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EDUCATION AND EVALUATION

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If education is to continue to win increasing public financial support, evaluation must become a more important part of the education's public role. Almost everyone is aware of the increased revenue that the field of education is requesting from both State and Federal sources.

Until the 60's, the Federal financial contributions to education, including vocational education were small both in dollars and as a proportion of the total Federal budget. Not much attention had been given to determining the benefit-cost relationship of these expenditures nor of making an assessment of effectiveness in achieving objectives.

But times have changed. Increasing numbers of people are raising questions about education. Some questions are embarrassing—embarrassing because there is insufficient evidence on which to base responses. Educators at all levels need to become more familiar with evaluation techniques and to prepare themselves for the penetrating questions of an interested and an inquiring public.

Why is evaluation so important? Among other things, for the reason just described; those who make public policy decisions resulting in investments in education need some evidence that such decisions are, in fact, in the public interest. It is a special responsibility of legislatures and congress to exercise such accountability. There should be some evidence that resources are being used wisely. Education must have well-defined objectives against which progress can be readily measured.

In exercise of prudence, the public should be able to choose among alternative ways to allocate limited public resources. How can a wise choice be made in expenditures for such things as education, transportation, health services, defense or a host of other services if there are no projections of the consequences of allocating funds to one public service as compared to others? The benefit-cost evaluation technique is very precise for such comparisons. Although this technique is not the only scheme of merit, it cannot be ignored as a means of helping to make a wise allocation of limited funds.

Educators need familiarity with evaluative techniques if they are to remain professionally honest. To be sure, the task of the teacher is not an easy one; not if he is to assist in attaining the objectives of education to which the public ascribes. The purposes of education have been defined in terms as broad as (1) self realization, (2) human relationship, (3) economic efficiency, and (4) civic responsibility. For the teacher to determine whether the educational process has assisted the student to attain these lofty, but abstract, objectives is not easy. In fact, many teachers may consider the evaluation of such attainments as virtually impossible. Yet we cannot go on not knowing. If these four broad areas are indeed true goals of education, then there must be ways of determining whether such goals are being reached. We cannot honestly advocate or perpetrate a system of education which takes lightly the purposes claimed by the public to be important.

Evaluation is also a part of the decision process through which are selected the organizational structure and methods of instruction in use in the schools. If a local school adapts some new practice such as an audio-tutorial system for teaching biology, isn't evaluation of that method of instruction an important part of the decision? Shouldn't a school be expected to evaluate the effectiveness of the new system for accomplishing its instructional goals? If the evaluation proves the system to be effective for intended purposes, the wisdom of the decision is apparent. Should the new system prove ineffective procedures must be changed to improve effectiveness or the system should be discarded in favor of some more promising alternative. The learner should not be penalized because a new idea proves inadequate for the task.

There is motivation for good evaluation processes in education. And while there is some risk that good evaluation procedures may show that some established educational practices (and many of the new ones) to be undesirable, there is greater risk to education if evaluation is ignored; the risk that we are not getting the best education that educational investment can buy.

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WHOSE JOB?

Who should evaluate? And what should be evaluated? Certainly a classroom teacher has some responsibility for the evaluation of his own teaching. He must determine if the objectives of his course are being achieved. If they are not, changes need to be made to bring class accomplishment in line with class goals. In some cases the objectives of the course may need to be adjusted to be more relevant to class needs. Vocational agriculture has experienced this goal adjustment as the objectives have been modified to give new emphasis to agriculture off the farm.

Teachers need to work with local administrators and boards of education as they attempt to evaluate the educational program of the school. Many boards are not skilled in the processes of evaluation and depend almost entirely upon the feedback from the public and the reports of the administrators in evaluating the program of the school. Teachers may need to assist administrators and boards of education in gathering the evidence necessary to formalize the evaluation process. Some schools are effectively utilizing teachers and laymen on coordinating committees in their communities while carrying out local program evaluation of vocational education. This concept of evaluation can be expanded to include all programs of the school.

The responsibility for implementing an evaluation scheme depends upon the purpose of and level at which evaluation is being conducted. Educators need to plan for the kinds of measures that will be used in the evaluation process at various levels, and for various purposes. As the objectives of programs at the local, state and national levels are formulated, the criteria by which obtainment of the objective should be measured can become a part of the objective statement.

HOW DOES ONE DO THE JOB?

There is no single approach by which a classroom course, local program or national commitment to education should be evaluated. Nor is there a single preferred evaluation technique within any one level of responsibility.

Teachers may find the informal or subjective methods of evaluation most appropriate. These methods are described to include such activities as observation of the work done by learners, unstandardized tests, conversation with students and the public, records of changes that have taken place in the learners as a result of program participation, surveys to determine changes in practices, objective scales and rating sheets, various tests (for achievement, skills learned, etc.) and the judgement of experts. This list, while not inclusive, is illustrative of the kinds of informal or semi-formal measurements and evaluations that teachers, administrators and boards of education often use.

But for higher levels of precision, these informal evaluative techniques are often inadequate. Their normal channels for communication do not provide sufficiently for feedback to the public, the congress or to the state education officials. For such purposes, more formalized kinds of evaluation procedures are essential—essential because they provide a condensation of the evidence in a form that can be interpreted in a similar way by many many different people and essential because more of the variables which affect the evidence can be controlled or at least accounted for.

Unfortunately, more formal or more interpretive evaluations at the state and federal levels have most often been confined to measures of quantity rather than quality. They have relied on evidences such as the number of students enrolled, costs per pupil, teachers employed and other input-oriented measures of the quantities of education. Less attention has been given to examining education quality. Perhaps the task has simply been too difficult. Or perhaps, the criteria that should be used in determining whether the objectives of the various programs were satisfied have not been clearly stated in terms which permit assessment; or perhaps the evidence has not been collected so it can be properly interpreted.

Before we employ our conventional wisdom (or conventional exhortations) and criticize the lack of measurement of quality of education at the state and federal levels, perhaps we should engage in some self examination. After all, a state or national evaluation is at best a composite of the evidences that have been provided through local schools of the effectiveness of the educational system in meeting local objectives. It should be assumed that the objectives outlined by the state and national publics have had some impact on the formulation of local objectives. If they have not, local schools need to review and revise their stated objectives to include the broader purposes of public education.

There is some confusion in separating the

concepts of measurement and evaluation. We are sometimes prone to measure and not evaluate and at other times we evaluate without measuring. Measurement is a quantifying process. In agriculture we may count the number of boys who become farmers, or add up the dollars invested in productive projects, or the number of hours of work experience engaged in by each student in off-farm occupational training. There have been numerous studies at the local, state and national level that have merely measured certain characteristics of the educational system. Only when someone has exercised a determination of value and has said of the measurement, "This is good" or "This is bad", have you had evaluation.

But some are prone to evaluate without measuring. They formulate judgements on an intuitive hunch without bothering to gather evidence upon which to exercise judgement. Admittedly, some of the basic goals of education have been poorly stated. With no suggested criteria for measurement of goal attainment, it is difficult to find clues of the kinds of behavior one should exhibit as he reaches an educational goal. For example, how does one measure whether one has succeeded in "fostering civic responsibility"? Educators often laud a program or school activity for leading toward this lofty objective without gathering evidence as to whether or not the learners do those things which are considered civic responsibilities—Do the learners vote? respect the law? have regard for natural resources? are they civic leaders? are they loyal to the ideas of a democratic life? We frequently pay little attention to gathering evidence before we judge.

I illustrate these cases of measurement and evaluation only to emphasize that both are important elements in the total evaluation of education.

Another important dichotomy illuminated in the process of evaluation is the distinction between process and product evaluation. A major share of evaluative effort has been directed at the processes used rather than at the consequences of educational effort. Many of the newer methods used in the classroom and in the administration of the school are adopted on the basis of a process evaluation.

What new ideas have been introduced into your school as the result of process evaluation? Does your school use an audio-tutorial system for teaching languages? Have you adapted the "new" math? Do you use team teaching in some classes? Have you used programmed instruction? Are you now on modular scheduling?

All of these so called innovations have been adopted because process evaluation has shown them to be more effective in some cases than were more conventional methods of teaching

and curriculum organization. Just as a matter of curiosity, inquire to see if any effort has been made to formally evaluate the educational changes that have been adopted in your school or system.

It is more difficult to identify specific innovations in the schools that have occurred as a result of evaluation of the school's products or outcomes. More often there is only abstract interest in product quality. Unlike industry where the profit and loss statement shows very readily whether the business is producing the right product, schools often pay little attention to such input-output relationships. Fortunately there are some good schools, both large and small, who follow their graduates closely. With equal misfortune, however, there are many other schools, both large and small, who observe only the processes and ignore the products. This creates a self-fulfilling prophesy and it sustains schools whose only curriculum is college preparatory even though the majority of their students do not go on to college.

EVALUATION STUDIES IN MINNESOTA

Education has always been subject to some self and public evaluation. If this were not true, the processes and procedures of education would not have changed. In a recent announcement from the U.S. Office of Education, Minnesota was identified as having the lowest drop-out ratio in its senior-high schools of any state in the Union. Much credit was given to the vocational education structure in Minnesota. This identifies dramatically the response made in Minnesota to continuous evaluation of the product elements of the public school. That response has been to create an environment of vocational and technical training making education more relevant to the needs of the student and of society.

Teachers and administrators have made countless informal and semi-formal evaluations of courses and programs within the school. I cannot report to you what the results of these evaluations may have been because the results are rarely published. We can only speculate that teachers have adjusted and revised course content, changed teaching methods and made adjustments in course objectives as a result of their informal evaluations.

A more formal evaluation of vocational education is now being conducted by four Minnesota schools in cooperation with the Agricultural Education Department of the University of Minnesota and Michigan State University. Educators and lay persons from the community are making the evaluation. Their evaluations are based both on products and processes, but are mainly concerned with the students. Two educators from each school have assumed the leadership in organizing a committee charged with evaluation. They are using a

variety of evaluation methods.

While it is too early to report the results of such efforts, it is significant that communities can adopt workable procedures for self evaluation. The directors of these projects are not necessarily experts in evaluation. They have not been highly trained for such tasks. They do, however, have the most important qualifications: interest and energy. They are making use of their committees, good common sense and occasional services of consultants to design and carry out program evaluations that have real meaning to the local community.

A more formal evaluation of an agricultural program was completed recently and published in summary form as "Investments in Education For Farmers." This report illustrates the kind of complex evaluation that is possible only through organized research efforts. It also illustrates an application of a cost-benefit procedure to education. One of the aims of the farm management program which was studied is to improve farm income. A logical criteria of accomplishment was the measures resulting from the effect of enrollment in the management education program on the income level of participants. Measurement involved data in farm business records adjusted to reflect changes in farm size, price levels, and other factors affecting income over which the farmer has no control.

A second step, and one necessary for evalua-

tion, was to determine if the benefits of education, as measured by relative increases in income, exceeded the costs. A benefit-cost ratio of 4.2:1 was reported for farmers enrolled in well-organized programs of farm business management education. For evaluation, other ratios of benefit-costs needed to be considered. The interest rate on government bonds served as a comparative measure. Evaluation was a matter of determining if a ratio of 4.2:1 for education was more desirable than a ratio of 1.4:1 for government bonds. Evaluation, based upon a study of benefits and costs, suggests that a good use of public money is in farm business management for adult farmers.

SUMMARY

This article is not a recipe for evaluation. It serves to illustrate that there are some very sound reasons for educators to be concerned both about process and product evaluation at all levels of responsibility. The job of evaluating is not unique to any group. Teachers, administrators, leaders in State Departments of Education, teacher trainers and federal officers have a role to play. Likewise, the tools for evaluating are as varied as the users.

Some examples of recent evaluation efforts illustrate that work is being done in the classroom, in schools and at other levels to provide the evidences that education needs to respond intelligently and correctly to an inquiring public.