DEVELOPMENT, DISSEMINATION, AND THE IMPROVEMENT OF EDUCATION

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The Southeastern Educational Corporation (SEEC) has been established with funds from the U. S. Office of Education, and is to be operated as one of several regional educational laboratories in the United States. SEEC, with headquarters in Atlanta, Georgia, will serve the states of Alabama, Florida, and Georgia, and will include eight component or satellite centers in these three states.

Initial emphasis of the Southeastern Edcuational Corporation (SEEC) as it works to advance education, will be upon programs of dissemination and development. The Prospectus (SEEC, 1965) for the laboratory defines "dissemination" as the transmission of "such ideas and innovations as now exist for the improvement of education specifically and the improvement of the welfare of the people generally;" "development" is defined as "the invention of new techniques, equipment, and procedures for use in schools and related social agencies."

These definitions appear essentially consistent with comments made more recently by Mr. Richard L. Bright (1966), Assistant Commissioner for Research in the U. S. Office of Education. Acknowledging the need for incorporating "good evaluative components" into innovative educational projects, Mr. Bright nevertheless proceeds to identify as the major concern of regional laboratories such as SEEC, development, dissemination, and related activities. This is contrasted with the central research role Mr. Bright describes ror the older Research and Development centers.

It is difficult to identify a more potentially important function than that of communicating existing knowledge about education to the practicioners of education, so that valid information can be applied and developed to help solve critical educational problems. For example, if knowledge about how children learn remains on the library shelf, it is not very useful in assisting us to meet practical educational problems, such as helping disadvantaged children learn to read more effectively.

The value of pure dissemination as a remedy for educational ills must however, be in direct proportion to the

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amount of certain and operational knowledge existing regarding effective educational practices. It depends, in other words, upon how much is already known about teaching children to read, or more generally, how much is understood about the learning process.

Some very significant things are known about education. Basic research, especially in the areas of psychology and human development, has provided some profound insights into crucial dimensions of the learning process. Data are also available relevant to significant questions about teaching methods, learning materials, grouping procedures, and a host of other classroom variables. These data are not always consistent though, and some cannot be readily generalized to situations other than the experimental one in which they emerged. Furthermore, much of this presently available knowledge exists at best in only a partially complete, or probably true state. It therefore requires, as prerequisites of any dissemination efforts, the following further and substantial developments:

(a) an empirical blueprint for identifying and engineering the most effective implementation of a given principle, or series of principles, into ongoing school situations--measurement and description of "process" variables for determining what operational forms the application of such knowledge will or can assume in a functioning school.

(b) an evaluation procedure for assessing its actual effects once implemented--an objective measurement of "product" variables in terms of clearly defined objectives.

(c) a controlled research study designed to establish the existence of an authentic relationship between the implemented program and the observed effects.

Existing knowledge in education does not always translate into effective educational practice. Knowledge, in the sense of identified educational programs or "packages" that have been field-tested and shown to accomplish specified ends, is almost non-existent in education. Improvement in education therefore cannot depend primarily upon dissemination per se, since dissemination presupposes research and development activities that are as yet largely untouched.

Implicit in the foregoing is a substantially expanded conception of developmental activities as earlier defined in the Prospectus for SEEC (1965), i.e., the invention of new techniques, equipment, and procedures for use in the schools and related social agencies. Although the importance of evaluation activities is referred to subsequently in the Prospectus, this definition suggests an initial and inappropriate deemphasis of evaluation-research. Design of a viable program and assessment of program effects are two critically important tasks which require incorporation of sound evaluation procedures at the very outset of developmental projects. Their introduction subsequent to developmental activities is clearly inappropriate and cannot really be taken as a serious evaluation attempt.

More broadly speaking, development of new operational educational programs requires substantially more than creative or innovative ideas, although it does demand full measure of these. Ideally, such programs should be related to, or grounded in more basic, scientific understanding of how learning takes place, and what conditions maximize learning. The chances of developing an effective program should increase if it is explicitly and consciously formulated in the context of these more basic understandings, while formulation and study of the operational program itself may generate insight and information useful in suggesting modifications or advancements in these same understandings. Thus the scientific productivity of such programs, and the chances of developing practically effective programs of education might both increase as a result of a sincere attempt to relate proposed programs to existing theory and knowledge about the learning process.

Developmental programs in education are rarely set in the context suggested above. The difficulties of doing this are formidable given the present state of education as a scientific study. Basic knowledge about the learning process is limited, and the attempt to improve education through new programs cannot usually wait until more theoretical knowledge, in this case, catches-up with practice. Every effort should be made, however, in the context of specific educational innovations, to consciously wrestle with the more general, theoretical implications of each program, exploiting fully its potential for advancing the understanding of the basic variables present in effective human learning.

The extreme difficulty of relating proposed innovative programs in education to a well-defined, conceptual understanding of the learning process, only heightens the critical and urgent need for the best kind of evaluation and

research that can be conducted at the functioning or programmatic level of education. In the frequent absence of sound basic guidelines about what factors maximize learning under what conditions, the only possible criterion of effectiveness for a new program, other than the innovator's missionary-like zeal for his own creation, lies in some direct objective assessment of its effects as it operates in a specific situation. This assessment must admittedly recognize that discrete variables will not be disentangled from functioning programs, as may be ideal in scientific research; nor is such programmatic research likely to advance the science of education substantially. At the same time it should also recognize that systematic, controlled evaluation of programs is possible and worthwhile, offering in many instances the only present alternative to the personal whims of the reformer or salesman in education.

Cronbach (1966), in a provocative discussion of these general issues, compares the field of education with the field of medicine in a rather unique way. Quoting from a medical expert who states that, "In medicine a tragic chasm exists between what we know and what we do," Cronbach insists that the analogous statement for education should be, "The tragedy is that there is so small a gap between what we do and what we know." A wealth of readily available knowledge concerning the fundamental conditions of learning, motivation, and instructional effectiveness is not available. Of that which is available, most requires a careful engineering effort, with searching evaluation, before the operational form of such knowledge can be identified and vindicated, or to borrow some terms from the merchandising field, before it can be packaged for distribution as a consumable educational commodity. It is only then that simple dissemination, or in Cronbach's terms, "a marketing phase in which schools are persuaded to adopt the improved methods and teachers are trained to use them" becomes in any sense a professionally responsible activity.

Federal legislation has recognized the important need for evaluation by insisting upon inclusion of evaluation in programs like the regional laboratory. The SEEC Prospectus similarly acknowledges the need for evaluation and research. Nevertheless it remains our job as educational researchers to see that authentic, searching evaluation is carried out in programs undertaken to advance education, especially when there is detected an inordinate initial priority attached to dissemination and development projects.

Perhaps this is what Robert Travers (1963) had in mind, when he wrote in his book, "Essentials of Learning":

> "It is also clear that scientists are still far from the development of a set of precisely stated laws which can have direct bearing on classroom practice. Some might even doubt whether the aim of developing such a set of laws is a reasonable goal for research, and might say that the most that can be achieved is a set of general statements which may serve as a guide to action in the planning and management of learning situations."

Shifting attention to yet another type of available "knowledge" in education, impressive claims have been made regarding the educational worth of the new, or modern programs in science and mathematics. These programs purport to develop significantly greater aptitude for future work in mathematics and science, by introducing students to the systems of thought underlying these disciplines, rather than emphasizing their products. It is further argued that pupils are adequately motivated by the intrinsic meaningfulness to be found in the underlying logical fabric of interrelated ideas inherent to a discipline.

Here are instances of what appear to be complete teaching-learning packages of materials and strategies, ready for immediate dissemination. Certainly, unlike the more theoretical principles of learning described earlier, these resources constitute themselves a self-sustaining approach to classroom teaching, of sufficient complexity and refinement as to anticipate problems of practical application. If this is true, then immediate dissemination becomes possible.

Unfortunately, modern mathematics and science curriculums are unlike these same theoretical principles of learning in another way--for the most part they lack consistent empirical evidence documenting their worth as instructional strategies.

Lee Cronbach, in a paper read at the Fourteenth International Congress of Applied Psychology in Copenhagen, pointed out that there exists little or no evidence that the new programs in mathematics or science will permit students to do better, in later, more advanced study of mathematics or science. In other words, neither the rationale nor the claimed superiority of these programs has been supported by scientific study. Surely any dissemination

attempts are fraudulent unless they recognize this situation, viewing such claims as hypotheses to be tested experimentally rather than as truths to be proclaimed universally.

Finally, there are, of course, the vast uncharted terrains in education, where principles and generalizations have yet to be discovered. For example, the educational impact resulting from the complicated social interaction of teachers and pupils possessed of varying personality needs and patterns, has yet to be revealed. While study in this more "basic" research area may be properly reserved for later attention in the current "crash" programs of education, there are those who feel that real breakthroughs in education must await the kind of information which such study will produce.

Other largely unmapped areas hit much closer to more immediate, short-term concerns. Reference is made to the rather extensive use of educational technology in modern classrooms. By technology are included such things as overhead projectors, slide projectors with attached record player, three-dimensional maps, new format textbooks of both the programmed and non-programmed variety, simulated visual models of certain phenomenon, demonstration laboratory kits, etc. Although considerable resources of time, talent, and money have been invested in such equipment, and although the value of some is fairly obvious, very little systematic study has been made of the effect of such accessories upon learning, and the precise ways in which this equipment should and does assist the learner.

In this discussion, samples of the kinds of existing information available in education have been suggested. These samples have ranged from what appeared to be the most obvious kinds of information, to the most obscure. In pursuing our fervent ambition to improve education in the context of dissemination and development, we must understand the status of whatever knowledge we are using, and we must respect this status honestly. Such understanding must acknowledge the weaknesses as well as the strengths of available information, guarding against the premature crystallization and massive dissemination of promising, but largely untested ideas. A critical scientific posture will ultimately work to the benefit of those educational innovations worthy of general adoption.

Rejecting the absolute world of the propagandist, and accepting the discriminating evidence of documented study, the cyclical swing from unqualified endorsement to total rejection should be replaced by judicious, diagnostic evaluation of new educational proposals. Impulsive bandwagons

will then neither catapult ideas into undeserved fame, nor sentence them to what is, frequently, an equally undeserved oblivion. Innovative ideas should be accorded no more and no less prestige than the study of objective relationships permits. New ideas in education which spurn this criterion deserve little more than the temporary worship of those who perennially search for panaceas.

References

Bright, R. L. The USOE and research in education. Phi Delta Kappan, 1966, 1, 2-5.

Cronback, L. J. The role of the university in improving education. Phi Delta Kappan, 1966, 10, 539-545.

Southeastern Educational Corporation. Prospectus. Tallahassee, Florida: Southeastern Educational Corporation, 1966.

Travers, R. M. W. Essentials of Learning: An Overview for Students of Education. New York: Macmillan, 1963.