding of their implications is worse than not using them at all.

The availability of evaluative data may only require that they be presented in a way that they can be readily understood by diverse groups. Kiefer and Voelkner (1975) recognized this when they developed an evaluation of vocational education special needs programs in Michigan. They commented that constraints within the State Department of Education necessitated keeping analyses simple so that they could readily be interpreted and used by persons not thoroughly familiar with statistical analysis techniques. Datta (1978) also supports this observation when she comments, "Evaluation reports which are long on methodology and short on unqualified conclusions are failures for most policy purposes" (p. 14). The policy implications for the use of evaluative data in vocational education are so serious that this fact may be responsible for the lack of detailed literature on the subject. Evaluative data can easily be misused.

Reliability

A second condition that governs the use of evaluative data is their reliability. Researchers usually meet this requirement. However, not all evaluative data are direct or indirect results of research. There is no reason to assume that reliable evaluative data can only be obtained through research. In some respects, the research community may be so inhibited by its concern over data perfection that it reduces the contribution it might otherwise make to the development of reasonably reliable data. Venn (1978) commented at a recent national conference on measuring the outcomes of vocational education:

> It may be that the search for evaluative data that are nonchangeable may become the search that is unending and could lead to the cul-de-sac that methodology has often entered; if we can't measure it, it isn't significant. (p. 4)

At the same conference, Kievit (1978) mentioned a lack of data to provide "highly reliable and valid answers," but suggested, "it is, nevertheless, valuable to ask what we do know and what can we reasonably infer from what we know" (p. 1).

Reliable evaluative data in this sense are not necessarily unimpeachable. There cannot be obvious or even suspected distortions, bias, or carelessness. A good example is the use of labor market demand data. Administrators have regarded most state and local evaluations based on these data to be without merit. Their distrust of the data was confirmed by Wirtz and Goldstein (1975), who stated:

> In general...the estimates of both employment and unemployment currently being relied on to initiate these various programs on a state and smaller basis and to distribute multi-billion dollar federal appropriations are simply not reliable. (p. 25)

Since Wirtz and Goldstein have published their candid observations about the data for which they once had official responsibility, the Department of Labor has improved its data-generating techniques, and employment market data now available to many states are reportedly much more reliable. However, vocational educators are not likely to accept the new data with any more confidence than they did the old.

Credibility

Credibility is the third condition affecting the use of evaluative data. Drewes (1978) illustrates its importance by observing that "Local schools with established vocational programs linked into the community infra-structure are not going to be dissuaded from offering a program simply on the basis of output data showing low placement rates in occupations judged by an external standard to be related to the program" (p. 10). Drewes and Katz (1975) have also noted "a discernable tendency of vocational education professionals to distrust manpower data" (p. 23).

There are several examples of lack of credibility in vocational education evaluative data on a national scale. A task force appointed by HEW Secretary Elliott Richardson in 1971 examined employment conditions and the preparation of youth and adults for employment. The report, Work in America (1972), was based on the contributions of fifty-seven authors of commissioned papers and consultants and was circulated widely. One of its conclusions was that "Vocational education in the high schools has failed to give students useful skills or place them in satisfying jobs" (p. 134). A broad generalization of this sort is indefensible and subject to loss of credibility. Even Secretary Richardson could not give it his complete endorsement, and vocational educators were outspoken in their criticism.

Later, the Associate Commissioner for Adult, Vocational, Technical and Manpower Education in the U.S. Office of Education appointed his own committee to critique the offensive chapter. The committee found fifteen unacceptable assumptions in the report and proceeded to make a paragraph-by-paragraph analysis of the content dealing with vocational education. When they had finished, there was little vocational educators could use in a study that had taken a year to complete, had cost a substantial amount of money, and had been intended to have a major impact on federal policy.

Another study two years later (Wilms, 1974), sponsored by the National Institute of Education (NIE), reported two major findings. The first involved the fact that eight out of ten graduates of professional and technical-level post-secondary vocational programs did not get the jobs for which they trained. The second stated that eight out of ten graduates from lower-level programs got the jobs they trained for but, with the exception of secretaries, barely earned the federal minimum wage.

In response to these findings, critics noted that Wilms had been careless in the way he had generalized from data inadequate for that purpose (Pucel, 1976; Magisos, 1976). Wilms and Hansell (1976) responded to these criticisms, but in doing so, appeared to contradict themselves. Wilms had reported his findings separately and apart from the qualifying clause, "not representative of the entire nation." Failure to admit that the findings were not representative destroyed the credibility of Wilms' report for vocational educators. The problem was not, as he states, the fact that "When studies uncover evidence that contradicts the conventional wisdom, vested interests often challenge the study design and methodology rather than provide data to the contrary" (p. 22).

A more recent example of lack of credibility in evaluative data appeared in the Phi Delta Kappan. Egginton (1978), reporting on a study of attitudes among vocational education students, concluded, "It appears that participation in vocational education programs is ineffective in developing a positive self-image among the most alienated of the subgroups of teenagers" (p. 533). Swanson (1978) replied to Egginton, noting "vigorous reactions from people who considered Egginton guilty of poor scholarship and carelessness with the facts... or putting his finger on the scale while weighing the evidence" (p. 87). Swanson considered the report so lacking in credibility that it could be dismissed without a response: "It is hardly necessary to reweigh it here, it

probably should have been looked at more critically before being put on the scale in the first place" (p. 87).

One way of looking at these examples is to assume that any unfavorable data would be considered by the vocational education community as lacking credibility. Vocational educators, like any other established group, are quick to resent attack and are vigorous in defending their efforts and achievements, but they also recognize their own weaknesses when presented with supportable data. Evaluative data which do not meet that test are rejected.

Utility

Another condition for the use of evaluative data is utility. Availability and utility are closely related. In order to be used, data must be readily available. If the language is too technical, however, they will still not be used. When Stevenson and Ward (1973) made a study of information available to state leaders in conducting evaluations, they found much of it unusable. Their description of the situation makes an excellent point:

> Information theorists refer to error in communications as noise. The overall literature on evaluation is noisy, has wide gaps, is difficult to follow, is voluminous and contradictory, and can leave a reader in a state of frustration. It is easy to understand how phrases such as "raped by rhetoric" and "information overloading" could be applied to this literature. (p. 2)

Educational researchers have the responsibility to explain what research data, including evaluative data, mean to nonresearchers. Research data intended for a general audience have little utility unless presented in clear, unmistakable and easily understood language. Some reports of the National Advisory Council on Vocational Education are examples of clear presentations intended for nonresearchers.

The importance of utility in evaluative data was the subject of one of the sessions in the recent national conference on measuring vocational education outcomes. Drewes (1978) stated that, "Use and ultimate utility of a standardized vocational education data system will depend on whether this system is primarily accounting or decision-oriented" (p. 5). It was generally agreed that most existing state reporting systems are accounting oriented, as is the current U.S. Office of Education reporting system upon which most state systems are based. As Drewes points out, "The most critical consideration governing the use of standardized data at the federal level will be whether data are used primarily to ensure compliance or to support improved leadership" (p. 7). The difference is in the way they are collected, analyzed, and presented. Accounting-oriented data reveal only aggregate numbers, such as enrollments, expenditures, placements, and other measurable aspects of education. Decision-oriented data reveal which students and programs, in which locations, and under what circumstances perform better than others. These data have more utility for administrative decisions.

Consistency

One final condition governing the use of evaluative data is consistency. This is probably the most important and the most frequently ignored characteristic of data. Consistency means that data must be compatible with all other governing factors, such as legal requirements, established policy, relevant advisory committee recommendations, and even with the views of key individuals. This does not mean that evaluative data must be distorted or biased or edited to agree with established policy. It means that evaluative data must be collected, analyzed, interpreted, and made available within the boundaries of possible action.

A difficult situation in this respect has been created by the state planning requirements of the 1976 federal legislation. Each state plan must:

> Set out explicitly the goals the State will seek to achieve...in terms of the courses and other training opportunities to be offered, ...the allocations of responsibility for the offering of those courses and training opportunities among the various levels of education and among the various institutions of the State, and the allocations of all local, State, and Federal financial resources available in the State among these courses and training opportunities, levels of education, and institutions within the State. (P.L. 94-482, Sec. 122)

It would be easy to assume that the flow of evaluative data to the state agency in this kind of detail would enable the planners to make simple decisions on program offerings and financial resources. However, local school districts, not states, usually decide what courses to offer and how to distribute their resources. As Drewes (1978) points out, "Although the States have constitutional authority for education, they have in effect delegated their authority to the local level" (p. 8). Evaluative data, in order to be consistent with the legal and practical aspects of planning, must be directed toward local schools as well as state and federal offices. This is especially true since the resources which support the system are controlled more often at the local level than at the state level. Drewes states that, "because of state law, State Board of Education policies, and the relationship of vocational education to general education, there is relatively little discretionary authority over the flow of Federal and State funds to the locals" (p. 9).

USES OF EVALUATIVE DATA BY VOCATIONAL EDUCATORS

The potential use of data gathered should be a consideration in the manner in which they are obtained and the analyses and interpretations made. There is no feedback on whether some evaluative data are more useful than others. The production of evaluative data becomes an ongoing linear activity without benefit of its own product evaluation.

Vocational educators use evaluative data in determining policy, establishing goals and objectives, developing plans and planning detail, taking administrative action, allocating and re-allocating funds, obtaining additional funds, adding or dropping courses and programs, changing curricula, changing enrollment and completion requirements, and public relations. All except the last activity are recognized as legitimate actions supported by evaluative data.

Public Relations

Public relations, however, can also be an important and entirely proper use of evaluative data. If such data show, for example, that certain programs are performing well, and their continuation depends on public support, what better use of the data could be made than to help obtain that support? On the contrary, if a program is politically entrenched and not performing well, evaluative data can be used to inform the public in order to change the situation. Admittedly, most public relations based on evaluative data can be expected to support existing programs rather than to undermine them.

Researchers and evaluation specialists need to understand the value vocational educators place on evaluative data for public relations purposes so that data can be used for this purpose without being easily misrepresented. Neither the Wilms nor the Eggintop study cited earlier may have been intended to destroy public confidence in vocational education, but in each case, the presentation of the data made the studies vulnerable to misrepresentation.

Some of the best examples of the uses of evaluative data, especially for public relations, are reported in Volume V of the Project Baseline series (Lee, 1976). When recipients of the previous year's report (Lee, 1975) were asked how the data were used, some of the responses were as follows:

> Much of the data that the National Advisory Council on Vocational Education has used in publications and testimony could be traced directly to your reports....Quite frequently this information has been sent to people who call the American Vocation Association Office for information about vocational education programs.... Work done by Project Baseline has brought us a long way down the

road to gaining national perspective of vocational education while giving the states some basis for comparison....We (state agencies) have used the reports in drawing up goals and missions and for the Division when preparing budget requests. (pp. 94-107)

State Planning

Some of the uses of the Baseline data noted were actions, not just knowledge. These actions included public relations, legislative testimony, and proposal writing for project funding. In most cases the action is implied, not stated. The most frequently stated action of the Baseline data was planning and preparing state plans. The actual use of evaluative data in state planning presumably would be in the allocation of resources and concentration of effort on the basis of what the data show, as for example, existing strengths and weaknesses, gaps and opportunities, and supply and demand. O'Reilly (1975) found that that is the way state agency personnel tend to describe the planning process:

> The general procedure followed in writing the State plan consists of three major steps. The statistical data necessary for evaluating accomplishments, identifying needs, and establishing goals and objectives, are gathered. The goals, objectives, and accomplishments of the previous year are reviewed. The goals and objectives for the coming year are established, and a State plan is written. The exact manner and sequence in which these steps are completed varies from State to State, and many States have elaborated on the basic procedure. (p. 11)

Only those who have the responsibility for planning in each of the states can verify the process. Little has been written on the subject of the use of evaluative data. According to Lawrence and Dane (1974), "An examination of the literature reveals that while there are innumerable articles describing the development of planning systems, the pilot testing of planning systems, and the availability of planning systems, there is a serious shortage of information on how planning is actually working in situ" (p. 4). They comment that "planning in operation may be so detailed that it is not easily described." Suttler (in O'Reilly, 1975) comments further that:

> Planning is not a one-shot deal which occurs in a vacuum, performed by individuals divorced from where the action is....The process is completely immersed into all operational aspects of the occupational education program at all levels--federal, state, and local....In the field of occupational education, which operates within the educational structure with its parameters determined by forces, agencies and institutions outside of the educational structure, you have an extremely complex and constantly changing arena. (p. 5)

EXTENT TO WHICH VOCATIONAL EDUCATORS USE EVALUATIVE DATA

The Government Accounting Office (GAO) document, Report to the Congress: What Is the Role of Federal Assistance for Vocational Education? (1974), implied that states were failing to carry out their planning requirements in good faith. It may have been less a matter of good faith than legal and practical limitations on what state agencies are able to accomplish. Drewes (1978) states that "relatively few states are in a position, nor would they wish to impose the state will on the locals" (p. 8).

There is even less available knowledge about how and to what extent evaluative data are used in local vocational education planning. Again, Drewes (1978) doubts that much real planning takes place on the basis of evaluative data:

> Decisions at the local level are frequently constrained by scarce resources. Since state monies tend to flow according to enrollment statistics, administrators are reluctant to drop courses that are popular and hence paying their way....Educational resources are frequently not easily transformed into other uses. Staff, equipment, and facilities, once acquired to support particular program offerings, are not easily shifted to accommodate newly emerging demands. The scarcity and frequently limited substitutability of resources tends to restrict the discretion of local decision makers and thereby reduce the utility of data to contribute to improved program planning. (pp. 9-10)

Sources of Information

Despite the lack of a systematic body of literature on the use of evaluative data, there are sources where this kind of information should be available. Systematic analyses of state plans over a period of several years will give some indication of the kinds of evaluative data consulted, and more importantly, the instances when program changes followed directions indicated by the data. Studies of this kind at both state and local levels can be useful in determining which investments in evaluation justify their costs.

Another source of information on the use of evaluative data is the group of planners and administrators in each state who manage programs and resources. O'Reilly (1975) asked state planners about the kinds and sources of data used in writing the state plan. He found that thirty-eight states used their vocational education statistical data in the planning process. Only twenty-nine were using their State Employment Service data. Fourteen were using additional data from the U.S. Department of Labor, usually the Bureau of Labor Statistics. Only eight professed to using data from their state departments of economic and business development.

Most of the data listed above are not evaluative data, and no inference is to be made from them regarding the extent to which evaluative data are being used by state vocational education planners. They simply illustrate that state administrators and planners are a good source of information on the use of evaluative data. As a source they have limitations, however. O'Reilly (1975) was unable to find out the extent to which using any of the data, including evaluative data, meant that changes were made in programs and the allocation of resources, or in the results: "It is impossible to determine in a comprehensive manner the effect of State Planning upon programs, expenditures, and program results" (p. iv).

Local school administrators should be an even better source of information on the influence of evaluative data on planning or management than state plans and state personnel. They could clarify whether changes are carried out as planned and directed at the state level, or whether, as Drewes (1978) insists, they have more authority than the state agency.

Other sources to be used with caution are reports of state and local evaluative systems such as PRIDE in Ohio, the Minnesota follow-up, the Employment/Enrollment Forecasting Guide in Washington State, OTIS in Oklahoma, and others. The originators and directors of systems like those probably know how and to what extent the data they provide are used. They may, however, lack documentation to support what they say. In this case questions are asked of the person who created or operates the system. Pride of authorship or ownership is powerful incentive for these individuals to err on the side of overstatement. Such project directors represent a source worth exploring, but not without collaborative evidence.

Although it may be difficult to assess the use of evaluative data by vocational educators, these data do seem to be used by Congress and many state legislatures. A former staff member of the Senate Education Subcommittee told the Baseline staff, "In perusing the reports, I came across statistics which indicated that the states were not using vocational education funds in accord with the law. Together with the information that my colleagues in the House had gathered, this resulted in the GAO study and report on vocational education which later evolved into legislative action" (Lee, 1975, p. 96).

Inferences

Some knowledge of the use of evaluative data by vocational educators could be obtained by inference from two developments for which data are available. Changes are taking place in many of the states, and the nature of the changes may be related to evaluative data. In eight states, for example, the number of vocational students who are disadvantaged increased between 1971 and 1976 by 25.5, 18.7, 9.7, 8.1, 8.1, 7.9, 7.8, and 7.7 percentage points while nationally the percentage declined almost one percentage point (Status of Vocational Education, School Year 1975-1976, p. 176). Seven states more than doubled their vocational education enrollments per 1,000 population during the

same period compared to a national increase of 39 percent (p. I56). Evaluative data which suggested the need to achieve such increases were available in those states each year. Whether or not there was a direct cause and effect relationship is only speculation, but could be determined through further inquiry.

In various states, substantial increases can be identified in the numbers of handicapped persons served by vocational education, the number of females in male-dominated programs, the percentages of postsecondary and adult enrollments in the annual totals, and shifts in enrollment percentages from one occupational area to another. In each case, evaluative data were available calling for actions which could have produced these results. The evaluative data may have been the principal cause of such actions, or they may have been only incidental, or they may not have been known by those responsible for the actions. There is also the possibility that no overt actions were taken and that the changes occurred simply as a result of circumstances over which no one exercised appreciable control.

Obviously, inferences are a risky way to assess the extent to which evaluative data are used by vocational educators. The second development for which data are available and from which inferences may be made is even less satisfactory than individual state performances. On the basis of the same performance data, there was virtually no improvement between 1971 and 1976 in the percent of handicapped or disadvantaged students enrolled, and very little in nontraditional enrollments. Little change occurred in overall enrollment and expenditure patterns in vocational education (Status of Vocational Education, School Year 1975-1976, pp. 158-207). The inference is that evaluative data were being used very little, although this conclusion conflicts with the inference from individual state performances.

The answer may be that in different states evaluative data are being used, but in selective ways, so that some states show progress in one direction and others in different directions. It is more likely, however, that evaluative data are not being used at all in some states, and only partially in others. In any case, changes that are evident from individual state data tend to balance out nationally, which means that improved performance in one state has been offset by regression in another. Vocational educators may have evaluative data which they are unable to use because they lack the resources to do so. This is what needs to be known. If evaluative data have not been used, researchers should investigate the reasons for this.

EFFECTIVENESS IN THE USE OF EVALUATIVE DATA

Only where the extent of use of evaluative data is known can the effectiveness of these data be examined. This is the ultimate test of the worth of evaluation. Unfortunately, it is a step that depends on finding out how and to what extent vocational educators are using evaluative data.

The sources of this knowledge are local, state, and national evaluative data. The process is cyclical, beginning with the collection of evaluative data about program performance. Lawrence and Dane (1974) developed a prototype of vocational education planning and suggested the following:

> There is a cyclical process operating in which the actions of planners influence those circumstances toward which planning is directed, and the effects of planning are continually being reintroduced to the planner as environmental changes for him to take into account in his next planning cycle. The crux of this theoretical position rests in the view of the planning process as dynamic and continual, and it implies the need for a regular flow of information between the planning system and its associated environment. (p. 8)

Lawrence and Dane used a national conference to develop their planning model. This might constitute an appropriate means of developing a research model for assessing the use and effectiveness of evaluative data. The present report is a review of knowledge about current practices, suggesting omissions in the research. The work to be done would benefit from the input of evaluation specialists, administrators, planners, and researchers. In the meantime, vocational education evaluators and producers of evaluative data may want to make initial inquiries into the best means of assessing the effectiveness of the use of evaluative data.

OBSERVATIONS ABOUT CURRENT EVALUATIVE DATA

The most extensive evaluative data for use by vocational educators are produced by state and local management information systems (MISs). These usually include what the states are required to collect for the U.S. Office of Education. They do have some value, even though they are compliance oriented and have limitations affecting their reliability and utilization. They do provide a fairly reliable count of students enrolled by occupational program, which can be examined each year. They contain somewhat less reliable, but nevertheless useful, placement data. They include aggregate breakouts by sex, handicapped, disadvantaged, and ethnic minorities, as well as expenditure data which are quite accurate as far as federal and state support is concerned.

A few of the states have taken a step toward better evaluative data in their MISs by collecting unit level data. This means enrollment data by individual student characteristics, such as age, sex, handicapped or disadvantaged, ethnic minority, occupational program, grade level, institution, and name and address. Systems with unit data are always automated, since the quantities of data to be sorted and retrieved are too great for manual handling. A number of states have unit data follow-up systems, some of which can match enrollment with follow-up results. The sophistication of the automated systems

has advanced rapidly with the result that the potential for their use is greater than their actual utilization.

Utilization of the data technology has been encouraged through vocational education research and development funds at both the state and federal levels. The field as a whole has some distance to go before highly useful evaluative data can be expected from the state systems. Starr (1975) comments that:

> A review of the literature on the developments in management information systems for vocational education indicate that, to a considerable extent, many SDVE's continue to operate with second and third generation systems. In such systems a disproportionate degree of emphasis continues to be placed on the quest for the impossible dream: that of identifying the allusive, simple, common core of unchanging data elements which can be supplied with minimum effort by the local school sources, and which will provide users with the maximum data needed for decision making with regard to policy formulation, operations and control for accountability purposes.... What is required is a fourth generation system. (pp. 2-3)

Starr, Black, and Gray (1977) have stated that "only five states were found to have MISs that had a combination of very good data base, data processing, and report generating capabilities" (p. 1). In an overall assessment, they found:

> It is apparent that the state MISs studied were neither comprehensive nor adequate within the framework of the standards set by the project. The only real strength was in hardware support. The use of at least a medium-size computer in 81% of the states indicates that availability of computer facilities is not a serious problem though poor service and lack of ready access was often found to be a constraint in their use. Even in states which do not use computers, there were usually computers available which could be used. The operating components were, on the average, quite inadequate with only 28% of states having at least near-adequate data output, 19% having adequate data processing and 13% having at least near-adequate data bases. Support components were almost non-existent. No state had even near-adequate documentation or assessment, and only 8% had at least near-adequate training. (p. 29)

The major reason for the existence of state MISs is to produce statistical reports each year for the federal government, which in turn are the input for an annual statistical document prepared by the U.S. Office of Education. As a source of evaluative data, this document serves an elementary purpose, but has never been widely used for program planning, management, or even legislative action. It is compliance oriented and suffers from lack of interpretation while containing uneven and nonstandard data. A parallel set of documents containing evaluative data are state descriptive reports, and these are often useful for detail. They do not serve as objective indicators of program accomplishment, but as illustrative material for the statistical

reports. In 1979, under the 1976 legislation, annual state evaluation reports will be required which are expected to be important sources of evaluative data. Their reliability, credibility, and utility are still unknown, and they will be rigorously scrutinized.

Other sources of existing evaluative data for vocational educators are the reports of State Advisory Councils for Vocational Education (SACVEs) and the National Advisory Council for Vocational Education (NACVE). Project Baseline was a product of NACVE, since the Congressional mandate under which it was carried out gave the responsibility to the National Council. The SACVE reports, and an annual NACVE summary of those reports are of mixed quality. For the most part the SACVEs have not conducted evaluation studies, relying instead on observation and the examination of available evaluative data, including state descriptive and statistical reports. Under the 1976 legislation their evaluation responsibilities are more specific, but their sources of data are still largely limited to what they can obtain from the agencies whose performance they are evaluating.

This may change with the implementation of a new national vocational education data system (VEDS), also mandated by the 1976 legislation under the responsibility of the National Center for Educational Statistics (NCES). The promise of VEDS is unlimited, its fulfillment dependent on the willingness of Congress and the states to provide funds for development, and on the willingness of agencies and individuals to establish a major new cooperative enterprise. Slow but definite progress has been made, and the prognosis is guardedly hopeful. The most serious problem faced by both the states and NCES is inadequate funding from Congress.

Finally, a potential source of evaluative data and another product of the 1976 legislation is the National Occupational Information Coordinating Committee (NOICC) and a similar committee (SOICC) in each of the states. As yet, NOICC and the SOICCs have no clear legislative direction in reaching their objectives. They are slowly getting organized, and while ideally they could bring about the interchange of data among several federally supported training systems, (vocational education, CETA, vocational rehabilitation, and apprenticeship), there is no indication yet that they will do much more than to observe and advise.

SUMMARY

A number of conditions must be met before evaluative data can be used. The first of these is availability, which means the data must reach those who are in positions to use them. The second is reliability. The third condition is credibility, often related to but not the same as reliability. Data may be reliable, but if they are not trusted they will not be used. Utility is a fourth condition, and one that researchers and information specialists often neglect. If reliable, credible data are made available in a form not clearly grasped or understood by vocational educators, their use is severely

restricted. And finally there is consistency. Evaluative data are not likely to be used if they are inconsistent with legal requirements, established policy, advisory committee recommendations, and the convictions of administrators and policy makers.

While research on the use of evaluative data by vocational educators is limited, there is nevertheless empirical evidence of their use. The uses most often found are in public relations activities, in preparing legislative and budget requests, in preparing classroom material in vocational teacher education courses, in preparing reports, and in state and local planning. In planning, however, the use of evaluative data is so vague and uncertain that the extent and effectiveness of that use may fall considerably short of current expectations.

Sources from which knowledge about the extent and effectiveness of using evaluative data should be available are: (1) the annual state plans, (2) the planners and administrators of vocational education resources in each state, (3) local school administrators, and (4) the designers and operators of state management information systems. Inferences can also be made about the use of evaluative data from state and national statistics and trend analysis over a period of years. Congress and probably state legislatures make extensive use of evaluative data. A miscellany of other known uses suggests that researchers and evaluation specialists should consider the product of their efforts as multi-targeted rather than directed toward a limited number of users.

State management information systems which include enrollment, placement, staff, and expenditure data contain the most extensive evaluative data currently available. A few state systems with unit data and analytical capability are good, but most suffer from the self-imposed limitations of collecting only the compliance data required for annual reports to USOE. Even those with automated data processing have often failed to keep up with the rapid development of computer technology. The national and state vocational education advisory council reports are another potential source of evaluative data, but with the exception of the NACVE's sponsorship of Project Baseline, these sources usually contain only observations and data supplied by the administrative agencies. Several provisions of the 1976 federal legislation are intended to increase both the quality and availability of evaluative data, notably the new national Vocation Education Data System (VEDS).

Overall, researchers, evaluators, and adminstrators should not wait until VEDS and other products of the 1976 legislation materialize. A better national data system, state and federal evaluations, NOICC and the SOICCs, and more stringent planning requirements may result in better evaluative data, but more interest will have to be shown in determining whether such data are used. The initiative remains to be taken by advisory councils, evaluation specialists, and researchers.

Recommendations

Five courses of action are recommended:

1. The National Institute of Education (NIE), the National Center for Research in Vocational Education, the USOE Bureau of Occupational and Adult Education (BOAE), and the State Research Coordinating Units (RCUs) should make the use of evaluative data a recognized research category. This should be given high priority at least until a body of basic knowledge is established.

2. Evaluation specialists should extend their professional expertise and experience to include the use of evaluative data, circumstances affecting that use, and its extent and effectiveness.

3. Data systems operators and other producers of evaluative data should build into their systems a feedback mechanism for the dual purpose of documenting the need for their products and of evaluating the effectiveness of those products.

4. Advisory Councils at the federal, state, and local levels should begin to make inquiries into the use of evaluative data, the extent of use, and the results obtained by administrative agencies.

5. A national conference on the use of evaluative data by vocational educators should be sponsored by NIE, the National Center, BOAE, or a combination of these and other sponsors to explore ways and means of developing a basic knowledge of the use of evaluative data. A research model would be a welcome outcome of such exploration.

REFERENCES

Ash, Lane C.; Kempfer, Helen; and McNeil, Margaret. Instruments and Procedures for the Evaluation of Vocational/Technical Education. Pilot Edition. Washington, DC: American Vocational Association, December 1971.

Atteberry, Jim W.; Miller, Wilbur R.; and Pershing, James A. Improving Vocational Education Planning: More Myth than Reality? Columbia, MO: Department of Practical Arts and Vocational-Technical Education, March 1977.

"A Critique of the 'Education' Portion of Chapter V - 'Work, Education, and Job Mobility' of Work in America, by a Special Committee from the Center for Adult, Vocational, Technical, and Manpower Education." Washington, DC: U.S. Office of Education, August 1973.

Datta, Lois-ellin. "Better Luck Next Time: From Federal Legislation to Practice in Evaluating Vocational Education." Unpublished manuscript. February 1, 1978.

Denton, William T. Program Evaluation in Vocational and Technical Education. Columbus, OH: The Center for Vocational and Technical Education, The Ohio State University, 1973.

Drewes, Donald W. "Outcome Standardization for Compliance or Direction: The Critical Distinction." Paper presented to the National Conference on Outcome Measures, Louisville, KY: August 16 - 18, 1978. Columbus, OH: The National Center for Research in Vocational Education, 1978.

Drewes, Donald W., and Katz, Douglas S. Manpower Data and Vocational Education: A National Study of Availability and Use. North Carolina State University at Raleigh: Raleigh Center for Occupational Education, 1975.

Dunn, Dennis J. Process and Content Orientations in Vocational Evaluation Programs. Menomonie, WI: Stout Vocational Rehabilitation Inst., University of Wisconsin-Stout, December 1975.

Edsall, Richard R. A Guide for Local Program Evaluation. Information Series No. 73. Columbus, OH: The Center for Vocational and Technical Education, The Ohio State University, 1973.

Egginton, Everett. "Is Vocational Education Meeting Its Objectives?" Phi Delta Kappan 50 (April 1978): 533.

Kiefer, Charles C., and Voelkner, Alvin R. "The Evaluation of Vocational Education Special Needs Programs." Paper presented at the Annual Meeting of American Education Research Association, Washington, DC: March 30 - April 3, 1975.

Kievit, Mary Bach. "Perspectivism in Choosing and Interpreting Outcome Measures in Vocational Education." Paper presented to the National Conference on Outcome Measures, Louisville, KY, August 16 - 18, 1978. Columbus, OH: The National Center for Research in Vocational Education, 1978.

Lamb, Virginia. "Evaluating Vocational Education Programs on the Basis of Job Placement and Labor Market Supply and Demand." Paper presented at the 1977 National Leadership Development Seminar for Administrators of Vocational Education in Large Cities. Columbus, OH: The Center for Vocational Education, 1977.

Lawrence, John E. S., and Dane, J. K. State Vocational Education Planning, An Assessment of Issues and Problems. Raleigh, NC: Center for Occupational Education, North Carolina State University, 1974.

Lee, Arthur M. Learning a Living Across the Nation. Vol. IV, Part 1. Project Baseline. Flagstaff, AZ: Northern Arizona University, 1975.

Lee, Arthur M. Learning a Living Across the Nation. Vol. V, Part 1. Project Baseline. Flagstaff, AZ: Northern Arizona University, 1976.

Magisos, Joel H. "The Wilms Study: Analysis of Policy Implications for Vocational Education." The Journal of Vocational Education Research I (Winter, 1976): 19.

Morgan, Robert L.; Ballenger, William L.; and Lawrence, John.E. S. Management Information Systems for Vocational Education: A National Overview. Raleigh, NC: North Carolina State University, 1974.

O'Reilly, Patrick A. The State Planning Process in Vocational Education. Project Baseline Supplemental Report. Flagstaff, AZ: Northern Arizona University, 1975.

Overview 1976 Reports of the State Advisory Councils on Vocational Education. Washington, DC: The National Advisory Council on Vocational Education, 1977.

Pargament, Richard. "The Coordination of Program Planning and Evaluation Systems for Occupational Education." In Laymen's Guide to the Reporting and Evaluation System for Occupational Education. Vol. I, Appendix A. New York: Riverside Research Inst., January 1973.

Pucel, David J. "The Wilms Study: Analysis of Methodology." The Journal of Vocational Education Research I (Winter, 1976): 3-10

Report to the Congress: What Is the Role of Federal Assistance for Vocational Education? Washington, DC: Government Accounting Office, 1974.

Starr, Harold. "Management Information Systems for Vocational Education." Paper presented at the 1975 National Leadership Development Seminar for State Directors of Vocational Education, "Issues and Answers in Vocational Education," Snowmass, CO, September 23 - 26, 1975. Columbus, OH: The Center for Vocational Education, The Ohio State University, 1975.

Starr, Harold; Black, Michael S.; and Gray, Kenney E. Management Information Systems for Vocational Education: A National Study. Columbus, OH: The Center for Vocational Education, The Ohio State University, 1977.

Status of Vocational Education, School Year 1975-1976. Columbus, OH: The National Center for Research in Vocational Education, 1978.

Stevenson, William W., and Ward, William Gary. Conducting Evaluation Within a State: Information for State Leaders. Columbus, OH: The Center for Vocational and Technical Education, The Ohio State University, 1973.

Swanson, Gordon J. "Vocational Education: Fact and Fantasy." Phi Delta Kappan 60 (October 1978): 87.

U.S. Congress. Educational Amendments of 1976. P.L. 94 - 482.

Venn, Grant. "Criteria Against Which Vocational Education Should be Held Accountable." Paper presented to the National Conference on Outcome Measures, Louisville, KY, August 16 - 18, 1978. Columbus, OH: The National Center for Research in Vocational Education, 1978.

Wilms, Wellford W. The Effectiveness of Public and Proprietary Occupational Training. Berkeley, CA: Center for Research in Higher Education, University of California, 1974.

Wilms, Wellford W., and Hansell, Stephen E. "The Wilms Study: Anatomy of a Project." The Journal of Vocational Education Research I (Winter, 1976): 21 - 22.

Winter, Gene, et al. Reality-Based Evaluation for Two Year Community College Occupational Programs. Pilot Edition. Ithaca, NY: Cornell Institute for Research and Development in Occupational Education, June 1975.

Wirtz, Willard, and Goldstein, Harold. A Critical Look at the Measuring of Work. Washington, DC: The National Manpower Institute, August 1975.

Work in America. Report of a Special Task Force to the Secretary of Health, Education and Welfare. Cambridge, MA: The MIT Press, 1972.