DOCUMENT RESUME

ED 086 691 SP 007 631

TITLE	Educational Laboratory and Research and Development Center Programs Need to Be Strengthened. Report to the Congress by the Comptroller General of the United States.
INSTITUTION	Comptroller General of the U.S., Washington, D.C.; National Inst. of Education (DHEW), Washington, D.C.
PUB DATE	Nov 73
NOTE	44p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Educational Development; *Educational Legislation; *Educational Research; Educational Technology; Federal Programs; *Instructional Improvement; *Instructional Materials; *Laboratories
IDENTIFIERS	Product Development

ABSTRACT

This report by the General Accounting Office (GAO) generated by congressional concern over the accomplishments of educational research, reviews the activities and impact of the contractors (educational laboratories and research and development--R&D centers) supported by the Cooperative Research Act under the direction of the U.S. Office of Education and, subsequently, the National Institute of Education (NIE). The laboratories were to translate the research results of the R&D centers into products such as books, audiovisual materials, procedures, and organizational structures. After testing and refining the products, they were to make them available to local school systems, generally through commercial publishers. GAO found that a) there was little evidence that products had significant impact on classrooms; b) completed or substantially developed products generated little publisher interest; and c) management problems, such as frequent changes in Office of Education leadership, have hindered the program. The report recommends that NIE a) require the contractor to state clearly the objective of the product in terms of anticipated, specific educational changes; b) establish evaluation requirements for contractors; c) set standards for follow-up evaluations; d) monitor contractors' evaluation processes; and e) demonstrate the marketability of a proposed product. (HMD)

SP

REPORT TO THE CONGRESS

FEB 5 1974

Educational Laboratory And Research And Development Center Programs Need To Be Strengthened

B-164031(1)

National Institute of Education
Department of Health, Education, and Welfare

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

NOV. 16, 1973

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-164031(1)

To the Speaker of the House of Representatives
and the President pro tempore of the Senate

This report concerns our review of educational research and development performed by regional educational laboratories and research and development centers. Activities performed by these institutions are authorized by the Cooperative Research Act, as amended (20 U.S.C. 331), and are administered by the National Institute of Education, Department of Health, Education, and Welfare.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget, and to the Secretary of Health, Education, and Welfare.

Elmer B. Staats

Comptroller General
of the United States

Contents

ABBREVIATIONS

GAO	General Accounting Office
HEW	Department of Health, Education, and Welfare
OE	Office of Education
NIE	National Institute of Education

COMPTROLLER GENERAL'S REPORT TO THE CONGRESS

EDUCATIONAL LABORATORY AND RESEARCH AND DEVELOPMENT CENTER PROGRAMS NEED TO BE STRENGTHENED

National Institute of Education
Department of Health, Education and Welfare B-164031(1)

D I G E S T

WHY THE REVIEW WAS MADE

Because of congressional concern over educational research and its accomplishments, GAO reviewed the activities of five educational laboratories and three development centers, supported by the Department of Health, Education, and Welfare (HEW), which had expended about $82 million since their inception.

Basic facts

In 1963, the Office of Education (OE), under the Cooperative Research Act, as amended, began supporting university-based organizations (centers) committed to researching significant educational problems. The research was to contribute toward the understanding and improvement of educational practices.

In 1965, the Congress authorized OE to support the establishment of independent, nonprofit institutions (laboratories) designed to make the results of innovation and experimentation in education readily available to schools.

The laboratories were to develop the research results into products--such as books, audiovisual materials, procedures, and organizational structures--that could be used in classrooms; test and refine these products; and make them available to local school systems, generally through commercial publishing companies.

During GAO's review, the Congress enacted the Education Amendments of 1972, which established the National Institute of Education within HEW. In August 1972, this organization became responsible for most of the educational research, including the laboratory and center programs, formerly administered by OE.

Since 1963 Federal appropriations for the laboratory and center programs totaled about $211 million. As of December 1972, 11 laboratories and 9 centers were engaged in educational research and development.

FINDINGS AND CONCLUSIONS

Laboratories and centers (referred to as contractors) have put forth much effort to improve American education and have established a pool of personnel specializing in research and development of educational products.

To have an impact, educational research and development programs should result in products which have certain essential characteristics. They should be able to achieve desired objectives and be readily and economically made available to the classroom.

Although the contractors have developed some products--particularly those dealing with teacher training--which have been disseminated to the intended users, the products GAO reviewed generally did not possess these characteristics. (See p. 9.)

Product evaluation

OE delegated to the laboratories and centers the responsibility for evaluating the products but did not prepare guidelines setting forth requirements for sound evaluation.

Although contractors reviewed by GAO made some form of evaluation before disseminating the products, the evaluation processes varied significantly among the contractors and generally were not adequate to enable them to determine the effectiveness of their products. (See p. 11.)

Contractors generally had not

--stated product objectives in measurable terms (see p. 12),

--established adequate controls over factors affecting the validity of their test results (see p. 13),

--compared their results with the results of similar products being used in schools (see p. 14),

--designed their evaluations to determine product impact on student learning (see p. 15), and

--provided potential users with timely and informative evaluation reports for use in making purchasing decisions (see p. 15).

There was little evidence that contractor products have had a significant impact in classrooms. Followup evaluations had not been planned or made to determine the long-term impact of products on the educational user.

OE considered followup evaluations desirable but did not require them because it emphasized the need to cease funding a product once it had been disseminated so that funds could be reprogramed to new priorities. (See pp. 17 to 19.)

OE consultants employed to independently and objectively evaluate contractor products have generally criticized the products as not having been proved effective. (See p. 19.)

A well-defined statement of a proposed product's objectives in terms of specific educational changes expected from product use is essential to making an evaluation. A sound evaluation system should include

--a plan for evaluating during development the extent to which the product meets its objectives and

--a plan for followup studies, when appropriate and feasible, to determine whether the product performed in the classroom as intended. (See p. 11.)

Such a system would enable the National Institute of Education and its contractors to have a basis for making more informed decisions on future program direction and investments of the limited Federal funds available for educational research and development.

Product marketability

OE intended that contractors' products be disseminated to the educational community by organizations other than the contractors--generally

commercial publishers. It did not require its contractors to assess market needs and constraints and to contact publishers before product development to determine a product's marketability. (See p. 23.)

GAO reviewed the major products in 17 programs costing $48.8 million and found that most products which were developed or substantially completed had generated little publisher interest. (See p. 24.) GAO analyzed contractor product files and found that the following factors occurred most frequently with respect to publisher disinterest.

--Products were based on existing copyrighted material for which no release had been obtained. (See p. 24.)

--Products were not in a form readily usable without contractor assistance. (See p. 26.)

--Products were aimed at a specialized or limited audience. (See p. 28.)

If OE had required assessments of market needs and early contacts with publishers to help determine consumer need or interest, the above problems might have been revealed early enough to modify or redirect the contractors' efforts.

Management problems

OE provided substantial funds to laboratories and centers to develop improved educational products. In the beginning stages, OE emphasized product development almost to the exclusion of product marketing and evaluation.

As the contractors matured, they recognized the need to focus on these other processes, and some contractors began identifying procedures necessary to carry them out. This growth, however, has been gradual and has suffered from inadequate guidance from OE.

Certain unanticipated problems, such as frequent changes in OE leadership, also have affected the successful operation of the programs. (See p. 9.)

RECOMMENDATIONS AND SUGGESTIONS

The Secretary of HEW should direct the National Institute of Education to:

--Require contractors to state objectives in terms of specific educational changes expected from using the products. (See p. 21.)

--Establish basic requirements for contractors to use in their evaluations, including, as a minimum, the requirement to (1) evaluate, upon completion of product development, the extent to which the product achieved its objectives, (2) maintain control over factors which could affect the validity of evaluation results, and (3) make comparative evaluations when practicable. (See p. 21.)

--Establish standards for followup evaluations, when appropriate and feasible, to determine a product's long-term impact in the classroom. (See p. 21.)

--Monitor the contractors' evaluation processes. (See p. 21.)

--Demonstrate the proposed product's marketability, considering such factors as the special needs of the intended users, the product

competition, and the product cost. (See p. 32.)

--Develop alternative ways of disseminating the products. (See p. 32.)

AGENCY ACTIONS AND UNRESOLVED ISSUES

HEW concurred in GAO's recommendations and described actions taken or planned to implement them. (See pp. 21, 22, and 32.)

MATTERS FOR CONSIDERATION BY THE CONGRESS

This report provides the Congress with information on the laboratories' and centers' progress in developing and disseminating educational products and the additional steps the National Institute of Education needs to take to improve the programs. GAO believes that this report will be useful to the congressional committees having oversight responsibilities for this new organization.

CHAPTER 1

INTRODUCTION

The Office of Education (OE), Department of Health, Education, and Welfare (HEW), has stated that progress in education depends on research, development, demonstration, evaluation, and dissemination of new educational products and practices. OE has funded a wide range of activities designed to seek solutions to educational problems and to develop programs to meet students' needs. This support covered short-term projects, comprehensive development undertakings, and commitments to insure a firm research manpower and institution base. Included in the support were the educational laboratory and research and development center programs established under the Cooperative Research Act, as amended (20 U.S.C. 331).

We reviewed five educational laboratories' and three research and development centers' activities to determine whether the programs were achieving their objectives and, if not, what improvements were needed. These programs generally were designed to improve educational practices in one or more of the following areas--teacher-training techniques, instructional materials and methods, curriculum development, and school organization and management structures.

During our review, the President signed Public Law 92-318, Education Amendments of 1972, which established the National Institute of Education (NIE) within HEW (20 U.S.C. 1221e (Supp. II, 1972)). In August 1972, NIE assumed responsibility for most of the educational research activities, including the laboratory and research and development center programs, formerly administered by OE.

Under the law, NIE is charged with

--helping to solve or alleviate problems in American education;

--promoting the reform and renewal of American education;

--advancing education as an art, science, and profession;

--strengthening the scientific and technological foundations of education; and

--building an effective educational research and development system.

We believe that the information in this report will help NIE carry out its responsibilities.

RESEARCH AND DEVELOPMENT CENTERS

Two research and development centers were established in fiscal year 1964 to conduct coordinated indepth research relating to major educational problems. Other centers were later established, and, as of December 1972, nine centers were receiving NIE support to perform basic research to help improve and better understand educational practices. These centers, based at institutions of higher education, receive funds from these institutions to supplement the Federal support.

EDUCATIONAL LABORATORIES

The Cooperative Research Act, as amended by the Elementary and Secondary Education Act of 1965 (78 Stat. 44), authorized the Commissioner of Education to support research and development of nonprofit institutions and organizations, including educational laboratories. The House and Senate committee reports on this legislation indicated that these national and regional facilities would be designed to make the results of innovation and experimentation in education readily available to the schools.

Laboratories are multidisciplinary and multifunctional and conduct activities ranging from research and development of new educational products and practices to demonstration and dissemination of the results. The laboratories were to work with local schools, State departments of education, universities, and other groups to translate the research results into forms that could be effectively used in classrooms and made available to local schools.

The development activities of the educational laboratories were designed to complement rather than duplicate the centers' research and initial development activities. Centers and laboratories frequently work on different stages

of efforts to resolve major educational problems, dividing their responsibilities according to staff competencies to reach mutual goals.

In May 1967, the National Advisory Committee on Educational Laboratories stated that the laboratories should concentrate on development and emphasize measures specifically designed to convert research knowledge as rapidly as possible into educational practice. In addition, the committee recommended that OE support orderly expansion of the laboratories' work.

OE organized a network of 20 nonprofit institutions during 1965 and 1966 to operate as regional educational laboratories. Federal funding was discontinued in 1969 for five laboratories and for four more in 1971 because of budget limitations and OE's dissatisfaction with their performance. These nine laboratories had received about $24 million. As of December 1972, the other 11 laboratories were receiving NIE research and development support.

FUNDING

The following table shows that the Congress appropriated funds totaling $211.2 million from the time the educational laboratory and research and development center programs were begun through fiscal year 1972.

Fiscal year	Appropriated funds	
	Laboratories	Centers
	(millions)	
1964	$ -	$ 1.0
1965	-	2.2
1966	8.7	6.6
1967	17.7	9.3
1968	22.9	[a]12.4
1969	23.4	9.8
1970	25.1	8.9
1971	23.9	7.2
1972	22.6	9.5
Total	$144.3	$66.9

[a]Amount covers 12 to 19 months. Contracts for seven centers were extended from 1 to 7 months in addition to the basic 12-month period to have all centers on the same contract year. Appropriations were increased to accommodate this transition.

The five laboratories and three centers included in our review had spent about $82 million for research, evaluation, and dissemination as of November 1972. OE negotiated contracts annually with laboratories and centers on the basis of their budget requests and plans detailing the scope of their work. In recent years OE established priorities for the type of educational research and development to be carried out, but it still approved funding on the basis of requests from laboratories and centers.

NIE plans to shift from supporting the laboratories and centers as institutions to supporting research for developing specific educational programs. NIE plans also to issue requests for the work to be done, and all segments of the educational community--laboratories, centers, colleges, universities, and individuals--will be eligible to submit proposals for NIE funds.

CHAPTER 2

THE IMPACT OF EDUCATIONAL RESEARCH AND DEVELOPMENT

The Federal Government has provided substantial support to educational laboratories and research and development centers, and these institutions have put forth much effort to improve American education. The laboratories and centers, generally referred to as contractors, have successfully established personnel specializing in research and development of educational products. They have also developed some products--particularly those dealing with teacher training--which have been disseminated to the intended users.

The contractors generally have had problems, however, in getting research results into the classroom. The contractors, OE, or other interested parties often were unable to determine whether the products provided effective educational alternatives because the contractors had not adequately evaluated the products. Also, contractors have not been able to interest publishers in marketing some of their educational products because they did not adequately consider factors affecting marketability, such as product complexity and cost.

One of the causes of the contractors' problems is that the climate in which they operated was not always conducive to providing effective products. In the early stages of the programs, OE emphasized product development almost to the exclusion of product marketing and evaluation. As the contractors matured, they recognized the need to focus on these other processes, and some contractors began identifying procedures necessary to carry them out. This growth, however, has been gradual and, for the most part, without adequate OE guidance.

OE officials believe that the programs have also suffered from frequent changes in OE management personnel responsible for administering educational research and development. Four different management officials were responsible for directing OE's research and development program from 1968 to 1971. In addition, OE officials have stated that the organization responsible for monitoring the programs within OE was not adequately staffed to carry out its

responsibilities. According to OE officials, operating funds were occasionally curtailed to the point that even the external reviews of the program which were required by legislation were cut below the level considered prudent for sound management.

NIE was established to help solve the problems associated with educational research and development. We believe that, if federally funded education research and development activities are to have an impact, NIE must insure that the products demonstrate that they can (1) achieve desired objectives and (2) be made readily and economically available to the classroom.

CHAPTER 3

OPPORTUNITIES TO IMPROVE PRODUCT EVALUATION

The overall goal of OE's research programs is to improve American education by providing educators with a wide array of effective alternatives to existing educational programs. According to OE, educational research and development requires a series of carefully programed efforts to produce tested and effective materials, procedures, and organizational forms needed to improve specific elements of instruction and the educational process. Although the contractors included in our review made some form of product evaluation, they generally did not convincingly and objectively demonstrate their products' effectiveness in terms of the benefits to be derived by potential users, especially students.

The contractors generally had not stated product objectives in measurable terms. The evaluation processes varied among the contractors and were generally not adequate to enable them to evaluate their products' effectiveness. The evaluation reports which were issued for OE's and users' benefits were generally not timely or complete, and contractors did not perform followup studies to determine the long-term effect of products that had been disseminated. Several OE consultants who had been asked to review contractor activities also criticized the contractors' evaluations.

ELEMENTS OF A SOUND EVALUATION

OE delegated the responsibility for evaluating products to the laboratories and centers, but it did not develop guidelines setting forth fundamental requirements for a sound evaluation process. Contractors were not required to and did not state their proposed products' objectives in terms of specific educational changes expected from product use. A well-defined statement of objectives is essential to establishing an evaluation system which should include

--a plan for evaluating the extent to which the product meets the stated objectives and how the product compares to existing alternatives available to the educator and

--a plan for followup studies, when appropriate and feasible, to determine whether the product performed as intended after it was disseminated and used in the classroom.

Such a system would provide NIE and its contractors a basis for making more informed decisions on future program direction and investments of the limited Federal funds available for educational research and development.

UNCLEAR PRODUCT OBJECTIVES

Contractors reviewed generally had not established product objectives concerning the type and degree of changes that could be expected from using their products. Because product expectations were vague and were not stated in measurable terms, we believe it would be difficult, if not impossible, to determine product effectiveness. Two examples are discussed below.

1. One contractor was developing an instructional program in individualized learning which another contractor originally started. This program was to develop products which would provide individualized instruction in reading, spelling, mathematics, and science. About $8.4 million had been expended on this program through November 1972.

The objectives for the products in all of the learning areas were stated in imprecise and immeasurable terms. For instance, the contractor's objective for its mathematics products was stated as follows:

"Outcome: Improved math program through increased prescription power."

2. Another contractor was developing a mathematics product for secondary level students. The objective for this product was:

"* * * to develop a mathematics curriculum for students of grades 7-12 which is sound and appropriate, based on fundamental unifying mathematical concepts and individualized through a proper mix on independent study and teacher taught materials."

In both of these examples, the contractors could have stated the products' objectives in terms of the participants' expected rate of achievement. These students' actual achievement could then be measured against these objectives to see if the products were achieving the intended results.

SHORTCOMINGS IN EVALUATING PRODUCTS

In testimony before the Senate Committee on Appropriations for fiscal year 1973 describing the importance of evaluation, the Secretary of HEW stated that evaluation is one of HEW's major tools to indicate how to improve its programs. The Secretary pointed out that evaluation is intended to provide information on what does and does not work so that HEW can get the maximum impact from its resources.

Validity of test results

Many of the contractors in our review did not adequately control factors which could affect the validity of test results--such as the number and type of test participants, test settings, measurement variables, and application of test materials--when they performed the product evaluations. It is generally recognized among evaluation experts that these factors must be controlled to obtain useful evaluation results. Two examples of the absence of adequate control over evaluations are discussed below.

1. One contractor conducted numerous evaluation studies on its reading and mathematics products. These products were geared to individualized instruction of students in grades one through six. The tests were conducted at 6 test and demonstration schools which at the end of school year 1971-72 had received over $2.5 million from the contractor to cover their costs for acting as demonstration schools. For each test school, another school in the same community was selected as a control group. Students in the control groups did not use the contractor's reading and mathematics products.

The contractor, however, did not adequately control its evaluation. For example, the progress of individual students was not reported even though the products were directed to meeting the needs of individual students, and the accumulative achievement gains of the test groups and control groups were not compared.

In its progress reports, the contractor stated that test students achieved as well as or better than control students on standardized tests. We were advised, however, that when the contractor administered standardized tests, it allowed both the control groups and test students to take the entire test rather than only those portions applicable to their grade levels as required by the test manual. And all students were allowed to take as much time as they wanted in completing the test, which was also contrary to the test manual. Under these circumstances, results from the tests would not be comparable to standardized test norms.

2. Another contractor developed a 3-year reading program for Alaskan native children. The contractor planned a 3-year field test of the program beginning in the fall of 1968 using test groups and control groups composed of students selected from several schools that were ultimately to be given the tested program. The contractor planned to disseminate the final tested products to all users in the fall of 1972, after allowing 1 year to incorporate revisions expected to result from evaluating the test program. In 1970, however, the contractor yielded to pressures from State school officials and made the program available to substantially all the native children. The contractor thus lost the possibility of comparing test students against control students who had not been exposed to the program. About $1.1 million was expended on this program as of November 1972.

Comparison studies

Contractors generally did not perform studies comparing the results of their products against (1) the results of similar products already being used in the schools or (2) the results of other contractors' products. OE recognized in 1965 that means had to be devised to compare new educational products with existing products but OE did not require the contractors to attempt such comparisons. This information would be useful to the educational user in selecting products from among available alternatives and to NIE in making decisions on future product development efforts.

An example of the absence of comparison studies involved a contractor which developed a reading product at a cost of about $700,000 to provide supplementary material to a commercially available reader. Use of the commercial reader alone

required the user to spend $4 a student annually on consumable materials. The contractor's product required an additional $5 a student annually. The contractor did not compare the results obtained using its product (commercial product plus supplemental material) to the results obtained using the commercial reader alone; therefore, potential users of the contractor's product did not have data for making an informed decision about the product's cost effectiveness.

Design of studies

In cases where products were developed to improve certain skills of teachers, the evaluations were to answer such questions as whether the teachers learned the skills and whether the teachers believed the training was valuable. The evaluations were not concerned with measuring the impact on student learning as a result of the teacher's using the product.

OE's consultants stated the following about one teacher training program:

> "Evaluation seems to stop with determining teachers' mastery of skills, but there is no assessment * * * of change in the typical classroom behavior of teachers. There is no emphasis on subsequent changes in pupils after the teacher training. This omission is unacceptable in a program which bases its importance on the education of pupils."

PROBLEMS IN PRODUCT EVALUATION REPORTS

One of the most important elements in the evaluation is the evaluation report. To be used in decisionmaking, the reports should be timely and complete. In a number of instances, contractors had disseminated their products even though their evaluation reports did not meet any of these criteria.

Timeliness

Evaluation data can only be helpful in making effective purchasing decisions if it is provided to the potential user in advance of those decisions. Two contractors disseminated products without providing a formal evaluation report. In

some cases a report was provided many months after the product was released for commercial marketing, and in other cases no reports were provided. For example, a contractor had disseminated four products to train teachers in certain skills. The evaluation reports for three of the products were not available as of August 1972 even though the products had been on the market 18 to 32 months. The evaluation report for the remaining product was issued 12 months later. Only limited quantities of these products were sold. It seems likely that more timely availability of evaluation reports demonstrating the effectiveness of the products would increase sales. The contractor informed us that in the future it would not disseminate products before it provided an evaluation report.

Completeness

The test population for a basic electricity course developed and evaluated by one contractor was to comprise 130 students. However, complete evaluation data was available for only 22 of the 82 students who completed the course and this information was the basis for the evaluation report. The contractor did not state why complete data was not available for all 130 students. Such information may have significantly affected evaluation results.

The same contractor issued an evaluation report on its 3-year reading program (see p. 14) indicating that the test students had met one of the objectives--to read a commercial third grade reader--after completing the program. However, the contractor did not report that the tests were administered to only 45 of the 101 students who completed the program. Although a total of 767 students were involved in the pilot and field testing, the contractor's evaluation report did not contain information on students who were not tested, those who were detained in a grade, or those who were dropped from the program. Information concerning the reasons students did not achieve in a program is as essential for evaluating the effectiveness of the program as information on students who did achieve.

In another contractor's evaluation study on its inner-city teaching program, the program graduates were compared with graduates from a comparison group of teachers who did not participate in the program. The contractor reported that more of its program graduates were teaching in the inner city than graduates from the comparison group. We analyzed data

relating to the 1969-70 program graduates and comparison graduates and found that 91, or 61 percent, of the 149 program graduates had stated a preference for teaching in the inner city before taking the program, although only 30 of the 100 comparison group graduates had stated this preference. However, the contractor did not report this data in its study.

LIMITED PRODUCT IMPACT

Contractors generally could not demonstrate that the products they developed were effective. In some cases the contractors' evaluations of teacher-training products showed that the teachers had not successfully mastered the skills involved.

For example, a contractor developed, at a cost of $800,000, a preservice teacher-training program that was intended to better prepare potential teachers for work in the inner city. The contractor established and published performance standards that the prospective teacher should meet upon completing the program. The major performance standards measured the prospective teacher's (1) attitude toward teaching as a vocation, (2) compatability with a culturally deprived school setting, (3) reactions to varied teaching situations, and (4) interaction with pupils.

To measure a teacher's attitude toward teaching as a vocation, a performance standard of 60 was established for participants completing the program. According to the standardized test norms, achieving a raw score of 60 would have placed a program participant in the lower one-third of the Nation's graduating education seniors. During 3 years of field testing, only 50 percent of the program participants met this performance standard.

The majority of the participants met the program's standard for measuring reactions to varied teaching situations. However, no data was provided in the contractor's evaluation report showing how many students had achieved the stated objectives before starting the program. Our analysis of the teacher reaction data showed that the averages for the groups tested were generally higher before taking the program than after completing the program.

The performance standards for measuring a teacher's interaction with pupils were broken down into seven categories. In one category 81 percent of the participants met the performance standard, and in two categories 62 percent met the standards. Only 43, 40, 32, and 24 percent, respectively, met the four remaining categories' standards.

On the basis of these evaluation results, it appears that the program participants showed a low level of achievement from the teacher-training program.

Standardized tests were generally used to measure student achievement in programs aimed at improving learning. However, the contractors were unable to demonstrate that the gains made by students using their products were significantly higher than the gains made by students in control groups.

FOLLOWUP EVALUATIONS NOT PERFORMED

Experts who evaluate education programs generally agree that longitudinal studies--sometimes referred to as followup studies--should be made before definitive statements can be made concerning the long-term effectiveness of such programs. They point out that the relationship of short-term and long-term program effects is often unknown and that data should be collected on groups who have received program services and on comparison groups who have not received such services over a long enough period for possible program effect to appear or disappear, or until such data provides reliable indicators of long-term program effects. They recognize that different types of programs will require different followup periods to provide data needed for making informed decisions concerning a program's effectiveness.

Contractors generally had not planned or made such longitudinal or followup evaluations. Although such evaluations may be difficult to conduct for some programs and products, they apparently are needed for determining the effectiveness of programs and products expected to have a lasting impact on school children.

For example, one contractor was developing an instructional program for students who do not succeed in existing systems. The program plan indicated that it would overcome the "washout" effect of other early childhood educational

programs and thus achieve long-term results. The washout effect occurs when students respond successfully to the programs early but lose the advantages gained after they are returned to their original environment for 3 or 4 years. Although recognizing the desirability of long-term impact studies, a contractor official in charge of evaluations stated that the contractor would not perform them on its program because it lacked the necessary resources. In the absence of such studies, the contractor may be unable to convincingly demonstrate that the washout effect has been effectively eliminated by the use of its program.

OE stated that followup evaluations were desirable but not encouraged because it emphasized the need to cease funding a product once it had been disseminated so that funds could be reprogramed to new priorities. NIE stated that followup evaluations would be necessary to determine the long-term effect of educational products but that such evaluations were costly and could not be supported under its present funding level.

CONSULTANT EVALUATIONS

Over the last several years, OE has contracted with consultants to independently and objectively evaluate products resulting from its support of contractors' activities. The three studies that we reviewed generally criticized the laboratory and center products, primarily because the products had not been properly evaluated.

One consultant study was performed during 1970 and 1971 to identify products which OE could consider for further dissemination assistance. The contractors submitted 31 products for this study which they considered field tested and ready for dissemination. The consultants who performed the study recommended nine products for dissemination assistance, eight of which were contractor products. However, the consultants criticized the evaluation results for most of the 31 products--either because evaluation data was not provided or because the data provided showed that the products had limited effectiveness. One contractor had submitted 12 products, none of which were ready for OE dissemination support, according to the consultants. The contractor, however, had already disseminated 6 of the 12 products. Contractor officials told us that they had not received feedback from OE about their products as a result of the consultant's study

and OE had not required them to correct the matters noted in the consultant study.

A second consultant study was completed in March 1972 to develop procedures to identify evidence of the impact of specific products so that an overall assessment could be made of educational research and development's impact. The consultant team considered 117 products which had emerged during the previous 5 years. Fifty-five of the products were federally funded, including 17 which were laboratory and center products. One of the consultants' objectives was to find evidence of student cognitive gains--increases in academic knowledge. The contractors believed that 14 of the 17 products they submitted had resulted in measurable cognitive gains in students. The consultants reviewed the contractors' evaluation test results and found evidence of cognitive gains by students for only six of these products.

The purpose of the third consultant study, completed in late 1972, was to make recommendations about future funding levels. These consultants were also generally critical of the contractors' evaluation efforts and recommended reductions in funds for some of the programs.

CONCLUSIONS

The contractors' evaluation processes were generally not adequate to evaluate their products' effectiveness in terms of the benefits to potential users. The contractors had not

--stated product objectives in measurable terms,

--established adequate controls over factors affecting the validity of test results,

--compared the results of their products with the results of similar products,

--provided the educational user with timely and informative evaluation reports for use in making purchasing decisions, and

--planned or performed studies of the long-range impact of their products on school children.

Although OE had given the contractors responsibility for conducting the evaluations, OE had not developed guidelines setting forth the fundamental elements of a sound evaluation process. Properly designed evaluations are necessary if NIE and its contractors are to have a sound basis for making decisions on program direction and the allocation of limited Federal funds for educational research and development.

RECOMMENDATIONS TO THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE

The Secretary of HEW should require NIE to:

--Require contractors to state objectives in terms of specific educational changes expected from using the products.

--Establish basic requirements for contractors to use in their evaluation processes, including, as a minimum, the requirement to (1) evaluate, upon completion of product development, the extent to which the objectives were achieved; (2) control factors which could affect the validity of evaluation test results; and (3) make comparative evaluations whenever practicable.

--Establish standards for followup evaluations, when appropriate and feasible, to determine a product's long-term impact on the classroom.

--Monitor the implementation of the evaluation processes selected by the contractors.

- - - -

HEW concurred in our recommendations and stated that NIE would require contractors to (1) state objectives, strategies, and expected outcomes for their products and (2) submit a plan establishing milestones and criteria for evaluation, including an evaluation upon product completion of the extent to which the objectives were met. HEW stated also that NIE will monitor the compliance with these evaluation processes to insure their adequacy and technical quality and will examine additional ways of insuring more effective control over evaluation efforts.

HEW also stated that NIE is studying the role of comparative evaluations and the most effective way in which they can be carried out. Further, HEW stated that the existing state of the art of evaluation technology is not yet sufficiently developed but that NIE will consider establishing standards for followup evaluations in anticipation of a developing evaluation technology.

CHAPTER 4

NEED FOR EFFECTIVE MARKETING GUIDELINES AND PRODUCT DISSEMINATION STRATEGIES

OE intended to have the contractors' products disseminated to the educational community by organizations other than the contractors--generally by commercial publishers--but it had not required its contractors to determine the potential marketability of proposed products. Important factors--including assessments of market needs and constraints and early contacts with publishers--which the contractors should have considered before beginning product development were generally not considered until after the product was developed. At that point contractors were often not able to interest commercial publishers in their products because of copyright problems, product complexity, size of potential market, and cost factors. As a result, products have been delayed in or deterred from getting into the classroom.

STRATEGY FOR DISSEMINATING PRODUCTS

OE had delegated to contractors the responsibility for arranging for their own product dissemination. Contractors had to develop the necessary support systems; identify and resolve the barriers that might hinder dissemination; and locate publishers, distributors, and teacher trainers.

In 1965, when the educational laboratory program was started, OE established a public domain policy for research materials developed with OE funds. This policy provided that anyone could publish such materials. OE found, however, that its products were not being commercially disseminated, one reason being that commercial publishers were reluctant to pick up public domain products because they did not want to invest time and money in products for which they did not have exclusive distribution rights. To accelerate effective dissemination of educational materials developed with Federal support, OE established a copyright program in 1968 to provide copyright protection for products. However, because of other problems experienced by contractors, this change in policy did not have a significant impact on publisher interest.

PROBLEMS IN CONTRACTOR MARKETING OPERATIONS

We reviewed the major products resulting from 17 research and development efforts involving expenditures of $48.8 million in Cooperative Research Act funds as of November 1972. Most products which were developed or substantially completed had generated little publisher interest. We analyzed contractor files and found that the following factors occurred most frequently with respect to publisher disinterest.

--Products were based on existing copyrighted material for which no release had been obtained.

--Products were not in a form readily usable without contractor assistance.

--Products were aimed at a specialized or limited audience.

If OE had required assessments of market needs and early contacts with publishers to help determine consumer need or interest, the above problems might have been revealed soon enough to permit contractors either to overcome the problems or to modify or redirect their efforts.

Products based on existing copyrighted materials

Materials which are copyrighted normally carry a statement reserving all rights and prohibiting reproduction without permission in writing from the publisher. If a contractor uses copyrighted material as part of its own program or product, the contractor is required to get a release from the copyright owner. In the absence of such a release, a contractor can be held liable for damages and be restrained from using the copyrighted material.

If a contractor receives a qualified release--that is, authorization to use the copyrighted material for experimental purposes only and not for commercial release--it is left with three alternatives when a product is ready for dissemination. It can (1) obtain the publication services of the publisher who copyrighted the original material, (2) eliminate the copyrighted material from its product, or (3) wait for copyright expiration.

The first alternative may not be desirable because the publisher may refuse to provide the services or may provide the services at a higher cost than the contractor is willing to absorb. If copyrighted materials make up a substantial part of the contractor's program, eliminating copyrighted materials is not an effective alternative, Because copyrights are generally for 28 years with renewal rights, awaiting copyright expiration would also not be an effective alternative.

Several products were developed which contained substantial copyrighted material. None of these products had been published at the completion of our fieldwork. Two examples are discussed below.

1. In 1964, a center introduced a commercially available individualized reading program into an experimental school. This program had been copyrighted by a commercial publisher. Over the next several years, the center modified the program by adding audiotapes, storybooks, diagnostic tests, and a management system to the basic commercial instructional materials. The program was given to a laboratory for field development, testing, and dissemination. The laboratory introduced the program into demonstration test schools in 1966 and 1967.

During the initial years of the program, the center obtained permission to use the commercial materials for experimental purposes. However, neither the center nor the laboratory obtained the author's or publisher's permission to commercially publish and disseminate the program using the copyrighted commercial materials.

Center officials informed us that, as early as 1967, it became evident that the commercial publisher who copyrighted the original material would not agree to publish the program as changed by the center. Because the center believed that its program could not be marketed commercially, it then began to develop a new primary reading program.

While the new program was being developed, the laboratory continued the initial reading program in field-test and demonstration schools through the 1971-72 school year. The laboratory plans to phase out the initial reading program in the demonstration schools and introduce the new primary

reading program as it becomes available for field testing in 1974. As of November 1972, about $710,000 had been expended on the initial reading program.

2. Another contractor was developing an inquiry skills program that was intended to improve the skills of teachers and students in asking and responding to classroom questions. Through November 1972, about $1.7 million of Federal funds had been spent on the program. The major component of the program is a biology curriculum-oriented product. The contractor has developed three versions of the product using three different commercially available texts. Only the three publishers of these texts will be able to use the product in its existing form because they hold the copyrights. One of the publishers refused to publish the product because of its forecast of a low market potential, and, as of December 1972, commitments had not been received from the other two publishers.

Products not in a form readily usable without contractor assistance

For new educational products to have an impact in the classroom, they should be in a readily usable form; that is, they should be exportable from the contractor to the user. But two contractors developed products which could be used effectively only if the contractor provided special training to the user. At the time of our fieldwork, these products had not been widely marketed because the contractors did not have the necessary resources for training. These cases are discussed below.

1. Since 1966 a contractor has been developing a program that is intended to provide individualized instruction to maximize a student's ability to understand and use mathematics. As of November 1972, the development costs were estimated at $4.6 million. The program consists of two components--one for all students in kindergarten through 6th grade, and the other for students ranked in the upper 20 percent of their classes in the 7th through 12th grades.

The contractor provided the training needed to teach the program material to teachers who tested the product during development. A contractor official advised us that the contractor did not have the resources to provide the teacher

training on a scale that would allow the product to be commercially marketed.

The contractor's advisory committee discussed the problem of teacher training in 1970 and again in 1971. The committee stated that the contractor could not rely on universities to provide the needed teacher training for the program. However, a contractor official advised us that the contractor chose to continue program development in the hope of ultimately devising a way to provide teacher training.

When we completed our fieldwork, the contractor had not been able to devise a means of getting the teacher-training component to the potential product users and publishers had told the contractor that they could not market the product without this component.

2. A contractor developed a teacher-training program at a cost of about $800,000 which was intended to provide potential inner-city teachers with a cultural orientation to improve their skills in dealing with educational problems common to the inner-city classroom and a low-income environment. The contractor's program was designed to operate for one 16-week semester at inner-city elementary and high schools and consisted of 8 weeks of orientation, seminars, and visits to inner-city homes and schools and 8 weeks of student teaching.

The program was begun in 1966 and was first field tested in the fall of 1967. During school year 1968-69, the field testing was expanded and in July 1971, the contractor made available for distribution the completed product of the program, a manual for program operation. We were advised that the manual was not a textbook for use by students training to become teachers, but instead was for developing a teaching staff who would instruct prospective inner-city teachers.

The contractor's executive director informed us that the educational change to be brought about by the program necessitated that the potential user be given special instruction and guidance. But the manual did not contain the needed instruction or guidance and it did not contain a disclaimer statement to the effect that the program could not be implemented without the needed training or contractor guidance.

The executive director told us that, because funding had remained the same for the past 2 years but costs had increased due to inflation, the contractor decided not to use contract funds for distributing its products or for providing assistance to potential users of such products. The decision was based on an assumption that the products would have a reasonable chance to be marketed.

The contractor obtained a $250,000 Federal grant in May 1972 to provide training and assistance in setting up 8 demonstration sites for showing interested potential users how its product worked. The executive director told us that the contractor did not have the funds and manpower to provide the training and assistance needed for nationwide implementation.

NIE recognizes that contractors generally have not been provided sufficient funds to furnish support services to schools using their products. NIE plans to consider this matter in developing a policy for assisting in the dissemination of educational products.

Products developed for specialized or limited audiences

A number of the contractor products were developed for use by special groups, including rural students, Alaska natives, and Mexican-Americans. The contractors generally assumed that publishers would market such products when they were ready for dissemination. Publishers were often reluctant to market such products, however, because of the relatively low publication revenues anticipated. Consequently, products have been delayed in getting into the classroom until the contractors obtain an alternative distribution channel other than publishers.

For example, by 1970 a contractor had developed, at an estimated $373,000, four self-instructional products for rural students to use in studying electricity, welding, speech, and plastics. Each of the products is a self-contained unit of programed instruction designed so students can work at their own pace.

Contractor officials advised us that, when the self-instructional materials were being developed and tested, the

contractor had not devised a marketing strategy for disseminating the products and had not contacted commercial publishers. Development of the products proceeded on the basis of the identified need for such products in rural areas. The officials had assumed that there would be no problem in finding commercial publishers to market the products once they were ready for dissemination.

As of December 1972, contractor efforts to find commercial firms willing to publish and disseminate the product had been unsuccessful. Contractor officials stated that publishers were reluctant to pick up the materials because their marketing and service efforts were oriented toward areas of large population rather than the rural locations for which the products were designed. The officials pointed out that rural students constituted a small percentage of the total student population.

Products appear too costly for the user

In 1970 the American Association of Publishers reported that the annual nationwide expenditure for all educational materials averaged $15 a student. We found that products costing between $10 and $20 a student annually were developed and are being developed by OE contractors for individual subject areas. In addition, commercial publishers advised us that one of the problems with contractor materials was their high cost. Although we did not find an instance in which a publisher rejected a contractor product because it was too costly, we believe that schools might be precluded from purchasing such high cost products without a Federal subsidy or without cutting back on existing programs.

For example, one contractor was developing an individualized learning program composed of mathematics, reading, and science products. The contractor's estimated per-pupil costs for its primary and intermediate individualized reading products for the 1972-73 school year are shown in the table below. Neither of these products has attracted publisher involvement. Amounts shown represent first-year, or startup, costs but do not include the costs of teacher aides or the costs of training administrators, teachers, and teacher aides in how to use these products.

Subject	Per-pupil cost--first year 180-pupil model	540-pupil model	900-pupil model
Primary reading (grades kindergarten through three)	$79	$56	$52
Intermediate reading (grades four through six)	80	63	60

The contractor estimated that the annual per-pupil cost of replacing consumable printed materials for the primary reading and intermediate reading products would be approximately $9 and $17, respectively. These amounts did not allow for replacing nonconsumable items, such as damaged tapes or wornout books. In addition, many of the printed materials used in the reading products were printed by a Federal printing plant and sold at prices established to enable the contractor to recover costs incurred for printing, collating, binding, and shipping. If such materials were commercially published, overhead and profit factors might necessitate higher user cost.

As early as July 1969, consultants hired by OE to make onsite reviews were concerned that the high development costs of the contractor's individualized learning program could impair the products' success. They stated that adopting the products would be limited by the financial ability of school systems, and they recommended significant reduction in cost.

The contractor provided $2.5 million to 6 schools to test and demonstrate its individualized learning program, including its reading products. The support was primarily for personnel costs and ranged from $66,000 to $108,000 a school in school year 1970-71, the last year the contractor provided support to all 6 schools. In school year 1972-73 the contractor withdrew its support to the demonstration schools. Because of the costs involved, four of the six schools withdrew from the contractor's program, while the remaining two elected to participate in only selected portions of the program.

The contractor's executive director agreed with us that cost should be considered in product development. He stated,

however, that the real question was whether school officials and taxpayers were willing to commit their resources to insure that children receive the quality education they deserve. He also stated that the fiscal difficulties schools were experiencing had been caused by rising personnel costs rather than the rising costs of instructional materials.

NIE officials agreed that product cost should be a major consideration during development. They stated that, in some cases, keeping the costs within traditional limits might hamper the contractor in its efforts to develop an effective educational product. They pointed out that on the surface some products may appear to be costly; however, the overall costs in installing such products in a school system may be reasonable in terms of the potential long-term educational benefits that could result.

STEPS TAKEN TO DISSEMINATE PRODUCTS

OE established the National Center for Educational Communication, which later became part of a NIE task force to help disseminate educational products developed under OE contracts. Since 1970 OE has provided about $1.46 million to help disseminate 6 products developed by laboratories and centers. We noted that three of the six products already had publishers; therefore, OE has been subsidizing these publishers' marketing costs. NIE officials agreed with our observation and told us that this matter would be considered in their current study concerning product dissemination.

CONCLUSIONS

OE has in the past relied on its contractors to adequately market their products by obtaining a proper distribution channel to get the products to the user. However, publishers have generally not been interested in the contractors' products and contractors have not devised effective alternatives for disseminating their products.

Before contractors begin to develop a proposed product, they should identify alternatives for marketing and disseminating their products and should document the rationale so that NIE may make informed decisions on whether the strategies selected are appropriate for getting the products to their potential users.

NIE and its contractors must also place greater concern on resource investment decisions. Before significant resources are invested, there should be reasonable assurance (1) that proposed products are needed to improve education, (2) that they will be developed in forms that can be readily used, and (3) that their costs either will not be out of line in comparison to existing products, or if more costly, will produce at least commensurate savings in other educational expenditures or commensurate benefits to the quality of education.

RECOMMENDATIONS TO THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE

The Secretary of HEW should require NIE to:

--Demonstrate the marketability of proposed products considering such factors as the special needs of the intended users, the product competition, and the cost of the product.

--Develop alternative means by which the products may be disseminated.

HEW agreed with our recommendations and stated that, under NIE's new policy, it will award contracts to those who have most effectively demonstrated their capacity to develop products which meet NIE requirements, including such elements as the extent to which the proposed products address the defined needs, provide attractive alternatives to other available products, and can be produced at costs commensurate with their potential value.

HEW stated also that NIE is conducting a major dissemination policy study to develop alternative strategies.

CHAPTER 5

SCOPE OF REVIEW

Our review was directed toward ascertaining whether the benefits anticipated from the laboratory and center programs were being achieved and, if not, what improvements were needed. We reviewed the legislative history of the laboratory and center programs; OE and NIE program policies and directives; and funding applications, reports, and other pertinent documents relating to the laboratory and center programs.

We made our review at OE and NIE headquarters in Washington, D.C., at five educational laboratories, and at three research and development centers in four States. We interviewed laboratory and center personnel, commercial publishers, teachers, local school officials, and educational consultants involved in the laboratory and center programs.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20201

AUG 17 1973

Mr. Morton E. Henig
Associate Director
Manpower and Welfare Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Henig:

The Secretary has asked that I respond to your letter of May 16, 1973, in which you asked for our comments on a draft report to the Congress entitled, "Educational Laboratory and Research and Development Center Programs Need to be Strengthened." Our comments are enclosed.

The opportunity afforded us to comment on this report in draft form is most appreciated.

Sincerely yours,

Charles Miller
Acting Assistant Secretary,
Comptroller

Enclosure

APPENDIX I

I. GAO Recommendation

HEW should

-- Require contractors to state objectives in terms of specific educational changes that are expected to result from the use of the products.

Department Comment

We agree. As the GAO report notes, the Department has shifted from supporting the laboratories and centers (i.e., contractors) as institutions to a policy of "program purchase," whereby NIE support for laboratory and center research and development will be provided through individually arranged contracts. Under this policy, each laboratory and center contractor is required to state objectives, strategies, and expected outcomes for its programs, and all curriculum development programs must produce empirical evidence of the learning accomplishments of students who use the materials in field-test settings.

II. GAO Recommendation

HEW should

-- Establish basic requirements to be used by contractors in their evaluation processes including, as a minimum, the requirement to:

1. evaluate, upon completion of product development, the extent to which the objectives were achieved;

2. maintain control over factors which could affect the validity of evaluation test results; and

3. make comparative evaluations whenever practicable.

Department Comment

We agree. As the GAO report notes, NIE has begun to develop more effective methods of product validation. New laboratory and center contracts negotiated in 1972-73 require contractors to evaluate upon completion of product development the extent to which the objectives have been achieved.

In addition, each contractor's Resource Allocation and Management Plan establishes milestones and criteria for evaluation during the course of the project. These plans are reviewed by NIE and adjusted as necessary to insure the effectiveness of evaluation activities, and they are used by NIE as the basis for monitoring progress and quality of product development.

NIE is also examining additional ways of insuring more effective control over evaluation efforts. One study is now underway to determine methods

of enabling developers to do more extensive and effective field-testing. Another effort is in progress to define more clearly the various stages in product development and testing so that more meaningful evaluations can be conducted at the various stages.

We agree with GAO that comparative evaluations between new and existing products should be made whenever practicable, although we do not necessarily agree that the contractors who develop the products should make these evaluations. The role of comparative evaluations and the most effective means for their conduct are issues now under study as NIE develops its product validation policies and Institute evaluation plans.

III. GAO Recommendation

HEW should

-- Establish standards for follow-up evaluations, where appropriate and feasible, to determine a developed product's long-term impact on the classroom.

Department Comment

We agree that such evaluations are important and encourage their use where practicable. As the report points out, however, follow-up evaluations are costly; and, even assuming that more than ample funds were available for their conduct, the state-of-the-art is not yet sufficiently developed to provide an adequate return on the commitment of funds. Nevertheless, in anticipation of a developing evaluation technology, NIE will be considering the establishment of standards for such studies as it formulates its product validation policies.

IV. GAO Recommendation

HEW should

-- Monitor the implementation of the evaluation processes selected by contractors.

Department Comment

We agree. NIE is now placing special emphasis upon monitoring implementation of evaluation processes selected by contractors. Each laboratory and center contractor has submitted a Resource Allocation and Management Plan containing milestones associated with submission of evaluation reports and criteria for intermediate and final evaluations. NIE staff are now reviewing these evaluation designs to insure their adequacy and technical quality. As each project progresses, NIE staff will check progress against evaluation milestones, review evaluation reports, conduct site visits, and require modification of program and evaluation processes as appropriate.

V. GAO Recommendation

HEW should

-- Demonstrate the marketability of proposed products considering such factors as the special needs of the intended users, the product competition, and the cost of the product.

Department Comment

We agree. With the Department's shift from institutional support for the laboratories and centers to "program purchase", the laboratories and centers will apply for awards in competition with other applicants from the R&D community at large in response to NIE Requests for Proposals NIE will award contracts to those laboratories and centers and other applicants which most effectively demonstrate their capacity to develop products which meet the NIE requirements, including such elements as the extent to which the proposed products address the defined needs, provide attractive alternatives to other available products, and can be produced at costs commensurate with their potential value.

VI. GAO Recommendation

HEW should

-- Develop alternative means by which products may be disseminated.

Department Comment

We agree. NIE is now conducting a major dissemination policy review consisting of the following:

(1) policy studies on the feasibility of providing Federal support for contractor dissemination, on alternative copyright and royalty arrangements, and on ways to improve incentives for dissemination of unusual materials, multi-media systems, and products requiring significant changes in local practice; (2) plans to expand knowledge of the dissemination process through a case-study analysis of effective dissemination strategies and a compilation from empirical data of how dissemination actually works; and (3) a conference with the publishing industry in which representatives of all groups involved in the development/marketing process will participate.

APPENDIX II

PRINCIPAL OFFICIALS OF THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE RESPONSIBLE FOR ADMINISTERING ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
SECRETARY OF HEALTH, EDUCATION, AND WELFARE:		
Caspar W. Weinberger	Feb. 1973	Present
Elliot L. Richardson	June 1970	Jan. 1973
Robert H. Finch	Jan. 1969	June 1970
Wilbur J. Cohen	Mar. 1968	Jan. 1969
John W. Gardner	Aug. 1965	Mar. 1968
Anthony J. Celebrezze	July 1962	Aug. 1965
ASSISTANT SECRETARY (EDUCATION):		
Sidney P. Marland, Jr.	Nov. 1972	Present
COMMISSIONER OF EDUCATION:		
John R. Ottina	Aug. 1973	Present
John R. Ottina (acting)	Nov. 1972	Aug. 1973
Sidney P. Marland, Jr.	Dec. 1970	Nov. 1972
Terrel H. Bell (acting)	June 1970	Dec. 1970
James E. Allen, Jr.	May 1969	June 1970
Peter P. Muirhead (acting)	Jan. 1969	May 1969
Harold Howe II	Jan. 1966	Jan. 1969
Francis Keppel	Dec. 1962	Jan. 1966
DIRECTOR, NATIONAL INSTITUTE OF EDUCATION (note a):		
Thomas K. Glennan	Nov. 1972	Present
Emerson J. Elliott	Aug. 1972	Nov. 1972

[a]As of August 1, 1972, the responsibility for administering educational research and development activities was transferred from the Office of Education to the National Institute of Education.