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ABSTRACT

This paper reviews the four research and development (R&D) analyses that were presented as a rationale for the National Institute of Education's (NIE) 1973 agenda. Three of the chapters describe (1) the consensus cncerning goals, (2) the manner in which the different analyses move from goals to a list of programs, and (3) the need for more exploration of each area before programs are actually designated and the criteria for final program selection. Another chapter integrates suggestions from each of the papers to present a single list of program areas. Report summaries include several tables describing some suggested budgets and goals of the NIE office. (Author/DN)

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PROGRAM PLANNING FOR THE NATIONAL INSTITUTE OF EDUCATION: A SUMMARY OF FOUR R&D ANALYSES

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A SUMMARY OF FOUR R&D ANALYSES

TABLE OF CONTENTS

PROGRAM PLANNING FOR THE NATIONAL INSTITUTE OF EDUCATION: A SUMMARY OF FOUR R&D ANALYSES

I: INTRODUCTION

The National Institute of Education has been established to help the country carry out its commitment to provide quality education for its citizens at a reasonable cost. Its purpose is to develop a more adequate knowledge base in education and to apply that knowledge in solving educational problems and improving practice in the field. In order to begin such a task, the Institute must first try to determine what the most important problems are–today's and those likely to emerge over the next five to ten years–and devise promising strategies for addressing them.

A Planning Unit was established early in 1971 to design the Institute structure, examine problems and goals of education, and suggest program priorities for the initial years. During the spring of 1972, the NIE Planning Unit asked four separate groups of people to undertake the goal and problem analysis, with their products to be a rationale for the Institute's 1973 research and development (R&D) agenda. Two of the analysis groups were led by Senta Raizen and Beverly Kooi, both members of the Planning Unit. The other reports submitted were by O. W. Markley of Stanford Research Institute and Amitai Etzioni of the Center for Policy Research. A separate summary of each of the four planning reports is included as Appendices A-D; Appendix E lists people involved in developing various planning reports sponsored by the Planning Unit over the last year.

This paper reviews the four R&D analyses. The next chapter describes the consensus concerning goals and Chapter III follows with a brief description of how the different analyses move from goals to a list of programs. Chapter IV integrates suggestions from the separate papers to present a single list of program areas. Finally, Chapter V describes the need for more exploration of each area before programs are actually designated and lists criteria for final program selection.

II. IDENTIFICATION OF GOALS

Each of the four analysis teams had access to all of the earlier NIE planning documents and consulted with many people concerning education and NIE's role in improving it. Each built on this information to select goals that were broad and met the criterion of being universal to education in most societies. One team did a particularly thorough examination of the domain of education as a basis for its selection, and all teams selected goals which, if fulfilled, would also solve the major problems of American education.

All four of the analyses agreed very closely on the central goals of education. For example, Amitai Etzioni's paper had one category of goals called Output Goals which included:

a. Increasing the child's capacity to find, evaluate, digest and utilize information, in contrast to memorizing;
b. Preparing the child for a wide range of careers and life styles;
c. Developing the child's capacity to lead a full and just life—open to new ideas, aesthetic considerations, to others and to themselves.

The two Planning Unit teams had similar sets of goals. In one analysis the central goals were called Learner goals and divided into areas of social-emotional development, cognitive development, and physical development. In another, they were End goals and included academic skills, social skills, career skills, personal development, and attitudinal skills. Also mentioned as part of End goals were the parents' goal of custodial care, the educator's need for a rewarding profession, and society's need for such functions as training of a work force, selection of people for jobs, etc.

The teams all listed the *means* of attaining their Output or Learner or End goals as another category of goals. In the Kooi paper, Means goals included increasing productivity of education, providing access to educational services, and promoting citizen participation. Etzioni included improving the quality of education, equality of opportunity, economy in providing services, and legitimizing the system through participation. In the Raizen paper, Means goals were equality and access, responsiveness of the system, increasing productivity, and coordination with other societal institutions.

One document had a third set of goals not treated directly by the other reports. These were called Enabling goals and included activities needed to support the R&D system, in contrast to the educational system. The main activities within these goals were training R&D personnel, dissemination of R&D efforts, and selection and training of personnel needed to implement new R&D programs.

The SRI team (Markley) approached educational goals in a different manner, although many of the specific goals they articulated were identical with those identified by the other three teams. The SRI team found it useful to classify the problems of education as being of a chronic, acute, or adaptive nature; and identified educational goals related to problems of each type. Chronic problems are those that have existed in the past and are expected to exist in the future. Acute problems are those which appear to be of critical immediate importance. Adaptive problems stem from stresses and dislocations induced by the high rate of change in the various sectors of society which have an impact on education. Although chronic problems need continuing attention and acute problems seem most demanding of attention, the importance of anticipatory R&D in preventing adaptive problems from becoming acute was especially stressed.

Finally, Senta Raizen's team had an interesting discussion of the contradictions among goals. They explained that the need for individuality conflicts with the need for a common cultural core; the need for plurality places constraints upon entry into the mainstream of society; there are contradictions inherent in promoting both quality and equality; it is difficult to get the advantages of both centralization and decentralization simultaneously. This team also mentioned the ever-rising expectations and standards that cause goals to shift.

III. IDENTIFICATION OF PROGRAMS

Each of the teams identified programs that should be included in the 1973 R&D agenda for NIE. Senta Raizen's group classified programs by priority areas derived from its goal analysis: (1) improving the quality of education, (2) education of the poor, and (3) use of resources in education. Suggestions from this group are especially strong in their call for initial planning by conferences of experts in relevant fields and participants in the educational enterprise. They stress use of unsolicited proposals in basic research areas but focused on priority concerns. They emphasize identifying outstanding educational practice and taking advantage of natural experiments. Most program initiatives would require a continuation of research and experimentation carried on simultaneously and feeding into each other for achieving educational improvement.

Beverly Kooi's team classified programs by their specificity to goals. Some programs, especially basic research, seem to relate to one goal or another. Others involve either the Learner (End) goals or the System (Means) goals, but not both; these were called specialty area programs. Other programs involved all goals and were called comprehensive programs. Comprehensive programs would be primarily concerned with action, or actual experimental intervention in educational systems, and could include basic research as well as development. This team not only listed new programs, but integrated into its agenda the approximately $100,000 in programs that will continue from the U. S. Office of Education (USOE).

After listing many societal trends and resulting educational goals, the SRI team chose to concentrate its planning suggestions in areas not being covered by other analyses: research relating the societal context of education to the setting of educational R&D policy, decentralized methods to increase the effectiveness of the educational R&D system, and research on multi-organizational coordination.

The programs suggested by Amitai Etzioni's team seemed heavily influenced by his assumptions that the current school system is not likely to be replaced and that the humanizing goals have been neglected in favor of more cognitive goals. Thus, of his seven programs, one is designed to review R&D on the current system and provide guidebooks to improve the achievement of its goals, a second is to develop economies–especially through technology–so the system can survive, and a third is to build a communication link between NIE and the agencies of the current system.* The other four Etzioni programs, directed at the need to humanize education, include developing tests and social indicators, providing reality-oriented experiences for students, building new ways for citizens to participate and run their community's education, and restructuring authority patterns in education.

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* *These programs are respectively Operation Codify–Blueprint, Technological Shortcuts to Economize, and Operation Dialogue.*

IV. AGREEMENT AMONG PROGRAM SUGGESTIONS

Many program suggestions were made in the four documents–several times over what the NIE budget could possibly accommodate. Most of the ideas were repeated in several papers, perhaps in different form, or combined with other ideas to make a comprehensive program.

For example, the following suggestions for development programs appeared in three different documents:

1. Opportunities for Idealism, Reality Testing, and Integration: Providing student opportunities for community service, teaching others, working as volunteers, writing a town history, etc.; cross-class, cross-race, and cross-ethnic integration for such learning experiences.
2. Multidisciplinary Problem-Oriented Courses for Adolescents: Providing accurate factual information about society and its institutions so that the idealism of youths can be harnessed to sound perceptions; building substantive encounters with the community and life into the curriculum.
3. Career Education: Experiments in providing a variety of non-school experiences in the community and on jobs, in exposing students to adults who fill many different roles in society, in providing accurate information on careers as life styles, and in promoting recurrent cycles of education and employment throughout life.

Clearly, each of these major programmatic suggestions is concerned with using real life experience to decrease the separation of students from society, but the last combined this with a career emphasis. The document that contained the second suggestion also had another idea that would fit closely with career education. It called for an "early exit experiment" in which compulsory education would end at fourteen years of age, but the student would receive a certificate entitling him to a specified number of years of schooling at any time later in life.

For the most part, program ideas were only very generally developed in the documents. Sometimes the authors had changes to single courses in mind, sometimes they were interested in planning complete schools around the themes they described, and sometimes they meant to establish alternatives that were not a part of current schools at all. Nowhere was the design and feasibility work for any suggestion complete enough to actually begin a program. Often, even the review of research related to a program or general area was very incomplete. For this reason, the classification of programs for this summary had to be somewhat arbitrary and was done in terms of broad general areas that planners suggested for NIE consideration rather than in terms of programs the Institute should immediately begin.

Even with such generality in the documents, these program suggestions seemed to fall into three main categories: (1) activities that produced or collected information and disseminated results of the analysis, (2) activities designed largely to improve practices in the current educational system, and (3) programs addressing major problems which would result in new forms of education that do not necessarily depend upon the current system to operate. Under these categories, specific areas could be identified as follows:

A. Analysis and Basic Research:
   1. Needs Assessment;
   2. Evaluation and Information Programs;
   3. Basic Research;
   4. Analytic Studies;
B. Programs for Current Educational Systems:
   1. Instructional Development;
   2. New Measures for Education;
   3. Promoting Student Self-Direction;
   4. School Alternatives;
   5. Increasing Productivity;
   6. Planning, Management, and Organization;
   7. Personnel Selection and Training;
   8. Researcher Training;
C. New Forms of Education:
   1. Home-Based Models;
   2. Employer Based Models;
   3. Community Participation Programs;
   4. Post-Secondary Alternatives.

Each of these areas is described below, with a few sentences on the rationale that papers developed in making their suggestions.

A. Analysis and Basic Research

Analysis and Basic Research expand our usable knowledge about education and synthesize it for efficient presentation to decision-makers. There are four program suggestions within this category. The first program, Needs Assessment, gives NIE information about public desires and reactions to educational improvement. Research, investigates why things work well or are accepted. It also provides support to attract promising researchers from other disciplines to education. Finally, to synthesize all of this information and help decision-makers identify gaps that need to be filled or problems that need to be solved, a fourth program, Analytic Studies, is proposed.

1. Needs Assessment

NIE leaders will be making funding decisions and giving advice on educational action to government leaders. These functions require up-to-date information on the state of education and public opinion about education. Such information should include:

a. Continuous monitoring of demographic trends and societal events and values that might help predict and prevent future problems.
b. A continuous survey of public attitudes, to find out what each of the large constituencies of education believe is important and what kinds of programs they prefer.
c. A systematic collection of data on educational performance in broad problem areas, such as central-city schools, handicapped and disadvantaged students, use of resources, and levels of citizen participation in education.

At the broad problem level, these data will provide a picture of emerging and receding problem areas and information on whether NIE programs are responsive to the concerns of students, parents, educators, employers, taxpayers, politicians, and representatives of government and science.

Extensive data collection efforts already exist through The National Center for Educational Statistics, The Bureau of the Census, The Labor Department, and private educational polls or organizations like Lou Harris Associates, Gallup, Phi Delta Kappa, etc. Therefore, this program will first assess present efforts and then design and initiate whatever supplementary data collection activities are needed. Because the purpose of this program area is to fill internal NIE needs, it might initially be handled as an intramural activity.

2. Evaluation and Information Programs

Teachers often engage in creative and intuitive practices that result in successful learning for their students. They find activities that motivate because the content is interesting or the presentation makes it fun. They learn how to help students help each other or where to find new instructional resources in the community. Frequently, though, only a given teacher's immediate friends learn about a new idea that works well, because there is no systematic way to evaluate it and inform other people about it. An even more critical deficit in educational communication is that we often do not evaluate and disseminate information about the large scale improvements that are developed under government funding.

The purpose of this program is to identify successful practices and provide information about them to policy-makers, educators, students, parents, and the general public. Several steps would be required:

a. Establish a simple mechanism for two-way communication between NIE and the country's educational agencies.
b. Establish criteria for success.
c. Identify examples that meet these criteria.
d. Closely monitor the selected practices to

answer the question: How does this work?

e. Whenever possible, articulate the theory behind the practice or answer the question: Why does this work?
f. Determine the information necessary for successful replication of the practice, and the most effective way to communicate that information.
g. Provide information to interested audiences.

3. Basic Research

The purpose of basic research in education is to describe the characteristics of individual students and educational systems and to determine what variables in home, school, and community affect learning. Such basic research can be internally conducted or directed, or it can be part of an external unsolicited program. Directed research usually responds to a specific gap in knowledge that must be closed before a development program proceeds very far. For example, as a part of a career education program, we might study the variables in a child's background that lead to flexibility in adult decision-making.

Unsolicited basic research is usually conducted to add to a base of knowledge not necessarily related to any immediate development effort. These studies can be large or small. Examples of large studies are longitudinal studies (beginning in early childhood) of characteristics of successful and unsuccessful learners, comparisons of the influence of school and non-school factors on learning, and identification of social and economic indicators of the value of education. On a smaller scale, studies often are requested by researchers who have a hunch about some relationship, perhaps arising as a by-product of some larger study and need just a small sum for a pilot study to explore the idea.

Each of the analyses suggested both these categories, directed and unsolicited research. In addition, basic research should call on talent from many disciplines in order to draw upon a wide range of talent. Finally, grants of various sizes should be provided to accommodate both small scale and larger programmatic studies.

4. Analytic Studies

The purpose of this program is to analyze and synthesize all of the information about education that is collected in other places and present it in usable form for the decision-makers of NIE and education generally. The program was suggested as a continuing effort, principally intramural, and based on an analytic framework that is similar to the one being followed by the current NIE Planning Unit in specifying programs:

a. Analysis of Educational Goals:

   Development of a goals structure;

   Identification of target groups affected by the achievement of these goals;

b. Description of State of the Art:

   Review of on-going educational practices and R&D activities relevant to goals defined above;

   Identification of significant variables within these practices and activities;

   Delineation of gaps in our knowledge and practice;

c. Specification of Program Alternatives and Recommendations:

   Formulation of new program initiatives responding to analysis above;

   Evaluation and integration of existing R&D activities;

d. Strategies for Recommending Programs:

Development of criteria based on pay-off and feasibility of suggestions;

Providing information in usable form for decision makers.

Some specific content was recommended by the planning documents for initial analytic studies. Examples are:

a. A review of knowledge on failure of education for the poor;
b. A survey of the literature on the relationships of nutrition and physical development to learning;
c. Studies of incentives, mechanisms and obstacles to organizational change;
d. Policy-oriented research on alternative strategies for school finance.

B. Programs for Current Educational Systems

The legislation for NIE states that one of the Institute's purposes is to improve educational practice in our current system. This can be done by identifying successful techniques and adapting or replicating them in new places, by developing new content to meet changes in society, by performing educational functions more efficiently, etc. Not only is most of our current USOE-sponsored R&D designed to improve practice, but many of the new program suggestions are also within this area. They are classified, for discussion, into eight categories. Three of these categories represent almost entirely new thrusts: developing new measures for education, promoting student self-direction, and increasing productivity in education. Three of the areas relate to many programs that will be continued from earlier years in USOE, but also have several new suggestions: instructional development, school alternatives, and personnel selection and training. Finally, in two areas a great number of ongoing programs were suggested for completion with their activities thereafter to be integrated within other major research programs: researcher training and R&D on planning, management, and organization. Each of the eight categories is described below.

1. Instructional Development

Instructional development involves making the methodology and content of instruction more responsive to student needs. Though this continues over the years as the "classic" area of educational R&D, trends in content do change. Two decades ago, for example, developers met public concern about U. S. competition in science by building sophisticated new physics and math courses. Following that, wide-scale testing programs showed an almost shocking lack of achievement in basic skills. This led to the new R&D Centers and Regional Laboratories' development of programs to teach reading and math. Several of these programs are now becoming available to practitioners. Finally, many of our current curriculum development efforts reflect the recent humanistic emphasis in education. Programs for aesthetic education and humanizing learning are examples.

The greatest present challenge to R&D in this area is building curricula for people who face a life of rapid social change. Such curricula must impart complex social skills and avoid alienating the student in the process. Irrelevant content and passive learning experiences are frequently cited as causes of such alienation. NIE's planning documents suggested a number of programs to meet this new challenge:

a. Multidisciplinary Problem-Oriented Courses for Adolescents: Providing accurate factual information about society and its institutions so that the idealism of youths can be harnessed to sound perceptions; building substantive encounters with the community and life into the curriculum.
b. Developing Complex Skills: Examination and development of new learning approaches (e.g., experiences that require logical problem solving based on

information processing and evaluation of options), and the installation of successful approaches in a variety of settings.

2. New Measures for Education

Writers of the NIE planning documents agreed that new measurement procedures could be the basis for changes in the present structure of education and allocation of resources within it, or measures could provide new bases for credentialing so that current educational requirements could become more flexible. However, a program of exploration and development would be needed to realize this potential. Though there are some widely used tests that might adequately assess proficiency in reading, mathematics, and the sciences, there are virtually no generally acceptable instruments for assessing complex problem-solving skills and social-emotional behavior. For NIE to sponsor development of even rough milestone measures of learning in these domains would represent a vital and useful beginning. The purpose of this NIE initiative is to take the first step of examining educational measurement needs and designing a program to fill gaps in the area. During the coming year, the Institute should explore new techniques such as criterion-referenced (or domain-referenced) tests which sample behaviors and skills in specific areas directly and do not attempt to compare the student with others nor to predict his future ability. Another promising direction—both for individual measures and for developing social indicators for learning situations—lies in the expansion of direct observational methods.

Before new techniques are expanded, however, the availability and sufficiency of measurements must be determined. Information is needed on what behavior should be tested, what tests are available, and how current measurements will work. When promising measures are identified, but validity, reliability, or standardization data are missing for them, this data should be collected. Such a study will identify gaps in traditional and new measurement so that a rational NIE program can be designed.

3. Promoting Student Self-Direction

People have different patterns of learning and preferences for content, and they learn best when instruction is sensitive to these differences. As each person matures, he becomes expert in his own patterns and preferences, but classrooms and schools are not usually structured to use this expertise; instead, the teacher directs groups of students in standardized content rather than the students directing themselves. In fact, the Commission on Instructional Technology (1970) estimates that no more than five percent of school time involves media other than the teacher, the book, the blackboard, and pictures, charts and maps hung on the wall. As a result, when most students leave school they don't know how to adapt the basic academic and problem-solving skills they have learned to fit their own interests. They cannot easily direct and continue their own education; but must return for yet another teacher-led class if they want to learn more. The purpose of this program is to examine current techniques to make students more independent in learning and to combine and adapt those techniques into an integrated over-all program of instruction.

Some scattered efforts have been made to provide more choices for individual students in what they learn as well as when and how quickly they learn it. These efforts, which might relate to self-directed instruction, include models for computer-assisted or computer-managed instruction. They also include open classroom programs and curricula structured to provide alternate media, content, and sequence in learning in order to meet needs of different students. However, the features of these activities that promote independence in learning are not clearly identified, nor have they ever been put into a single program and described well enough to be reproduced with reliable results.

A review of current innovations to find outstanding examples of things that appear to work in building self-directed students should be undertaken. Open schools, for example, might be carefully studied to determine whether they have real empirical results, and if so, whether certain technology or procedures can be identified to which such results can be attributed. These features would then become the basis for systematically developed instructional models with clear objectives and a variety of learning experiences and presentation media.

4. School Alternatives

A major problem with piecemeal attempts at educational reform, such as altering a segment of the curriculum, is that the effects are often washed out by the new activity's lack of congruence with other unchanged activities in a school. One answer to this problem is the development of comprehensive alternative school models, which include a large set of mutually enhancing and reinforcing changes in educational practice–that is, changes not only in school staffing patterns, but also in financial support patterns, staff training patterns, school organizational patterns, community participation patterns, etc.

Two major ongoing examples of the school alternatives are the Free School Movement and the U.S. Office of Education's Experimental Schools Program. The Free School Movement is an attempt by parents and teachers to develop alternatives outside the public school system. The Experimental Schools Program is an attempt by the Government to help local school districts plan, develop and implement alternatives within the public school district. Several experimental schools have been implemented and generally attempt to combine promising practices derived from research and demonstration into comprehensive programs.

Planners suggested that NIE activity in the area of school alternatives include continued support for the Experimental Schools Program. For new activities, the planners suggested that NIE explore the possibility of involving a wide range of disciplinary specialists in joint planning of a comprehensive educational alternative. Such interdisciplinary participation might be especially useful to neighborhoods with diverse ethnic or social groups, i.e., districts for whom the present standardized school program works least well. Finally, suggestions were made for NIE to explore the possibility of supporting those alternative school movements currently receiving widespread grassroots support (e.g., the Free School Movement) for purposes of documenting how such programs work, what effects they have, and how they can be replicated.

5. Increasing Productivity

In recent years educational revenues have not been adequate to satisfy needs. Even though our birth rate is declining and our population is growing older, the demand for more years of education and the rising cost of providing it are likely to continue for some time. We are not only demanding more years of instruction, but also asking that instruction be more effective, more individualized, more relevant to the world outside of the school, and more accessible to all individuals. While increased expenditures will probably be necessary, it is at least equally important to provide education at efficient cost levels. The purpose of this program is to develop ways to fill this need for providing efficient cost levels in education.

Research on productivity in education has begun to develop a theoretical base describing the benefits of schooling. However, studies of how educational inputs relate to outcomes for individuals and society have up to now been hampered by insufficient breadth in selection of

variables. That is, economists have too frequently tried to find relationships between easily measured things like number of years in school and later income, or educational level of teachers and achievement of students. Even when such relationships are positive, the variables are too gross to indicate what action should be taken.

In addition to economists, a community of very active school finance experts has been studying the fiscal properties of our educational system. Notable efforts have been the work of the National Educational Finance Project and the President's Commission on School Finance. Both of these projects, which were funded through the U. S. Office of Education, have contributed to the base of information on educational costs according to regions of the country, kinds of programs and characteristic groups of students. These large projects have resulted in recommendations for further study and for action to bring efficient cost levels in education.

A final emphasis in the recent concern about productivity in education has been in the use of technology. As long as education, like other service sectors of the economy, remains labor intensive, cost reductions will be difficult to achieve. Yet, most recent use of technology in education has been treated as a supplement to the existing program which added cost rather than reducing it. Current technological development is promising, but it must receive more intensive attention if it is to contribute to productivity.

In the area of productivity, we need to design a research effort to remedy our lack of knowledge about how well various educational features and practices work. The proposal will include developing information that helps us make decisions about the best use of student time, the effectiveness of various educational experiences, the qualification and allocation of teachers, etc. In developing this information, NIE must consider how student characteristics, such as sex, age, ethnic and peer group, etc., interact with educational experience to affect success.

A second major topic for NIE to consider in relation to productivity is the non-progressive use of technology in our system. As a first step, it seems imperative for NIE to review the field, considering educational technology in its broadest sense, e.g., aspects of learning such as motivation and incentives, alternative learning systems, and management and organizational systems. Such broad consideration will help identify ways to build a technology-based educational program that may help reduce costs of education in the long run, rather than our current technology-supplemented programs that tend to increase costs.

6. Planning, Management and Organization

Planning involves selection, analysis, and presentation of data needed for educational decisions and action; organization is directed toward the ultimate design of new organizational structures and processes, and management involves the selection of goals and programs, the implementation of programs, and the revision of programs as necessary to meet goals.

A significant amount of R&D designed to improve these functions in education is currently underway at Regional Laboratories and R&D Centers. The purpose of most of these current programs is to develop tools and procedures that have general utility. The NIE planners felt that, as these efforts are completed, funds should be used for R&D in the same areas of planning, management, and organization, but geared to specific needs of comprehensive programs and related to the major effort on increasing productivity. By that time, the comprehensive programs will be ready for this level of R&D effort, and in many cases the same agencies could be the performers. Budgeting and

management, however, would then be accomplished through a directed program task force.

7. Personnel Selection and Training

The present decline in teacher shortages suggests the timeliness of developing recruitment, training, certification, and selection policies that will insure outstanding educational personnel. One problem with present educational training and certification procedures is that they are not performance-based. While they include a supervised practice teaching experience, the degree and certification are awarded on the basis of credit hours of course work, rather than on the basis of the teacher's having demonstrated an ability to successfully provide learning experiences for students. A second problem with present educational personnel training programs is that they prepare the teacher and/or administrator to fit into the conventional school—a school in which each teacher is the sole purveyor of instruction for a group of about thirty students.

Ongoing Office of Education R&D activities related to educational personnel selection and training include programs to individualize teacher education, to build competence in teaching bilingual students and low income students, and to develop differentiated staffing patterns.

Additional programs suggested for NIE in this area are exploration of:

a. Alternatives to group-oriented and teacher-presented instruction, such as use of multilayered staffs and technological devices;

b. Attempts to train educational personnel in the skills that will enable them to be competent agents of change in their institutions.

8. Researcher Training

This is a current program which has some fund commitments for the coming year and generates a great deal of support from constituents in the field. Its primary purpose is to encourage quality training of educational researchers and research-related personnel. The program was originated to meet a need generated by the approximately thirty-fold increase in Cooperative Research funds over the past decade and the dramatic shift in emphasis from conventional research studies to large scale development, diffusion, and evaluation efforts.

Most of the NIE planners have recommended completion of the current Researcher Training Commitments, then redirection of training activities so that they are associated with large ongoing programs, perhaps including apprenticeships on R&D problem-solving efforts.

Specific objectives within the current Researcher Training Program include identifying the types of training most critically needed by educational R&D personnel, developing and testing materials to train them, and providing support for such operational training programs. A project to identify R&D personnel needs is being funded by the National Center for Educational Statistics, but directed by USOE's Researcher Training staff. NIE, in assuming leadership, would probably want to continue this cooperative arrangement, if possible. The materials development programs are being conducted, for the most part, through consortia efforts that should be evaluated by NIE during the coming fiscal year.

C. New Forms of Education

The final major category of program suggestions is developing new forms of education. This area includes a program to explore the possibility of home-based education, perhaps with development of home learning

centers where small groups of children come together to learn at a neighbor's house. Parents might also come to this program to learn how to help their children. A second program, called employer-based education, is designed to give students a variety of learning experiences at various job and community agency sites. A third program is to investigate and develop new mechanisms for citizen participation in the educational enterprise. Finally, since many planners suggested exploring alternatives for post-secondary education, this area is included. Each of these exploratory program possibilities is discussed below.

1. Home-Based Models

Recent evidence indicates that developing alternative programs for education in the home might have high R&D pay off. For example, Mostellar and Moynihan (1972) have just published a re-analysis of the Coleman data, confirming the importance of out-of-school influences on learning; success of parent-tutoring programs of several Regional Laboratories and learning gains made by children who watch "Sesame Street" show promising directions for home education; finally, studies of early learning suggest that developing ways to help mothers help their own children may be effective in improving education. Even when mothers work, data reported by the White House Conference on Children show that overwhelmingly their choice for child care is another home. Yet educational research has thus far focused on ways to improve education in institutions rather than homes. To fill this gap, a program was suggested to explore ways of complementing current education by making use of home learning centers in neighborhoods.

The Office of Child Development has begun a related program for home-based education that could be supplemented by R&D efforts of NIE. It is proposed that the Institute, during the coming year, explore a wide variety of such joint efforts. Though identification of program components will require further study, there is likely to be a need for developing educational experiences for small groups of children who learn together in homes, for measures of social and physical development of children in such home learning centers, and for ways to coordinate home and school learning experiences so they become a total educational program.

2. Employer-Based Models

The purposes of the R&D effort in employer-based education are: (1) to provide learning experiences for students at employers' sites; (2) to make a variety of adults in different career roles available as models to students; (3) to give students access to accurate career information; and (4) to explore the possibility of a program to facilitate recurrent cycles of education and employment in adult life. The employer-based program grows out of a need to reduce the distance between schools and other community institutions. It is directed toward building the skills and attitudes necessary for successful career decision-making and for meaningful participation in community and social-action activities. The cornerstone of the 1973 NIE effort will be the employer-based and the residential models for career education that transfer from USOE.

Alternative strategies in career education were identified and parameters for models to be developed were outlined by a USOE Task Force toward the end of Fiscal Year (FY) 1971. Through FY 1972 the models will be in the planning, design and developmental state. Four Regional Laboratories are establishing pilot employer-based programs in as many cities. In each case, the Laboratories are assembling a group of employers who will later form a consortium to be responsible for the model career education activities.

The Residential Model for Career Education has established a rural residential center which provides day care, elementary and secondary education, career and technical education, parent education, family health and welfare services, counseling, and cultural and recreational opportunities. The program is currently in pilot operation and has just developed the hypotheses and strategies that will guide future development.

There will be three primary efforts in Fiscal 1973—continuation of the Employer-based and Residential Models for Career Education, and exploration of the possibilities of an "Early Exit" experiment. The new "Early Exit" activity is a suggestion by NIE planners to explore the possibility of reducing the number of years of compulsory schooling so that students may leave school at the end of the eighth grade and be provided an entitlement to four (or perhaps six) more years of free schooling to be used at any time of life.

3. Community Participation Programs

A number of studies have demonstrated that citizen participation increases educational effectiveness and reduces alienation. Cloward and Jones (1963) and Schiff (1963) have shown that parent participation leads to higher parent regard for the value of schooling, greater pupil achievement, better school attendance and study habits, and fewer disciplinary problems. Chilman (1966) and Clark (1964) have documented that children growing up in the inner-city sense their parents' distrust of schools and feelings of powerlessness, and come to assume that they also have little control over their fate. Finally, Seasholes (1965), in an analysis of the political socialization of Blacks, states that when parents exercise control or power in the school and community, they convey this sense of control to their children and these children no longer view themselves as powerless and lacking in self-worth.

In spite of the evidence attesting to the significance of lay participation for the school's effectiveness, current mechanisms for citizen involvement are often ineffective. For example, the school board is frequently incapable of adequately informing citizens about educational activities, despite its major responsibility to do so; this often results from political, administrative, and financial constraints. Furthermore, advisory personnel are obligated by tradition to make the whole school look good.

Several unique experiments, like voucher systems and performance contracting, are underway to improve mechanisms for decision-making. NIE should evaluate these and undertake research to pinpoint new directions for NIE's experimentation in community participation. A specific recommendation of the planners was for a program that explores voluntary sector approaches and new governance mechanisms. For example, intermediate community agencies might be tried, to serve as a neutral ground where parents and members of the local community can work jointly on innovative approaches to education with school personnel. If procedures are effective, they are more likely to be adopted by the school.

4. Post-Secondary Alternatives

Many recommendations are now being made for alternative structures and forms of post-secondary education. Among the most prominent are those made by the Carnegie Commission and the Newman panel. A number of institutions of higher education are attempting to reduce reliance on traditional models through a variety of programs: the Open University of Great Britain and the University Without Walls sponsored by the Union for Experimenting Colleges and Universities embody the most sweeping of these alterations. Non-residential degree programs are currently under consideration by a number of universities

and are now being developed by Rutgers University, Empire State College and the New York Board of Regents.

The belief that education need not be tied to a single time or place led planners to suggest the need for exploration of a wide variety of post-secondary alternatives to test the assumption that their growth will help the educational system better meet the diverse needs of all its clients. Though identifying specific program components requires further study, it is possible to indicate the kinds of alternatives that might be appropriate. For those students who are interested in certain portions but not all of a traditional degree program, the Institute might explore "unbundling" higher education into discrete components–provided by both the profit and non-profit sectors. For students who are interested in pursuing a specific career option beyond high school, development of post-secondary career education models might be indicated. For all adults who want to expand their educational experiences, the concept of life-long learning should be evaluated.

V. CRITERIA FOR PROGRAM SELECTION

Many of the broad program areas described in Chapter IV have yet to be analyzed and specific activities within them identified in order to set funding priorities. The sixteen suggestions must be examined in relation to what has been done in each area, what needs to be done and what resources are available. With this information, specific program activities can then be designed over the next few months.

In order to set priorities within the group of detailed program selections, the agency will need specific data about what the operational steps to implementation are, how much the program costs, what its potential benefits are, which target audiences it addresses, what groups might oppose such a program, etc. With this kind of data the Director and his staff can apply judgmental criteria like the following to make decisions about funding and support:

1. Appropriateness as an activity for the Federal Government: Are state and local agencies unable to sponsor action? Is the program unattractive to the private sector? Does the program address a national need?

2. Appropriateness as an activity for NIE: Is the program an activity that is basic to the research and development mission of NIE? Could it be assumed by another agency? Is inter-agency cooperation desirable?

3. Potential significance: To what extent does the program respond to one of the central educational problems? Does it also respond to other problems? Do the probable outcomes of the program promise to make a significant contribution to the reform of the American educational system?

4. Feasibility of the program: Can it be expected to achieve its objectives within an appropriate time frame and at a cost commensurate with the results? Are the individuals and resources needed to implement the program readily available? Is it politically feasible?

5. Pay-off: What are the anticipated benefits? At what costs are they to be obtained? How does the cost/benefit estimate compare to those of other programs?

6. Adoptability: What is the likelihood of continued support of the program after federal funds are withdrawn? What is the likelihood of adoption by secondary targets? How costly will it be for local authorities to implement?

7. Potentially undesirable side-effects: Is there a possibility that the program will induce changes or create conditions in American education that are unintended and undesirable?

8. Program balance: Will the implementation of this program, considered in relation to the other programs supported by NIE, contribute to a well-balanced research and development effort that addresses all of the agency objectives?

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APPENDICES

APPENDIX A

SUMMARY OF RESEARCH AND DEVELOPMENT IN EDUCATION: ANALYSIS AND PROGRAM DEVELOPMENT

By Senta Raizen

I. Introduction

The analysis led by Senta Raizen begins with an examination of the domain of education in the United States today through an exploration of educational goals and the means to facilitate those goals. End goals for students include academic, social, career, and attitudinal skills; for educators, the goals include personal, professional, and economic satisfaction. Society's goals include the development of human resources and of selection mechanisms for distribution of economic and social goods. Means to facilitate all these goals are discussed in terms of characteristics the educational system should exhibit, including equality and access, responsiveness, productivity, and coordination with other social institutions. The discussion of goals is tempered by a review of conflicting values and shifting priorities that inhibit a general consensus.

The role of the formal educational system is discussed in its relation to all the societal sources of education. This discussion includes quantitative parameters, descriptions of internal functioning and extra-system influences, and examination of constraints operating upon and within the system, including governance, constituent influence, and financing. Evidence is presented briefly in the most serious areas of failure to meet educational goals. From the investigation of the domain of education and evidence of failure are derived three priority areas for NIE:

a. improving the quality of education
b. improving education for the disadvantaged
c. improving resource use in education.

Each of the priority areas is then examined in detail.

A. Improving the Quality of Education

Problems involved in attempting to improve educational quality are examined in the context of the end and process goals of education. From this examination subgoals for improving the quality of education are derived:

1. Providing rigorous intellectual challenge;
2. Expanding opportunities for students to experience effectual action;
3. Reintegrating schooling and "real life;"
4. Fostering educational diversity;
5. Encouraging articulation of the goals and processes of education.

Important assumptions or beliefs underlying past attempts at educational reform are discussed in the context of these subgoals. Gaps in present knowledge are identified and some possible next steps are indicated. This analysis provides the rationale for suggested R and D initiatives for improving the quality of education. *Rigorous intellectual challenge* is possible only through the development of approaches that promote genuine engagement with the substance of instruction and that teach complex skills and the use of knowledge as a tool; the provision of appropriate purveyors of those approaches, such as educational technology and a range of different types of teachers; and the dissemination of those approaches. *Providing opportunities for effectual action* inside and outside the classroom requires the development of programs that give the student academic, social, and career learning responsibilities, programs that are also necessary for intellectual challenge and *reintegrating school and real life.* This integration must proceed simultaneously in two directions: moving the student into the community and moving the community into the school. *Fostering educational diversity* should involve supporting good examples of non-traditional study and designing alternatives to present instructional and institutional patterns that will meet the needs of poorly-served client groups. *Encouraging articulation of the goals and processes of education* requires an assessment of current practice and thorough dissemination of that assessment. (See an outline of specific initiatives below.)

B. Improving Education for the Disadvantaged

With the understanding that all the problems discussed for improving the quality of education are of special importance to disadvantaged children and youth, the analysis explores additional problems that must be addressed in order to improve education for the disadvantaged, including the "mystique" of the disadvantaged child and the perceptions and stance of social institutions toward poor and minority

populations. The problem analysis concludes with subgoals for improving education for the disadvantaged:

1. Acquiring and applying more authentic knowledge of the poor child;
2. Understanding and changing school and institutional action;
3. Adapting educational practices to the realities of home, community and peer interactions;
4. Responding to heightened awareness of educational deficiencies.

Each subgoal is then examined in terms of the current state of knowledge and experimentation in order to explore underlying assumptions and delineate important, heretofore unexplored, questions. This analysis develops the rationale for suggested R and D initiatives for improving education for the disadvantaged. Although all programs should provide *more authentic knowledge of the poor child,* specific work should be directed toward anthropological and sociological studies of teachers, schools and communities. This work should be included in a compilation and analysis of knowledge concerning the failure of education for the poor. *Understanding and changing school and other institutional actions* may be facilitated by programs which involve the multidisciplinary design of alternative schools and the development of educational elements known to enhance the learning of low-income students. Programs for studying classrooms, schools and communities and for designing alternative schools will also attempt to *adapt educational practices to the realities of home, community, and peer interactions.* Promoting more responsiveness to society's increasing awareness of educational deficiencies should involve the development of multidisciplinary problem-oriented courses for adolescents, whose sensitivities to social concerns are, in some instances, especially keen. (See an outline of specific initiatives below.)

C. Improving Resource Use in Education

Problems involved in attempting to improve resource use in education are examined in three categories: internal efficiency, external efficiency, and distributional equity. Each problem is discussed in terms of specific sub-problems and the current state of knowledge. This analysis leads to the conclusions that:

1. The relationships between resource use and educational benefits are not well understood;
2. The contributions of education to private and social gains, particularly causalties, are unclear;
3. Current patterns of distribution of resources and benefits are being questioned;
4. Definitions of educational output are narrow;
5. Significant variances in resource allocation are nearly non-existent;
6. Choices for the consumer or opportunities for decision-making are limited.

Out of this discussion grow suggested R and D initiatives for improving resource use in education. Improving internal efficiency, external efficiency and distributional equity all depend upon the development and availability of information that will be useful in decision-making. *Determining the contributions of education to private and social gains* requires measuring educational outputs over a much broader range. *Relationships between resource use and educational benefits* need to be studied by developing existing educational technology, demonstrating uses for it to improve productivity, and exploring alternative mixes of educational technologies at different levels of education. *More choices for the consumer and more opportunities for decision-making* will provide better matches between educational offerings and the needs of students, their learning style, and societal requirements. A systematic *analysis of rewards and incentives* will provide information for increasing internal and external efficiency. Policy-oriented research on alternative strategies for school finance provides positive directions concerning the *distributional equality of current patterns of distribution of resources and benefits.* The overall objective of all the program initiatives is to enhance the process by which education is conducted along the dimensions of equality and access, responsiveness, productivity, and coordination. (See an outline for specific initiatives below.)

D. Initiatives and Priorities

The document then briefly examines some constraints on and limitations of R&D in education and suggests several strategies for overcoming them. One recommendation suggests the use of several modes of R&D–building a knowledge base, spreading good practices, taking advantage of natural experiments, sponsoring new experiments–which have different time dimensions but should be carried on simultaneously so as to feed into one another. A model for project development in sensitive societal areas is then presented.

The suggested program initiatives are summarized in terms of the educational goals they address, the modes of research and development they represent, and the fiscal balance they provide.

New initiatives rely heavily on the "Knowledge Base" and "New Experiments" R&D modes. This is deliberate,

since much of the OE program to be taken over falls into the areas of "Spreading Good Practice" and "Taking Advantage of Natural Experiments," so that, for the first year or so, these modes will in fact be more richly funded than the other two.

The goal of Career Skills is not heavily addressed by the new initiatives since another major component to be transferred from OE (Career Education) is devoted exclusively to it. The goal of Academic Skills is more heavily addressed than either Social or Self-Development Skills. There are at least three reasons for this: (1) cognitive learning, particularly of the more complex skills, is still considered the main function of formal schooling; (2) the knowledge base, including ways to evaluate achievement, is weak for both social and self-development goals; (3) not many good practices or natural experiments are going on to meet these goals. For the last two reasons, the new initiatives in these areas concentrate on the knowledge base and on new experiments.

The emphasis on the knowledge base for all goals reflects the strong conviction that one of NIE's primary functions is to become a center of expertise concerning major problem areas of education. The intramural component of the agency is expected to make a major contribution to building the sound base necessary if experimentation in education is to lead to lasting reform.

Finally, criteria are given for making priority choices among suggested programs including:

1. Appropriateness as an activity for the Federal government;
2. Appropriateness as an activity for NIE;
3. Potential significance;
4. Feasibility of program;
5. Pay-off;
6. Adoptability;
7. Potentially undesirable side-effects;
8. Program balance.

Next steps are outlined, including the integration of OE activities to be transferred, and the development of a detailed budget.

II. Outline of R&D Initiatives for Improving the Quality of Education

A. Complex Skills

This program would examine and develop approaches to the teaching and acquisition of complex skills such as heuristic problem solving, information processing and evaluation, information composition and display, and learning how to learn. It would involve defining promising problems and issues for advancing higher cognitive learning, designing new instructional components, and developing appropriate formats for instruction, such as discrete courses, modules for traditional courses, computerized instruction, and problem-oriented units.

B. Purveyors of Instruction

This program would explore the feasibility of alternative purveyors of instruction, specifically multi-leveled staffs and educational technology, including analysis of situations in which they could improve the quality of the educational process. Analysis would include examination for educational effectiveness, both cognitive and affective, start-up and continuing costs, suitability for specific settings, and unanticipated contribution to quality. On the basis of this analysis, the most promising experiments would be identified and developed, with careful matching of optimal technology to level and purpose of educational setting.

C. Early Exit Experiment

This program would reduce the separation between high school and the real world by lowering the compulsory school attendance age to 14 and giving students entitlements at the end of ninth grade, usable at any time in either school or non-school settings. It would involve designing the basic structure of experiments, including eligibility criteria, fiscal support mechanisms, and certification. The development and field-testing of entitlement options for the non-school settings might include modified trade and industrial apprenticeships, business internships and public agency courses and programs.

D. Unbundling of Higher Education

This program would create alternatives that will introduce greater flexibility and responsiveness to individual students into systems of higher education by separating into discrete components—in both profit and non-profit sectors—a variety of the services offered and the functions served by institutions of higher education, such as instruction, credentialing, and counseling. Development activities will include the extension of existing components and the creation of new components, such as the New York State Regents External Degree Program and professional association credentialing mechanisms.

E. Understanding and Supporting Emerging Innovations–Open Education

This program would support emerging innovations, such as alternative schools, accountability and open classrooms, to understand what makes them work, how they can be replicated, and what their consequences might be. Using open classrooms as the vehicle for developing the investigation model for any emerging innovation, the method includes establishing criteria for success, closely monitoring successful examples, articulating the theory behind these successes, and determining support strategies necessary for successful replication, such as teacher training, administrative support, and student characteristics. This information will be synthesized to feed into further implementation through a second round of proposals for replication of high-quality programs.

F. Expanding the Usable Knowledge Base

A careful examination of a variety of current educational practices would aid in the articulation of the goals and processes of education. This examination would include basic studies in naturalistic settings, investigation and dissemination of successful practices, and goals assessment. A variety of dissemination techniques would be employed to insure that information reached all appropriate audiences including policy makers, educators, students, parents, and the general public.

III. Outline of R&D Initiatives for Improving Education for the Disadvantaged

A. Multidisciplinary Design of Alternative Educational Programs

This program would design and experiment with comprehensive educational programs by multi-disciplinary groups reflecting the needs and values of particular students and communities. Such groups should include sociologists and anthropologists, psychologists, members of the community to be served, students, teachers, and administrators. Development will probably involve a university or educational laboratory working with a school system to provide long-term stability.

B. Developing Educational Elements

This program would pursue, in a systematic fashion, development of the most promising elements in the education of the disadvantaged so that they can be adopted more widely in current school practice. Such elements might include activities that motivate through interesting subject matter or that are fun in themselves, tutoring of younger students by older ones as a means of improving the learning of both, and the use of neighborhood paraprofessionals. The program includes the identification of existing elements and the determination of dissemination and implementation strategies, such as teacher training, publicity, production and distribution, and possible demonstration sites. Characteristics of promising approaches would be analyzed to be used in a second round of projects to develop new and existing elements.

C. Multidisciplinary Problem-Oriented Courses for Adolescents

This program would provide accurate information about societal structures and institutions, so that the idealism of youth can be harnessed to sound perceptions. The knowledge base would include relevant work from all the social sciences. Development work involves the cooperation of persons representing each discipline to produce, not a pre-packaged set of materials, but a compendium of information that could be adapted to each local situation.

D. Anthropological/Sociological Studies of Teachers, Schools and Communities

This program would increase policy-relevant knowledge through systematic observation and analysis of good practice and of the milieu of specific communities in which poor children are receiving less than adequate education. The results of such studies could assist policy-making educators in matching practices and procedures with the values, beliefs, and life-styles of specific populations.

E. Compilation and Analysis of Knowledge Concerning Failure of the Educational System with the Poor

This program would replace the present unfocused

style of assessing and attacking educational problems with an approach toward a science and technology of education in which understanding accumulates. It would create a constantly growing and changing compendium that would include current knowledge, the state of the educational system as it relates to poor families, results from anthropological studies (Program D), and current research plans of Federal and other agencies. The compendium would be made generally available, with periodic amendments and printed monographs.

IV. Outline of R&D Initiatives for Improving Resource Use in Education

A. Multi-perspective Analysis of Educational Objectives and Evaluation

This program is necessary to understand the functioning and benefits conferred by the system and the development of educational measures over a much broader range. Some examples are criterion-referenced achievement tests that measure complex skills and measurement techniques for affective variables, models of educational output taking into account the multi-dimensional nature of educational objectives, and cross-national studies of educational goals and their assessment.

B. Experimentation in Education Production

This program would explore alternative mixes of educational technologies used for instruction at different levels of education, including both management and communications technologies. Each mix to be tested should be designed so that per-student costs (exclusive of development costs) are equal to or less than present national averages, with a specific focus on efficiency. Examples might include teaching of basic skills in elementary school via computer-assisted instruction, technology-based community colleges, experiments with aggregation and disaggregation of institutional sub-units and/or functions for higher education.

C. Choice and Decision-Making

This program would provide a better fit between students' needs, their learning styles and societal requirements in order to respond to widely perceived dissatisfaction with educational outputs and distributional equity. Alternatives might include several voucher plans focusing on internal efficiency or content of schooling and naturally arising alternative schools inside and outside the system. Analysis of the mechanisms for exercising choices might include studies of existing decision-making structures, including effects of current decentralization efforts, and development of multi-layered information systems that will give feedback to parents, teachers, and policy-makers on available alternatives and anticipated consequences of specific choices.

D. Incentive and Reward Structure

This program would integrate the experimentation and study of incentive and reward structures for teachers, administrators, and students with the implementation of alternative methods. Examples include studies of current rewards and incentives in a wide variety of institutions, experiments with alternative reward schemes, experiments with different credentialing and promotion criteria than those on which current reward systems are based. Assessment specialists, economists, management experts, psychologists and sociologists will be involved to build basic knowledge and theory by studying on-going experimentation and mounting some new experiments, carefully designed and tested.

E. Studies in Efficiency and Productivity

These studies would involve basic research in a number of poorly understood areas of efficiency and productivity in education, focusing upon building a conceptual framework for understanding causal relationships in educational efficiency and effectiveness. Examples include the investigation of ways in which schools respond to high levels of financial pressures, studies of relationships between educational and worker productivity, and research on the extent to which the educational system can affect the distribution of income and on the role it might play in the eradication of poverty.

APPENDIX B

SUMMARY OF AN R&D AGENDA FOR THE NATIONAL INSTITUTE FOR EDUCATION

By Beverly Kooi

This paper, written by a Planning Unit Team under the direction of Beverly Kooi, provides a rationale for programs of the new National Institute of Education. The basic elements of that rationale and the sequence in which they will be discussed are:

1. educational goals to be achieved;
2. variables that can be manipulated to reach the goals;
3. current practice and status of R&D on the variables;
4. new R&D programs that might lead to goal achievement;
5. management and budget recommendations.

The research and development programs derived from this rationale fall into four areas defined by NIE legislation: basic research to increase our fund of knowledge about education; improvement of current educational practice; activities to build the R&D capability of the country; and programs to solve major educational problems.

Because NIE will inherit many worthwhile ongoing R&D programs from the Office of Education, they are incorporated in this paper's goal analysis and resulting agenda. These continuing programs represent almost $100 million of NIE's $125 million FY 1973 budget.

Figure 1 and Table 1 summarize the analysis presented in this paper. They list the goals, the old and new programs designed to achieve them, their organizational location within an interim NIE structure, a percentage budget allocation for FY 1972 and a recommended allocation for FY 1973 that would accommodate this proposed agenda.

The selection of Learner Goals, Enabling Goals, and System Goals is based upon the opinions and work of many people and a wide range of literature sources.

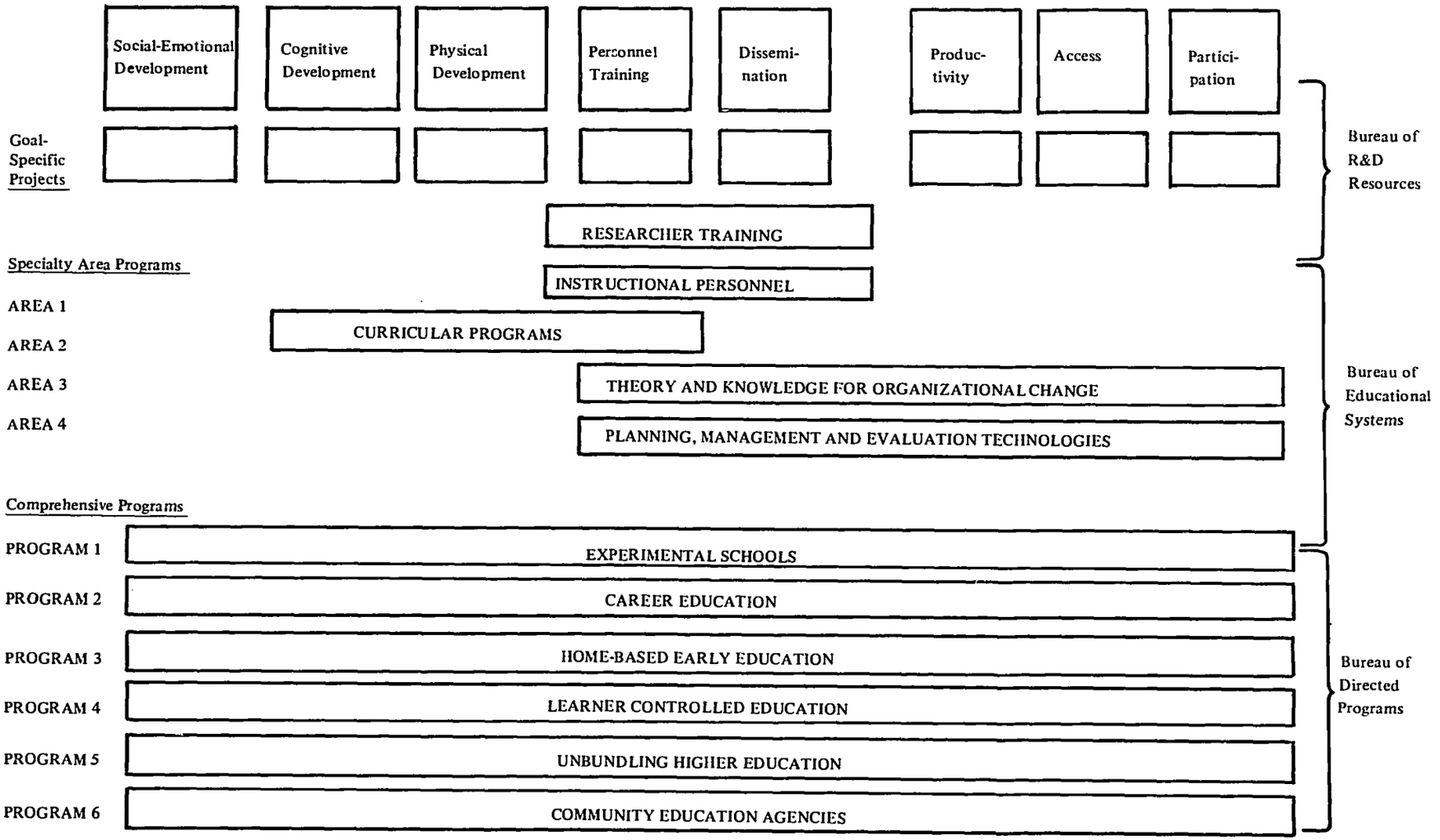
Learner goals are divided into three areas: (1) social-emotional development, which includes learning to sustain oneself socially and emotionally through self-acceptance, successful social interaction, acceptance of responsibility, and adaptation to new situations; (2) cognitive development, reached through acquisition of basic academic skills and the ability to use those skills to further one's own education; and (3) physical development, which includes selecting a nutritious diet, avoiding hazards, attending to symptoms of illness, and getting proper exercise.

Implicit in the discussion of each learner goal and its related programs is the notion that people learn through doing; i.e., it is necessary to provide conditions to encourage students to engage in the desired goal behavior directly rather than to talk about it or experience it vicariously.

Enabling goals include: (1) effective selection and training of persons who work in education, both in traditional roles and in roles defined by NIE's new R&D programs; and (2) effective dissemination of R&D results through informing the field about new knowledge and programs, demonstrating improvements in practice, and building a demand for and ways to implement alternatives that are significantly different from the current educational system. Enabling goals are those which, for the most part, support the R&D system and are only indirectly instrumental in improving the educational system.

System goals, like learner goals, have three areas: (1) productivity, which includes the use of information and technology to make educational activities effective and efficient; (2) access, which involves the equitable provision of educational services to all groups who need them; and (3) participation, which provides ways for citizens to understand, obtain, and sometimes provide for themselves, the educational services they want and need. Although learner goals could possibly be achieved without the system goals, the educational system would probably not be acceptable without them.

Several classes of variables can be manipulated to achieve these educational goals: the substance of the educational experience; the selection of target audiences; personnel selection; the educational setting; time and space distribution; the allocation of monetary resources and incentives; changes in societal sanctions, laws and rules; and changes in organizational structure and information flow. The characteristics of each goal and



SCHEME FOR GOALS AND ACTIVITIES

Figure 1

Table 1

SUGGESTED BUDGETS BY NIE OFFICE

	FY 1972	FY 1973
Bureau of R&D Resources	18.0%	17.0%
Extramural Projects	14.0%	10.0%
Research Training	4.0%	4.0%
Developing Institutions		2.0%
Intramural Research*		
Program Management		1.0%
Bureau of Educational Systems	46.0%	45.0%
Specialty Areas:		
1. Instructional Personnel	3.5%	2.0%
2. Curricular Programs	12.0%	7.5%
3. Organizational Change	3.5%	2.5%
4. Planning, Management, and Evaluation	9.0%	6.0%
Comprehensive Programs		
Experimental Schools	18.0%	25.0%
Intramural Research*		
Program Management		2.0%
Bureau of Directed Programs	36.0%	38.0%
Comprehensive Programs		
Career Education	25.0%	21.0%
Home-Based Early Education	6.0%	4.0%
Learner-Controlled Education	5.0%	6.0%
Unbundling Higher Education		2.0%
Community Education Agencies		2.0%
Intramural Research*		
Program Management		3.0%
TOTAL**	100.0%	100.0%

* Allowable funds for intramural research for each office; included as part of program funds.

** An additional section of the budget provides for administrative services.

how well it is now being achieved suggest which combinations of variables are most likely to bring about the solution. Consider two examples that may clarify the type of analysis involved.

First, most social development happens before the child reaches school or after he graduates and is influenced by a wider variety of people than school teachers. The investment of current R&D resources on social development is disproportionately low in relation to its importance. Most educational research on social development has occurred in the artificial training environment of schools. Funds for R&D on social development probably should be increased and placed where such development actually occurs–in the home, community, and at work.

Second, education has invested in technology in the form of films, projectors, recorders, and the like. However, these have been disjointed "add-ons" to the current teacher-led instruction and have not increased educational productivity. As an alternative, the basic organization of instruction could be changed to focus on the student as the productive element, rather than the teacher. Technology could then be used to allow the individual student access to different educational experiences, perhaps resulting in better use of student time and educational dollars.

Although these examples suggest operating programs that would interrelate many educational goals and contributing variables, each of the goal areas must be conceptualized separately to derive such program proposals. A detailed discussion of goals and how they lead to program suggestions is a necessary component of any such analysis.

In Figure 1, the horizontal bars represent both old and new programs and program areas; the vertical columns indicate the goals covered by each program. Some current programs, such as Experimental Schools and Career Education, involve all the goals, but most current activities seem to fall into goal-specific projects or to cut across either learner goals or system goals. In order to be called comprehensive, programs must encompass the enabling goals in addition to learner and system goals.

The small empty boxes in the first row below the goal titles represent basic research projects that are related to one goal or another. This research will be primarily an extramural, unsolicited program. While the research will not be directed, it may be classified by goal area so that a staff with the right balance of expertise can be acquired by NIE to help coordinate the projects and serve as resource people on problem-solving activities of the agency. When specific research activities are needed to complement large development projects or fill the information needs of the agency, an intramural project will be initiated. This will avoid having extramural funds tapped for directed projects in basic research.

The program for researcher training represented by the short bar (Figure 1) is the familiar area that now exists in the National Center for Educational Research and Development (NCERD), though it will have some added features in NIE. For example, a small grant program is suggested with payment not only for students and novice researchers, but also for experimental researchers in the field who interact with students and to whom they may serve as apprentices. Another recommendation is that large R&D efforts have some on-the-job training positions attached to them, on the assumption that if a group is good enough to receive several million dollars in program money, a novice could gain valuable expertise by working with them.

Moving down Figure 1, the specialty area programs are, for the most part, those Regional Lab and R&D Center programs that have been grouped together for the 1972 spring evaluation. The evaluation is being conducted at NCERD and is designed to give budget guidance to NIE management. Each specialty area is a loosely related cluster of programs placed under the goals they seem most concerned with. Two other clusters in the spring evaluation relate to early childhood education and career education and will fall within other programs and projects on the agenda.

Finally, the comprehensive programs that cut across goals are shown at the bottom of Figure 1. The first two programs originated in the Office of Education and are probably already familiar to the reader. The last four are being suggested by this analysis as new programs. Deriving the programs from a goal analysis has been complicated and warrants detailed study. However, in this overview, the "flavor" of each of the new programs can be suggested in just a sentence or two.

Program 3, the Home-Based Early Education program, is based on recent evidence that the greatest R&D payoff may come from developing ways to help mothers help their own children. It will probably contain at least three elements: first, a component to provide places where expectant and new mothers can come for help and child care instruction; second, a component to develop milestone measures of social and physical development and simple procedures to apply

them; and third, a component to develop in-home day-care programs employing neighborhood mother-substitutes to care for preschool neighborhood children and counsel other mothers in the care of their children.

Program 4, Learner-Controlled Education, stems from an analysis of the open schools movement and will involve design, development, and tryout of several models that seem likely to help students use basic academic and problem-solving skills to direct and continue their own education. This program will be technologically oriented, with concern for objectives the student must accomplish, ways to provide individual access to educational alternatives, and ways to build the learner's control of his own motivation.

Program 5, Unbundling Higher Education, means what one might expect from the original use of "unbundling" in the computer industry. This program would identify several functions of higher education that are now "bundled" together and only obtainable as a single package, like information transfer, credentialing, socialization, exposure to work models, etc. An unbundling program will experiment with providing options for students to obtain particular functions from different agencies rather than having to accept the complete college package from an institution of higher learning.

Program 6, the Community Education Agency, is intended to develop new mechanisms to allow the community to govern and participate in providing its own educational services. For example, the agency might develop a mechanism for community residents to provide a variety of neighborhood services, such as tutoring children who have difficulty in basic subjects or directing cross-age recreation and aesthetic programs. The agency could also allow for community-improvement projects that give students realistic educational encounters with the community's social power systems.

Suggested NIE organizational placements are listed along the right side of Figure 1. Program placement was based upon whether the program was primarily designed to: (1) solve major educational problems through directed and programmatic mission-oriented R&D, (2) improve practices within the current educational system, or (3) add to our knowledge, resources, and understanding of the foundations of the educational process. These functions seem to imply differences in planning and management style best accommodated by different bureaus. Needless to say, staff members will be strongly encouraged to work in more than one bureau and it is expected there will be some rotation of people among bureaus.

Since the purpose of most new comprehensive programs is to solve major problems, they are placed in the Programs Bureau. Efforts here will involve careful problem analysis, internal planning, and large-scale development activities. As a result, the management of this office will be quite directive and will require a higher ratio of management personnel to program funds than other bureaus.

Most activities continuing from the Office of Education have been devoted to improving practice within the current educational system and were therefore placed in an Educational Systems Bureau. Typical examples are the Experimental Schools Program and many of the Regional Laboratory and R&D Center programs. These programs usually involve finding the best educational components of existing programs, making modest improvements, combining and trying out components, and communicating the improvements to practitioners. These efforts require less directive planning and management, more investment in R&D proposals from the field, and more practitioner involvement. They require specification of R&D parameters, but program planning and management requirements can largely be met externally. The ratio of agency personnel to program funds is less than that in directed programs, but more than that of basic research.

Basic research and researcher training involve smaller research projects than those in problem solving and practice improvement. More precise methodology, more specialized talent, and more freedom for the expert researcher in the field are needed. NIE must attend only to the balance of topics, quality of proposals, completion of efforts, and dissemination of results. Because of these characteristics, Basic Research and Researcher Training were placed within an Educational Resources or Foundations Bureau having a management style that involves the least agency direction and the smallest ratio of internal personnel to program funds.

APPENDIX C

SRI/EPRC SUMMARY

By O. W. Markley

I. Background

The formation of a National Institute of Education offers a landmark opportunity to transform educational R&D programming so that it becomes responsive to educational needs which cannot be adequately fulfilled by current knowledge and practice. Given that education exists to serve the needs of society and its citizens, and that a three- to ten-year period is typically required before applied R&D products become mature, educational R&D programming must be responsive not only to current societal conditions and needs, but to anticipated conditions and needs as well.

The following conclusions from future-oriented inquiry into the societal context of education were used to guide the analysis of goals and NIE program alternatives performed by the SRI/EPRC team:

a. Many of the education-related problems facing our society are systemic in nature—they have determinant roots in non-educational sectors of society— and "single-sector" attempts at resolution are often not successful (e.g., in education of the disadvantaged and "career education").
b. The society is undergoing an increasingly accelerated rate of change, including a transition from an industrial, production-oriented society to a post-industrial, service-oriented society; and is becoming increasingly "close-coupled" (where a change in one sector has rapid and strong impact on other sectors, often in unanticipated ways).
c. Viewed from an historical perspective, the present era (dating from the industrial revolution until, perhaps, the early part of the 21st century) must be viewed as unique. It is a period in which man is living off a legacy of virtually non-replenishable minerals and fossil fuels. It was preceded by millenia during which man's consumption from the ecological reservior was small and his impact on the non-human environment minor. It must be followed by a period of indefinite duration in which human activity fits into some new set of ecological relationships which are likely to be antithetical to many of the basic values on which Western institutions are based.
d. The rate of change will likely extend to changing values and basic premises of the culture.
e. The needed changes cannot come from and are unlikely to be controlled by centralized, top-down strategies unless authoritarian methods are resorted to.
f. The combination of such factors as an increasingly stringent financial squeeze on the schools and an over abundance of trained manpower for conventionally defined jobs in education means that humane application of educational technologies will be urgently needed.

II. Identification of Goals

The educational goals articulated by the SRI/EPRC team reflected the above conclusions as well as the conventional educational literature and the Congressional hearings on NIE. A variety of educational and societal problems were identified from which these educational goals were derived. Such problems were characterized as being chronic, acute, or adaptive in nature. Chronic problems are those that have existed in the past and are expected to exist in the future (in spite of remedial efforts). Acute problems are those which appear to be of critical immediate importance. Adaptive problems stem from stresses and dislocations brought about by the high rate of change in various sectors of society which have impact on education. Although chronic problems need continuing attention and acute problems seem most demanding of immediate attention, the importance of anticipatory R&D in preventing adaptive problems from becoming acute was especially stressed.

A variety of specific goals were identified in the report. The following are seen as being of especially high priority if education and educational R&D is to be responsive to characteristics of the probable future:

a. to continually anticipate new developments which will impact on education so as to avoid the crisis-orientation so typical of present programs;
b. to develop the arts with which "multi-sector" approaches to education- related problems would be more feasible;
c. to balance centralized financing and planning of

educational R&D with decentralized approaches to educational problem solving, thus contributing to the development of a competent problem-solving infrastructure in society;

d. to foster consumer choice in education;

e. to foster a high degree of tolerance, flexibility, and ability to cope with varied cultural norms; this implies an emphasis on the ability to gain new skills over the attainment of any particular skill, on having access to knowledge and skills to integrate new knowledge, and on the development of self-reliance over dependence on experts.

III. Identification of Programs

In general, the SRI/EPRC team tried to complement–rather than duplicate–the results of others' efforts, and so did not seek comprehensiveness; therefore only a small fraction of the educational goals articulated in the first phase of the analysis were developed into program alternatives for NIE. Four areas of concern reflecting the above conclusions were specifically addressed: (1) policy-oriented research on the societal context of education; (2) decentralized approaches to increase the effectiveness of the educational R&D system; (3) multi-organizational coordination; and (4) anticipatory identification of education-related problems.

Research programs in each of the first three areas of concern are developed in a separate section of the report. Rather than develop in detail the wide variety of research programs that would respond to anticipated problems, however, it was felt more suitable to list such problems in the section on Societal Context Research where they can be referred to by NIE planners. A listing of developed program alternatives and their supporting rationale is as follows.

A. Societal Context Research

The changing context of society needs to be anticipated by R&D planning if the results of R&D are to reduce the need for crisis-oriented programs. Also, long-range implications of present policies need to be drawn out as part of the overall policy analysis of educational programs. Such research is usefully partitioned into work that is conclusion-oriented (element 1 below), decision-oriented (elements 2, 3, and 4 below), and transition/dissemination-oriented (elements 5 and 6 below). The program elements thus developed are:

1. Holistic Analysis of Society: inquiry into the broad alternative prospects that are plausible for society, and identification of broad strategies that seem desirable;
2. Trend and Event Analysis: in-depth inquiry into key trends and events having particular relevance to the planning of anticipatory R&D;
3. Anticipatory Needs Assessment: articulation of education-related needs that are responsive to plausible future conditions in society;
4. Policy Implications: assessment of present or proposed policies in terms of plausible societal consequences;
5. Integration/Translation: repackaging results from the above studies for improved dissemination and utilization;
6. Dissemination: active dissemination to targeted audiences;
7. Support of Unsolicited Research.

B. Increasing the Effectiveness of the Educational R&D System

A variety of program proposals have been made to the NIE Planning Unit which would further the existing trends toward strong agency-based management of educational R&D at the Federal level. Given the decentralized character of American education with its strong traditions of local control, and the probable character of future societal developments, complementary R&D strategies of a more decentralized character are needed to balance this emphasis–programs designed to increase both desires and abilities for educational renewal at the local level. The following programs were identified with these needs in mind:

1. A decentralized market-mechanism. This approach would seek to foster the emergence of a competitive system of offerings by both public and private sectors from which state and local educational agencies could "purchase" needed R&D services.

   a. Funding incentive contracts for development of public and private marketing capabilities and R&D services.

   b. Categorical funding of educational agencies for their discretionary purchase of desired R&D services and consultation.

   c. A clearinghouse for vendor information.

   d. A consumer-oriented better business bureau type of activity.

2. Programs to increase the local incentive to innovate. These programs would seek to increase the public awareness of the need for educational renewal and the skills to initiate such activity at the local level.

   a. Change-Agent Training: special training

programs—either in anticipation of, or simultaneous with formal programs of, educational renewal—especially targeted for school principals and selected teachers. Such training could become part of university-based teacher training curricula.

b. Social Marketing Approaches: Federal exploration of social marketing as a means to increase the effectiveness of dissemination and to increase salience of such problems as the lack of status of teaching in "problem" elementary schools.

c. Voluntary Sector Approaches: Research to promote the state of the art of voluntary organizational participation in the policy process of education, especially at the local level.
   (1) State-of-the-art survey on community involvement.
   (2) Conference on ways to promote voluntary participation.
   (3) Contract to develop practical models of participation in educational assessment and planning.
   (4) Contract to develop a model for participation.

C. Research on Multi-Organizational Coordination

Due to the increasing "close-coupling" of society and the systemic nature of many educational problems cited earlier, multi-sector approaches to education-related problems appear increasingly necessary. The literature relating to the state-of-the-art of multi-organizational coordination is very fragmented, has not been summarized, and appears to exist largely in the form of unpublished government memoranda or similar reports. The following research programs were identified to deal with these needs:

1. A State-of-the-Art Assessment and Analysis Project: a one-shot study to summarize and interpret the literature and personal knowledge of persons with relevant multi-organizational experience.
2. A Research Advisory Committee on Multi-organizational Coordination: a standing panel of experts on the state-of-the-art of multi-organizational research and operations (between Federal agencies; between Federal, state, and local levels of government; and between the public and private sectors).
3. A Research, Development, and Training Center for Multi-Organizational Concerns: institutional support for a university-associated but independent center to conduct conclusion-oriented and decision-oriented research on problems of multi-organizational coordination, and to manage training fellowship and field internship programs.

APPENDIX D

SUMMARY OF
AN NIE STRATEGY PAPER

By Amitai Etzioni

This summary focuses on the goals and suggested programs for NIE. The report itself also discusses educational research and possibilities for overcoming the barriers to an accelerated realization of educational goals.

I. Contemporary Goals of the American Educational System

The goals discussed are those that the American educational system seems to be aimed at. They are classified into two main categories: output goals and process goals. (Inputs, such as funding, are viewed here as resources or means rather than as goals in themselves.) Output goals are essentially the ends which the system is gearing itself to achieve. Process goals concern attributes of the processes through which the output goals are reached; however, the process goals have acquired a status of desirability in themselves. Thus, unalienating education is a process goal; whatever the output desired—say a command of arithmetic—it should be pursued in a way which is involving rather than alienating.

The output goals are here classified in two categories derived from sociological theory. They are divided into an exhaustive pair, instrumental versus expressive goals, defined from the viewpoint of the individual child or parent. Instrumental goals focus on the desire to increase the capacity to achieve, to do, to perform. They deal with "means" or instruments. Expressive goals are aimed at enriching the being of the person or group involved. They view the person as an end in itself rather than as a tool.

A. Output Goals

Instrumental Goals are:

1. to increase the child's capacity to find, evaluate, digest and use information over his capacity to memorize specific bodies of information;
2. to prepare the child for a wide range of career pursuits and life styles over a full preparation for any one career or life style.

Expressive Goals are to develop the child's capacity to lead a full and just life—open to new ideas, to asethetic considerations, to others, and to himself.

B. Process Goals

1. Quality of Education: Advancing toward any one goal should be made without sacrifice of the quality of service to the others; on the contrary, the quality of all services to all goals should be increased.
2. Equality of Opportunity: All members of the society (or relevant age group) should have equal opportunity to be served.
3. Economy: Costs of the system should grow less rapidly; the expense should level off, or better yet, be reduced.
4. Disalienation, Involvement and Legitimation: The services to be provided, their quality, distribution, expense and mode of improvement should be such that they (a) provide sufficient motivation to the participants (children, teachers) to carry out their mission effectively, rather than in a disaffected, unmotivated, hostile manner; (b) allow citizens, both as parents and voters, to view the educational system as legitimate rather than elitist, prejudiced, arbitrary, bureaucratic, or authoritarian.

C. On the Relationships Between Goals and Programs

It is neither possible nor desirable to have one program per goal, aimed at achieving just one goal. All goals are affected by all programs and all programs have multi-goal effects. Thus there are inevitably interactive effects among all missions and services in the educational realm. However, for any one program suggested, the main one or two goals to be served can be identified, as can the side effects on others.

II. Decision-Making Criteria For The Formulation of The Suggested Programs

A. Each suggested program should make a significant contribution to one or more of the educational

goals listed above.

B. Programs should have a "spread," so that if one serves mainly one goal, the other programs should not focus on the same goal; in this way, a wide variety of goals, needs, and hence legitimate interests will be served by NIE's total effort.

C. From among the programs which are feasible and relevant to the stated goals, those to be chosen should deal with the more "movable" variables, at lower costs per unit.

D. The programs should also help reduce barriers to goal realization. Thus, a project may be designed to reduce alienation (one of the process goals) and increase our knowledge of the educational system; a program could build up quality and deepen the consensus in support of the effort.

E. Programs should assume that American education is a comprehensive system; that while schools are and will continue to be in the foreseeable future the main institutional outlet, they are not the only one. That is, it is assumed that schools are not to be replaced, but that they need to be augmented by other educational opportunities and that all educational resources ought to be coordinated.

F. Programs suggested are, for the most part, not basic research programs; they are all generated to advance our educational goals directly through policy research, applied research, technological development, demonstration projects, field experiments, etc. A few of the programs require some basic research which should be supported, but only to the extent that it is geared to the needs of the programs. Some funds should be set aside for basic educational research, especially if N. S. F. will not cover this category. Thorough screening procedures should be set up if such a basic research branch is to be established. A Training Program for the educational basic researchers may be considered in collaboration with one or more universities.

G. NIE will do well to focus on educational missions and, as much as possible, leave other relevant missions to other agencies, although NIE might offer ideas and guidance. Thus, basic research may essentially be left to N. S. F., food for needy children may best be provided by the Department of Agriculture or other branches of HEW, and medical services for pupils by various health services and agencies, etc. Even the appropriate R&D may better be delegated elsewhere, at least in the near future. NIE will have its hands full with intrinsic educational missions.

H. Since the NIE disposable budget (i.e., free to commit) may well be much lower in FY/1973 and 1974 than its total budget, NIE should focus on a small number of significant projects rather than support a large number of projects with small amounts of money allocated to each.

III. A Tentative Map of Preferred Programs

A. Focus on Output Goals

The knowledge of how to realize output goals could be increased and made available to parents, educators, and researchers. NIE could approach this problem through an intermediate, take-stock phase, Operation Codify, BluePrint. A task force should be set up and staffed by people skilled in systems analysis and in codifying findings to: (1) determine all main approaches to alleviate the systems difficulties suggested by educational researchers; (2) collect data available on the effectiveness, costs, and prerequisites for different aspects of the educational system from already existing educational research (including evaluative studies) and from data collected for other purposes; (3) compare the relative merits of programs and research strategies operating under different conditions and serving different kinds of pupils, teachers, goals, etc.; (4) determine where the gaps are in current research; (5) and, on the basis of the previous steps, discover how these gaps may best be studied.

B. Correcting the Balance Among Output Goals: Expressive Programs

Expressive tests and expressive educational indicators could be developed. The tests could be used to assess expressive and context-building achievements. For example, Professor Torston Husen of Sweden developed a "humanistic" test which asks pupils (of different nations and cultures) to interpret a short story by Kafka in order to assess comprehension of the story, sensitivity and sensibility, and other expressive qualities. In addition, indicators could be developed which would assess expressive achievement. The general development of educational indicators is making significant progress. Continued development of these is needed if our knowledge of the educational system is to be improved; this is, of course, a prerequisite to the achievement of all educational goals. However, if a corrective in the direction of expressive goals is to be achieved, special effort will have to be invested in developing indicators which assess expressive achievement rather than those which measure quantities of pupils, buildings or funds.

C. Programs to Disalienate, Involve, and Motivate (Focus on Educators and Parents)

The school structure could be significantly changed through a transformation of the concepts, patterns, and structures of authority on all levels. Project Authority: New Styles assumes that new patterns of authority should by identified which would be more responsive to the evolving nation and its citizens than are the present ones. This would hold both for the teacher's role and for the school system's. The new style of authority will have to be more flexible and individualized. It will have to provide more options than before and be more willing to modify these options and adjust them to individual differences in need and taste.

D. Programs to Disalienate, Involve, and Motivate (Focus on Students)

Educational opportunities which entail a participatory learning-by-doing project could be evaluated and further developed. Students need opportunities for idealism, reality-testing, and integration.

1. We could evaluate and develop opportunities for children to be of service to each other and to their communities. For example, one alternative is to encourage the use of peer tutoring. Peer tutoring, if it is to be relevant to this program, would be on non-academic subjects as well as on subjects taught in school. The use of "mini-courses," for the purpose of allowing children to be of service to others while learning more about themselves and the world in which they live, should be explored; past attempts should be evaluated. Students could be of more direct service to their communities in a number of ways, which would, of course, vary from community to community. By participating in these efforts, students gain a more realistic notion of the limits of societal change; they would be in reality-testing situations, participating in real projects rather than in projects set up by schools to teach children. The students would clearly be of service to their communities at the same time.
2. We could evaluate and develop opportunities for children to be introduced to alternative life-styles by engaging in projects on cross-class, cross- race, and cross-ethnic bases. Cross-school projects, carried out in conjunction with other educational institutions and places not usually considered educational institutions (from work place to mass media), would go a long way in providing cross-class and cross-race encounters. These projects could be concerted (i.e., guided but not controlled) by students, teachers, volunteers, or by centers set up for such purposes. The development of such centers is suggested in Program E (below). If such efforts were coordinated on an inter-school basis, students would have the opportunity to meet with other children from diverse backgrounds on "neutral" territory.

E. Coordinating, Mobilizing, and Redistributing Resources

Educational Concertation Centers could be developed which would serve as clearinghouses, places of reference, as a means of coordinating efforts for the initiation and administration of cross-school and school-community projects. Each center may have initially no more than one or two educational leaders and a small auxiliary staff. They would: initiate meetings of representatives of educational institutions in their territory (city, town, rural region) who otherwise never meet; explore complementary needs; set up joint projects; develop new educational resources; provide referrals of pupils and parents to various educational facilities, etc. The Educational Concertation Centers are not to replace experiments of parental or community participation in the guidance of each single school, but they will provide access to a city, town, or region-wide facility and coordinating source. Finally, the Educational Concertation Centers would also be a natural pipeline to carry new programs, ideas, materials, etc., from NIE to the localities, and vice versa.

F. Programs to Economize

Technological Shortcuts could be developed and experimented with. I suggest, fully aware of the disbelief this statement will encounter, that it is possible to automate between 30% and 40% of all teaching work in secondary schools and a smaller but still very significant part of the work done in primary schools. To do so will lead to a gain in the quality and humanity of service and without great financial outlays. Moreover, the program suggested takes into account the sources of resistance heretofore encountered.

G. Programs to Enhance Legitimation

Operation Dialogue is a direct bridge between NIE, the fifty states, thousands of school systems, and other key educational institutions in order to involve them in NIE work, gain their support, and benefit from their suggestions. NIE could approach this alternative in several ways.

1. Formal structures may not be completely without

merit, although they should not be relied on to carry out this mission entirely. Thus, an NIE advisory board composed of representatives of each state and of select local educational systems might be one tool.

2. A more active dialogue could be provided through regular regional conferences for educational administrators to be carried out regularly by a special division of NIE. The function of these conferences would be similar to those of the advisory board.
3. Even more effective would be the development of a continuous training center for local administrators at NIE or in regional centers, where new practices would be discussed and explained. The centers ought to be used not just to "spill the goods," but to communicate upwards the needs of the local educational systems.
4. Other means should be formulated—in consultation with local authorities—to provide the most effective two-way link possible between NIE and the key decision points of the American educational system, which are not in Washington.

Table 1 summarizes the goals to be served, a rough estimate of costs, the nature of manpower, and the nature of NIE guidance for these preferred programs.

SUMMARY TABLE

PROGRAM	PREFERRED PROJECT	MAIN GOAL TO BE SERVED	ROUGH ESTIMATE OF COSTS* FY 1973	FY1974	NATURE OF MANPOWER	NATURE OF N.I.E. GUIDANCE
A. Focus on Output Goals	Operation Codify, Blueprint	Instrumental & Expressive	$3/4	$1.5	Systems Analysts	Close Supervision
B. Correcting the Balance Among Output Goals: Expressive Programs	Development of Expressive Tests	Expressive	$4-5	$4-5	Educators, Test Developers	Fully Specified Contracts
C. Programs to Disalienate, Involve and Motivate (Focus on Educators and Parents)	Project Authority: New Styles	Disalienation/ Involvement	$1.5-1	$1.5-1	R&D Experts	Close Supervision
D. Programs to Disalienate, Involve and Motivate (Focus on Students)	Opportunities for Idealism, Reality-Testing, and Integration	Disalienation/ Involvement	$6-9	$6-9	Educators, Youth Leaders	Collaboration with other "units"
E. Coordinating, Mobilizing, and Redistributing Resources	Educational Concertation Centers	Disalienation/ Involvement; Output Goals	?	?	Educators	Limited once Program Set Up
F. Programs to Economize	Technological Shortcuts	Economy; Quality of Service	$3-5	$3-5	R&D Experts, Engineers Systems Analysts	Contracts Called For
G. Programs to Enhance Legitimation	Operation Dialogue	Legitimacy; Economy	?	?	Uncertain	N.I.E. Staff & Local Educators Should be in Charge

* In Millions

APPENDIX E

Contributors to 1971-1972 NIE Program Planning Reports

Four NIE Planning Efforts

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